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Introduction

Commission Directive 2001/99/EC included glyphosate as an active substance in Annex I to Council Directive 91/414/EEC. Following a peer review organised by the European Commission, glyphosate was included in Annex I of Council Directive 91/414/EEC with Commission Directive 2001/99/EC, entering into force on 01st July 2002. According to Regulation (EU) No 540/2011, glyphosate was deemed for approval under Regulation (EC) No 1107/2009 as well.

In agreement with Article 4 of Regulation (EC) No 1141/2010 Monsanto Europe S.A./N.V. (now Bayer Agriculture BV) on behalf of the then European Glyphosate Task Force submitted an application to Germany as RMS and Slovakia as Co-RMS notifying the intention to renew the existing approval of glyphosate on 24th March 2011 during the AIR 2 process. A collective supplementary dossier from the Glyphosate Task Force comprising 24 applicants was submitted on 25th May 2012.

On 12th November 2015, the European Food Safety Authority (EFSA) published its conclusions on the peer review of the pesticide risk assessment of the active substance glyphosate in the framework of the renewal of the approval under Commission Regulation (EU) No 1141/2010 (EFSA Journal 2015;13(11):4302)¹.

EFSA was requested by the European Commission (EC) to consider available information on the potential endocrine activity of the pesticide active substance glyphosate in accordance with Article 31 of Regulation (EC) No 178/2002. The assessment concluded that the weight of evidence indicates glyphosate does not possess endocrine disrupting properties via oestrogen, androgen, thyroid or steroidogenesis modes of action based on a comprehensive database available in the toxicology area.

On 17th March 2016, the rapporteur Member State, Germany, submitted a dossier to the European Chemical Agency for harmonised classification and abelling of the substance glyphosate. The proposal document was prepared in accordance with Article 37 of Regulation (EC) No 1272/2008 of the European Parliament and of the Council. 8

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The Committee for Risk Assessment (RAC) assessed the hazards presented by glyphosate against the criteria in the Classification, Labelling and Packaging Regulation². The RAC concluded that the available scientific evidence did not meet the criteria in the CLP Regulation and that glyphosate would not be classified as possessing STOT (specific target organ toxicity), carcinogenicity, mutagenicity or reproductive toxicity. of light

The AIR 2 process at EU level, concluded that it has been established with respect to one or more representative uses of at least one plant protection product containing the active substance glyphosate that the approval criteria provided for in Article 4 of Regulation (EC) No 1107/2009 are satisfied. Thus, the approval criteria of demonstrating a safe use were deemed to be satisfied. It was therefore appropriate to renew the active substance glyphosate³. Glyphosate was renewed (date of approval) on 16th December 2017 with the expiration of approval set up for 15^{th} December 2022.

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⁻tol -tol -tol -tol ¹ Conclusion on the peer review of the pesticide risk assessment of the active substance glyphosate in the framework of the renewal of the approval under Commission Regulation (EU) No 1141/2010; EFSA Journal 2015;13(11):4302, 107 pp; doi:10.2903/j.efsa.2015.4302.

RAC Opinion proposing harmonised classification and labelling at EU level of glyphosate (ISO); N (phosphono-methyl)glycine. CLH-O-0000001412-86-149/F. Adopted 15 Mar 2017.

³ COMMISSION IMPLEMENTING REGULATION (EU) 2017/2324.

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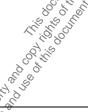
Bayer Agriculture BV⁴ submits the dossier on behalf of the Glyphosate Renewal Group (GRG) for the AIR 5 process.

In the frame of the pre-submission meeting held between the GRG and the Assessment Group on Glyphosate (AGG) on 27th September 2019, the AGG provided a reference document to GRG on the process to be considered when summarizing studies from past submissions in the June 2020 renewal ×. `` dossier⁵.

In 1995, glyphosate active substance dossiers were submitted by both task force and individual companies comprising a total of 19 applicants. The majority of applicants of the 1995 submissions did not join the 2012 Glyphosate Task Force (GTF) nor the GRG submitting the AIR 5 dossier in 2020. The GRG was not able to get access to a total of 46 study reports from three companies that were part of the submissions in 1995 (for details please refer to the Document B, Doc ID: 110054-B-GRG Rev 1 Al 2020), because some of the companies involved in the submissions in 1995 have subsequently been acquired by/merged with other companies or have since exited the market. Therefore, the GRG contacted Germany as the former RMS for glyphosate to discuss options available in order for AGG to get access to all said 46 study reports. A list of all these studies was sent to BVL (letter from 03rd March 2020). BVL replied to this request on 24th March 2020, advising the AGG to send a "request for administrative assistance (Art. 39 of Regulation (EC) No. 1107/2009)" to the BVL. Then, BVL will forward the respective studies directly to the AGG. In the present AIR 5 Dossier, information on those inaccessible studies has been summarised based on the 2000 monograph documents⁶ and are identified (as Category 4a and 4b) in the present AIR 5 dossier⁷. In these cases, GRG was unable to provide updated Appendix E summaries due to lack of access to these 20^{CC} 20 studies. S Jol .

A number of new regulatory studies, generated after the previous EU renewal process and/or not previously submitted at EU level, are presented as part of the data package of this AIR 5 dossier. To date, those new studies have not been peer-reviewed at EU level (please refer to the Application document Rev 3 Dated July 2020 – Document F, Doc ID: 110054-F-GRG Rev 1 Jul 2020).

A literature search for the active substance glyphosate and metabolites was performed in accordance with the provisions of the EFSA Guidance "Submission of scientific peer-reviewed open literature for the approval of pesticide active substances under Regulation (EC) 1107/2009" and according to the updated Appendix to this Guidance document, These cientific literature review was performed for the period of 01st January 2010 until 31st December 2012 please refer to M-CA Section Ecotoxicology (Doc ID: 110054-MCA8 GRG Rev 1 Jul 2020). The identified relevant and reliable articles are presented as appendix E summaries in the M-CA Section Ecotoxicology. For further detailed information on the Literature Review Report (LRR) and the corresponding evaluation, please refer to M-CA Section 9 "Literature". In the frame of the pre-submission meeting held on 27th September 2019, the AGG provided a reference document to GRG on the process to be considered when presenting literature in the June 2020 submission dossier⁹.



⁴ Due to the Bayee Monsanto acquisition in 2018, the legal entity name Monsanto Europe S.A. / N.V. has been changed to Bayer Agriculture BV

⁶ Monograph and Addendum to the monograph EU 2001: Glyphosate monograph

⁵ AGG Advice to GTF2 Literature search Final Oct 2019 "HOW TO SUMMARISE STUDIES IN DOSSIERS FROM 1998 AND 2012 IN THE DOSSIER TO BE SUBMITTED JUNE 2020"

⁷ In the AIR 5 dossier, in each M document, a category has been assigned to each regulatory study included in the AIR 5 dossier

AGG_Advice to GTF2_Literature search_Final Oct 2019 "ADVICE TO GTF2: HOW TO PRESENT THE LITERATURE SEARCH IN THE DOSSIER TO BE SUBMITTED JUNE 2020"

During the former EU processes, public literature data was evaluated, listed and reported by the RMS. An appendix, containing information about all previously submitted and/or included public literature articles from the former EU process is presented, for sake of completeness, as Annex to the M-CA Section 8 at the end of this document.

The representative formulation MON 52276, is a soluble concentrate (SL) herbicide containing 360 g/L glyphosate as isopropylamine salt. The content of glyphosate in the GAP (Table 10-1) is expressed as glyphosate acid, which corresponds to MON 52276 at 360 g/L.

Ecotoxicological studies have been conducted with the active substance glyphosate, glyphosate acid, glyphosate salts and its metabolites and are detailed in the document M-CA Section & Where applicable, ecotoxicological studies have been conducted with the representative formulation MON 52276 to compare the toxicity of the active substance with that of MON 52276. j)

Studies with the active substance that are relevant to the risk assessment are presented in tabular form at the beginning of each section, alongside the studies conducted with MON \$2276. Full summaries for MON 52276 studies are provided for each organism groups. Irrespective of the test item, all presented endpoints for MON 52276 and glyphosate are given in glyphosate acid equivalents (i.e. recalculated to acid ц. С. equivalents). Risk assessments according to current and relevant guidance documents have been conducted for each equivalents).

organism group according to the proposed uses of MON 52276 to control broadleaf weeds in field crops, orchards, vineyards, railroad tracks and for the control of invasive species in agricultural and non-agricultural areas. A risk assessment strategy is presented at the beginning of each section to demonstrate how the proposed uses of MON 52276 are addressed for each organism group.

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A the state of the adio contration of the service of th Full details of the proposed uses are provided in the table below.

Table 10-1 : MON 52276 (360 g/L glyphosate)

Annex to) Regulati	on 284/201	3				MON 52276				19 21 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	18 Malling	M-CP, Section 10 Page 8 of 553
PPP (e 10-1 (produce substa	t name/c	code) MON 5	2276	76 (360 g/L gly		<i>.</i>	Formulatio	n type:		No.		
safene syner; Applie	er gist		- - - GRG		as isopi opyranni		L	Formulatio Conc. of as Conc. of sa Conc. of sy professiona non-profess	fener:		600 g/ L 15	<u></u>	lammonium salt)
Zone((s):		central,	sou	thern and north	iern		-					
Verifi	ied by N	MS: 2	y/n 3	4	5	6	7	8 5 4		11	12	13	14
Use-		² Member	Crop and/	4 F	Pests or Group	0 Application	/		Application		12	PHI	Remarks:
No.		state(s)	or situation (crop destination / purpose of crop)	G or I	of pests controlled (additionally: developmental stages of the pest or pest group)	Method / Kind	Timing / Growth stage of crop & season	Max number (min. interval between applications) a) per use b) per crop/ season	kg, L product/ha a) max. rate per appl. b) max. total rate per crop/season	g, kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max	(days)	e.g. safener/synergist per ha e.g. recommended or mandatory tank mixtures
	PRE		PRE-PLANTING	Б			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	\1			100	21/4	
1a		EU	Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables, Sugar beet	F	Emerged annual weeds, emerged perennial and biennial weeds BBCH > 13	Tractor mounted broadcast sprax	Pre-planting, Pre-planting, Pre-emergence of the crop	a) 1 b) 1	a) 4 L/ha b) 4 L/ha	a) 1.44 kg as/ha b) 1.44 kg as/ha	100 - 400	N/A	Also applicable to renovation / change of land use applications. Application to 100 % of the field. Use 75 % drift reducing nozzles. Maximum application rate of 1.44 kg as/ha glyphosate in any 12 months period.
Glyphosa	ate Renew	val Group A	AIR 5 – July 2020	10, (d)							Doc ID: 1	10054-M	CP10_GRG_Rev 1_Jul_2020

Table 10-1 : MON 52276 (360 g/L glyphosate)

Annex t	o Regulat	ion 284/201	3				MON 52276				19 81 81 81 81 81 81 81 81 81 81 81 81 81	100 MIG	S [°] M-CP, Section 10 Page 9 of 553
Tabl	le 10-1	:	MON 5	5227	76 (360 g/L gly	phosate)					, O		
activ safen	e subst	ct name/c ance 1			5 as isopropylamı	nonium sal	t	Formulatio Conc. of as Conc. of sa Conc. of sy professiona non-profess	n type: 1: fener:	్లి SL ర్ స్పర్తి 360 g/L (4 స్పర్తి ప్రత్యేద్ది	486 g/L is	opropy	lammonium salt)
syner Appl Zone	icant:		- GRG central,	sou	thern and north	nern		-	l use 50 5 sional use				
Verif	fied by	MS:	y/n		1	1	1			1		1	
1		2	3	4	5	6	7	8		11	12	13	14
Use- No.		Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F G or I	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	Application Method / Kind	Timing / Growth stage of crop & season	Max. number (min. interval between applications)	Application kg, L product/ha a) max. rate per appl. b) max. total rate per crop/season	g, kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max	PHI (days)	Remarks: e.g. safener/synergist per ha e.g. recommended or mandatory tank mixtures
1b		EU	Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables, Sugar beet	F	Emerged annual weeds, emerged perennial and biennial weeds (BBCH 13 – 21)	Tractor mounted broadcast spray	Pre-sowing, Droplanting, Pre-smergence of the crop	a) 1 b) 1	a) 3 L/ha b) 3 L/ha	a) 1.08 kg as/ha b) 1.08 kg as/ha	100 - 400	N/A	Also applicable to renovation / change of land use applications. Application to 100 % of the field. Use 75 % drift reducing nozzles. Maximum application rate of 1.08 kg as/ha glyphosate in any 12 months period.
Glyphos	sate Rene	wal Group A	Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables, Sugar beet	(10), (13) (10), (0),	910, 289 910, 280 910, 280 910, 290 115, 101, 50 115, 100, 50 115,	SU,					Doc ID: 1	10054-M	CP10_GRG_Rev 1_Jul_2020

Table 10-1 : MON 52276 (360 g/L glyphosate)

Annex t	o Regulat	ion 284/201	3				MON 52276				19 81 81 81 81 81 81 81 81 81 81 81 81 81	15 OUDIS	S M-CP, Section 10 Page 10 of 553
Tabl	le 10-1	:	MON 5	5227	76 (360 g/L gly	phosate)					, O		
	e subst	ct name/c ance 1			ā as isopropylamı	monium sal	t	Formulatio Conc. of as Conc. of sa Conc. of sy professiona non-profes	n type: 1: fener:	لا الم م الم 360 g/L (4 م الم 10 م م 10 م م م 10 م م 10 م م 10 م م م 10 م م م 10 م م م 10 م م م 10 م م م م م 10 م م م م م م م م م م م م م م م م م م م	486 g/L is	opropy	lammonium salt)
syne	rgist icant:		- GRG					Conc. of sy	nergist;	~~~ ~~			
Zone				sou	thern and north	nern		-	sionalarse				
	fied by		y/n	4	-		-	8	5 5 6 C	11	12	12	14
1 Use-		2 Member	3 Crop and/	4 F	5 Pests or Group	6 Application	7	0.0	Application	11 rate	12	13 PHI	14 Remarks:
No.		state(s)	or situation (crop destination / purpose of crop)	G or I	of pests controlled (additionally: developmental stages of the pest or pest group)	Method / Kind	Timing / Growth stage of crop & season	Max. number (min. interval between applications)	kg, L product/ha a) max. rate per appl. b) max. total rate per crop/season	g, kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max	(days)	e.g. safener/synergist per ha e.g. recommended or mandatory tank mixtures
1c		EU	Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables, Sugar beet	F	Emerged annual weeds	Tractor mounted broadcast spray H G G G G G G G G G G G G G G G G G G	Pre-sowing, Droplanting, Pre-smergence of the crop	a) l b) l	a) 2 L/ha b) 2 L/ha	a) 0.72 kg as/ha b) 0.72 kg as/ha	100 – 400	N/A	Also applicable to renovation / change of land use applications. Application to 100 % of the field. Use 75 % drift reducing nozzles. Maximum application rate of 0.72 kg as/ha glyphosate in any 12 months period.
Glyphos	sate Rene	wal Group A	Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables, Sugar beet	(10) (13) (10) (13)	10, 20, 20, 11, 20, 20, 11, 20, 20, 11, 20, 20, 11, 20, 20, 11, 20, 20, 11, 20, 20, 11, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20						Doc ID: 1	10054-M	CP10_GRG_Rev 1_Jul_2020

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Table 10-1 : MON 52276 (360 g/L glyphosate)

					s isopropylamn	nonium salt	t	Formulatio Conc. of as Conc. of sa Conc. of sy professiona non-profess	n type: 1: fener: ⁽²⁾ nergist; ⁽²⁾	4 SL 0 5 5 5 5 5 5 5	86 g/L is	opropyl	ammonium salt)
Applic Zone(s			GRG central,	sout	thern and north	ern		professiona non-profess	l use S S sionalarse				
Verifie	ed by MS:	:	y/n					i i					
1	2		3	4	5	6	7	8 5	10	11	12	13	14
Use- No. Member state(s) Crop and/ or situation or situation (crop destination / purpose of crop) I (additionally: developmental stages of the pest or pest group) POST-HARVEST, PRE-SOWING, PRE-PLANTING					Timing / Growth stage of crop & season	Max. number (min. interval between applications)	Application kg, L product/ha a) max. rate per appl. b) max. total rate per crop/season	rate g, kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max	PHI (days)	Remarks: e.g. safener/synergist per ha e.g. recommended or mandatory tank mixtures		
	POST-HA	ARVES	, , ,				0 4 0 0 C			1			
2a	EU		Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables, Sugar beet	F	Emerged annual, perennial and biennial weeds	Tractor broadcest.	Post-harvest, pre-planting	a) 1 – 2 (28 days) b) 1 – 2 (28 days)	a) 3 – 4 L/ha b) 6 L/ha	a) 1.08 – 1.44 kg as/ha b) 2.16 kg as/ha	100 – 400	N/A	Application to existing row cropland after harvest for removal of remaining crop / stubble and for control of actively growing weeds and mature annual weeds with hardened-off surface Application to 100 % of the field. Use 75 % drift reducing nozzles. Maximum application rate of 2.16 kg as/ha glyphosate in any 12 months period.
ilyphosat	te Renewal G	Group AI	R 5 – July 2020	40/40/							Doc ID: 1	10054-MG	CP10_GRG_Rev 1_Jul_2020

Table 10-1 : MON 52276 (360 g/L glyphosate)

Annex to	o Regulat	ion 284/201	3				MON 52276				A CLONE CONFUL CONFUL CONFUL	Ito Utiliano	S [°] M-CP, Section 10 Page 12 of 553
PPP	le 10-1 (produce substa	ct name/c	code) MON 52	2276	'6 (360 g/L gly 5 as isopropylamı		t	Formulatio Conc. of as	n type: 1:	1. C	e l		lammonium salt)
safen syner Appl Zone	rgist icant:		- - GRG central,	sou	thern and north	iern		Conc. of sa Conc. of sy professiona non-profes	l use S S S sional use	∑			
Verif	fied by 1	MS:	y/n					10	S & C				
1		2	3	4	5	6	7	8 5.1	10	11	12	13	14
Use- No.		Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F G or I	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	Application Method / Kind	Timing / Growth stage of crop & season	Max. oumber (nin. interval between applications)	Application kg, L product/ha a) max. rate per appl. b) max. total rate per crop/season	rate g, kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max	PHI (days)	Remarks: e.g. safener/synergist per ha e.g. recommended or mandatory tank mixtures
2b		EU	Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables, Sugar beet	F	Emerged annual, perennial and biennial weeds	Tractor mounted broadcast O spray O G G G G G G G G G G G G G G G G G G G	Post harvest, pre-sowing, are-planting	a) 1 - 3 (28 days) b) 1 - 3 (28 days)	a) 2 – 3 L/ha b) 6 L/ha	a) 0.72 – 1.08 kg as/ha b) 2.16 kg as/ha	100 - 400	N/A	Application to existing row cropland after harvest for removal of remaining crop / stubble and for control of actively growing weeds. Application to 100 % of the field. Use 75 % drift reducing nozzles. Maximum application rate of 2.16 kg as/ha glyphosate in any 12 months period.
Glyphos	sate Renev	wal Group A	AIR 5 – July 2020	(10) (10) (10) (10)							Doc ID: 1	10054-M6	CP10_GRG_Rev 1_Jul_2020

Table 10-1 : MON 52276 (360 g/L glyphosate)

Annex t	o Regulat	ion 284/201	3				MON 52276				19 20 20 20 20 20 20 20 20 20 20 20 20 20	15 Dublis	M-CP, Section 10 Page 13 of 553
Tab	le 10-1	:	MON 5	5227	/6 (360 g/L gly	phosate)				1. C	e i		
activ safer	e subst	ct name/c ance 1			as isopropylamı	nonium sal	t	Formulatio Conc. of as Conc. of sa Conc. of sy professiona non-profess	n type: 1: fener:	4, SL 5 360 g/L (4 5, 5 360 g/L (4	186 g/L is	opropy	lammonium salt)
syne Appl Zone	licant:		- GRG central,	sou	thern and north	nern		_	l use S S S sional use				
Veri	fied by	MS:	y/n		1			jii		1	1	1	
1		2	3	4	5	6	7	8	0	11	12	13	14
Use- No.		Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F G or I	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	Application Method / Kind	Timing / Growth stage of crop & season	Max. ounder (nin. interval between applications)	Application	rate g, kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max	PHI (days)	Remarks: e.g. safener/synergist per ha e.g. recommended or mandatory tank mixtures
2c		EU	Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables, Sugar beet	F	8.8.8	Tractor mounted broadcast spray	Post-harvest, bre-sowing,	a) 1 – 3 (28 days) b) 1 – 3 (28 days)	a) 2 L/ha b) 6 L/ha	a) 0.72 kg as/ha b) 2.16 kg as/ha	100 - 400	N/A	Application to existing row cropland after harvest for removal of remaining crop / stubble and for control of actively growing annual weeds Application to 100 % of the field. Use 75 % drift reducing nozzles. Maximum application rate of 2.16 kg as/ha glyphosate in any 12 months period.
Glyphos	sate Rene	wal Group A	IR 5 – July 2020 John Stranger	40, (12)	1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,						Doc ID: 1	10054-M	CP10_GRG_Rev 1_Jul_2020

Annex to Re	gulation 284/201	3				MON 52276				1990 1990 1990 1990 1990 1990	Ito Dulli Manual Colling Manual Colling	M-CP, Section 10 Page 14 of 553
Table 1	0-1 :	MON 5	5227	/6 (360 g/L gly	phosate)				\$ C	e l		
	oduct name/o ibstance 1			as isopropylamı	nonium sal	t	Formulatio Conc. of as	n type: 1:	<u>لا المجامعة (4</u> المجامعة (4 المجامعة (4 المجامعة (4)	486 g/L is	opropy	lammonium salt)
safener synergis	t	-					Conc. of sa Conc. of sy	fener: 🔗				
Applica Zone(s):		GRG central,	sou	thern and north	iern		professiona non-profess	l use S				
Verified	by MS:	y/n					iii iii	S S C				
1	2	3	4	5	6	7	8 5	10	11	12	13	14
Use-	Member state(s)	Crop and/ or situation	F G	Pests or Group of pests	Application		and a start of the	Application	rate		PHI (days)	Remarks:
		(crop destination / purpose of crop)	or	(additionally: developmental stages of the pest or pest group)	Method / Kind	season of the se	Max number (min. interval between applications) a) per use b) per crop/ season	kg, L product/ha a) max. rate per appl. b) max. total rate per crop/season	g, kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max		e.g. safener/synergist per ha e.g. recommended or mandatory tank mixtures
3a	EU	Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables, Sugar beet	F	Cereal volunteers	Tractor mounted broadcast spray	Post-harvest, pre-planting Post-harvest.	a) 1 b) 1	a) 1.5 L/ha b) 1.5 L/ha	a) 0.54 kg as/ha b) 0.54 kg as/ha	100 – 400	N/A	Application to existing row cropland after harvest for removal of cereal volunteers. Maximum application rate of 0.54 kg as/ha glyphosate in any 12 months period.
3b	EU	Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables, Sugar beet	F	Cereal volunteers,	CTractor mounted broadcast spray	Post-harvest, pre-sowing, pre-planting	a) 1 b) 1	a) 1.5 L/ha b) 1.5 L/ha	a) 0.54 kg as/ha b) 0.54 kg as/ha	100 – 400	N/A	Application to existing row cropland after harvest for removal of cereal volunteers once every three years. Maximum application rate of 0.54 kg as/ha glyphosate in any 36 months period.
Glyphosate l	Renewal Group A	AIR 5 – July 2020	Ctollin Dr.	Cereal volunteers						Doc ID: 1	10054-M	CP10_GRG_Rev 1_Jul_2020

nnex to Reg	ulation 284/201	3				MON 52276			c.	1. Steen 1. Steen 1. Steen 1. Steen 1. Steen	× %	M-CP, Section 1 Page 15 of 55
Table 10)-1:	MON	5227	76 (360 g/L gly	phosate)					ۣ گ		
PPP (pro active sul	duct name/c ostance 1			ó as isopropylami	monium sal	t	Formulation Conc. of as Conc. of sa Conc. of sy professiona non-profes	n type: 1:	<u>لا الم</u> الم الم الم الم الم الم الم الم الم الم	86 g/L is	opropy	lammonium salt)
safener synergist		-					Conc. of sa Conc. of sy	fener: 🔗 nergist: 🎖 🛆				
Applican Zone(s):		GRG central,	sou	thern and north	hern		-	ll use States sionalcuse				
Verified	by MS:	y/n		1	1		2			1	1	1
1	2 	3	4	5 Basta an Creann	6	7	8	0	11	12	13	14
Use	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F G or I	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	Application Method / Kind	Timing / Growth stage of crop & season	Max. ounder (nin. interval between applications)	Application kg, L product/ha a) max. rate per appl. b) max. total rate per crop/season	rate g, kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max	PHI (days)	Remarks: e.g. safener/synergist per ha e.g. recommended or mandatory tank mixtures
F	POST-EMERG	ENCE OF WEEDS	1	1		2242 Di					1	1
4a	EU	Orchard crops (citrus, stone and pome fruits, kiwi, tree nuts, banana, and table olives)	F	Emerged annual, biennial and perennial weeds	Ground directed shielde spray application	Post Emergence of weeds	a) 1 – 2 (28 days) b) 1 – 2 (28 days)	a) 3 – 4 L/ha b) 8 L/ha	a) 1.08 – 1.44 kg as/ha b) 2.88 kg as/ha	100 - 400	7	Avoid crop contamination during treatment. Maximum application rate of 2.88 kg as/ha treated area glyphosate in any 12 months period. Band application in the rows below the trees or as spot treatments. The treated area represents not more than 50 % of the total orchard area. The application rate with reference to the total orchard surface area is not more than 50 % of the stated dose rate.
lyphosate R	enewal Group A	AIR 5 – July 2020	etologie Dr.	8						Doc ID: 1	10054-M	CP10_GRG_Rev 1_Jul_2020

Annex to Reg	gulation 284/201	3				MON 52276				1. Stern 1. Stern 1. Stern 1. Stern	in is in the second sec	M-CP, Section 10 Page 16 of 553
Table 1(0-1:	MON 5	5227	76 (360 g/L gly	phosate)				1. C	્ર્ય		
	oduct name/c bstance 1			as isopropylamı	monium sal	t	Formulatio Conc. of as Conc. of sa Conc. of sy professiona non-profess	n type: 1:	4 SL 6 3 60 g/L (4	86 g/L is	opropy	lammonium salt)
synergist	t	-					Conc. of sy	nergist;				
Applican Zone(s):		GRG central,	sou	thern and north	hern		professiona non-profess	l use S S				
Verified		y/n						S. S. L.				
1	2	3	4	5	6	7	8 65	10	11	12	13	14
Use- No.	Member state(s)	Crop and/ or situation (crop destination /	F G or I	Pests or Group of pests controlled	Application Method / Kind	Timing / Growth stage	Max. L' T	Application kg, L product/ha	g, kg as/ha	Water L/ha	PHI (days)	Remarks: e.g. safener/synergist per ha
		purpose of crop)		(additionally: developmental stages of the pest or pest group)		of crop & season	(min. interval between applications) a) per use b) per crop/ season	a) max. rate per appl. b) max. total rate per crop/season	a) max. rate per appl. b) max. total rate per crop/season	min / max		e.g. recommended or mandatory tank mixtures
4b	EU	Orchard crops (citrus, stone and pome fruits, kiwi, tree nuts, banana, and table olives)	F	Emerged annual, biennial and perennial weeds	Ground directed, shielded band application	Post-emergence Of weeds	a) 1 – 3 (28 days) b) 1 – 3 (28 days)	a) 2 – 3 L/ha b) 8 L/ha	a) 0.72 – 1.08 kg as/ha b) 2.88 kg as/ha	100 – 400	7	Avoid crop contamination during treatment. Maximum application rate of 2.88 kg as/ha treated area glyphosate in any 12 months period.
				Emerged annual, biennial and perennial weeds	10 - 10 10 - 10 10 10 - 10 10 10 - 10 10 10 10 10 10 10 10 10 10 10 10 10 1							Band application in the rows below the trees or as spot treatments. The treated area represents not more than 50 % of the total orchard area. The application rate with reference to the total orchard surface area is not more than 50 % of the stated dose rate.
Glyphosate R	Renewal Group A	IR 5 – July 2020	eto (4)	10 Cel 10 Cel 10 Cel						Doc ID: 1	10054-M	CP10_GRG_Rev 1_Jul_2020

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MON 52276

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Contraction of the second seco is in the second Poviole Internet Table 10-1 : MON 52276 (360 g/L glyphosate) Change and a state of the state SLO **PPP (product name/code) MON 52276** Formulation type: Carls Contract Contra glyphosate as isopropylammonium salt 360 g/L (486 g/L isopropylammonium salt) active substance 1 Conc. of as 1: 040 Conc. of safener: safener 6000 Conc. of synergist synergist non-professional use \boxtimes **Applicant:** GRG Zone(s): central, southern and northern 01 D ill'h 200 Verified by MS: y/n tò. 10 2 3 4 5 7 8 11 12 13 14 6 Nº Nº F PHI Use-Member Crop and/ Pests or Group Application Application rate **Remarks:** No. state(s) or situation G of pests (days) Method / Timing / kg, L g, kg as/ha Water controlled e.g. safener/synergist per ha or Kind Growth stage product/ha L/ha (crop destination / I of crop & (min. 🖉 a) max. rate per a) max. purpose of crop) (additionally: e.g. recommended or interval min / season rate per appl. developmental mandatory tank mixtures between appl. b) max. total rate max stages of the Lentornet in the state of th applications) b) max. per crop/season pest or pest a) per use total rate July 2020 group) b) per crop/ per season crop/season Post-emergence 4c EU a) 1 – 3 a) 2 L/ha a) 0.72 kg as/ha 100 -7 Avoid crop contamination (28 days) b) 6 L/ha b) 2.16 kg as/ha 400 during treatment. b) 1 – 3 (28 days) Maximum application rate of 2.16 kg as/ha treated area glyphosate in any 12 months period. Band application in the rows below the trees or as spot treatments. The treated area represents not more than 50 % of the total orchard area. The application rate with reference to the total orchard surface area is not more than 50 % of the stated dose rate.

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MON 52276

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Contraction of the second seco is in the second Poviole Internet Table 10-1 : MON 52276 (360 g/L glyphosate) على 360 g/L (486 g/L isopropylammonium salt) Change and a state of the state **PPP (product name/code) MON 52276** Formulation type: glyphosate as isopropylammonium salt active substance 1 Conc. of as 1: Conc. of safener: safener 6000 Conc. of synergist synergist non-professional use \boxtimes **Applicant:** GRG Zone(s): central, southern and northern 4 4 4 ill'h 000 Verified by MS: y/n tò. The second second 10 2 3 4 5 7 8 11 12 13 14 6 Nº Nº PHI Use-Member Crop and/ F Pests or Group Application Application rate **Remarks:** No. state(s) or situation G of pests (days) Method / Timing / kg, L g, kg as/ha Water controlled e.g. safener/synergist per ha or Kind Growth stage product/ha L/ha (crop destination / I of crop & (min. 🖉 a) max. a) max. rate per purpose of crop) (additionally: e.g. recommended or interval min / season rate per appl. developmental mandatory tank mixtures between appl. b) max. total rate max stages of the Lentornet the file applications) b) max. per crop/season pest or pest 5 - July 2020 orthological and a state of the series of th a) per use total rate group) b) per crop/ per season crop/season Post-emergence EU a) 1 – 2 a) 3 - 4a) 1.08 – 1.44 kg 100 -7 Avoid crop contamination (28 days) L/ha as/ha 400 during treatment. b) 1 – 2 b) 8 L/ha b) 2.88 kg as/ha (28 days) Maximum application rate of 2.88 kg as/ha treated area glyphosate in any 12 months period. Band application in the rows below the vine stock or as spot treatments. The treated area represents not more than 50 % of the total vineyard area. The application rate with reference to the total vineyard surface area is not more than 50 % of the stated dose rate.

Annex 1	to Regulat	ion 284/201	3				MON 52276				ne stand	16 OULS	M-CP, Section 10 Page 19 of 553
Tab	le 10-1	:	MON 5	227	76 (360 g/L gly	phosate)				J. C.	e'		
activ safer	ve substa ner	ct name/c ance 1			5 as isopropylamı	nonium sal	t	Formulatio Conc. of as Conc. of sa	n type: 1: fener:	لا الم	86 g/L is	opropy	lammonium salt)
syne: Appl Zone	licant:		- GRG central,	sou	thern and north	iern		Conc. of sy professiona non-profess	l use S S S sionalase				
Veri	fied by	MS:	y/n		1	1		8 6 1	5 6 C	I	1		
1		2	3	4	5	6	7	8 5	10	11	12	13	14
Use- No.		Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F G or I	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	Application Method / Kind	season of the season	Max. number (min. interval between applications))	Application kg, L product/ha a) max. rate per appl. b) max. total rate per crop/season	rate g, kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max	PHI (days)	Remarks: e.g. safener/synergist per ha e.g. recommended or mandatory tank mixtures
5b		EU	Vines (table and wine grape, leaves not intended for human consumption)	F	Emerged annual, biennial and perennial weeds	Ground directed, shielded application of the short	Post cmcgence	a) 1 – 3 (28 days) b) 1 – 3 (28 days)	a) 2 - 3 L/ha b) 8 L/ha	a) 0.72 – 1.08 kg as/ha b) 2.88 kg as/ha	100 – 400	7	Avoid crop contamination during treatment. Maximum application rate of 2.88 kg as/ha treated area glyphosate in any 12 months period. Band application in the rows below the vine stock or as spot treatments. The treated area represents not more than 50 % of the total vineyard area. The application rate with reference to the total vineyard surface area is not more than 50 % of the stated dose rate.
Glypho	sate Renev	wal Group A	JR 5 – July 2020	40, 101, 01,							Doc ID: 1	10054-M	CP10_GRG_Rev 1_Jul_2020

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Contraction of the second seco is in the second Poviole Internet Table 10-1 : MON 52276 (360 g/L glyphosate) Change and a state of the state SL? **PPP (product name/code) MON 52276** Formulation type: Carls Contract Contra 360 g/L (486 g/L isopropylammonium salt) active substance 1 Conc. of as 1: glyphosate as isopropylammonium salt 040 Conc. of safener: safener 6000 Conc. of synergist synergist non-professional use \boxtimes **Applicant:** GRG Zone(s): central, southern and northern 01 D ill's 000 Verified by MS: y/n tò. The second second 10 2 3 4 5 7 8 11 12 13 14 6 1 Nº Nº F PHI Use-Member Crop and/ Pests or Group Application Application rate **Remarks:** No. state(s) or situation G of pests (days) Method / Timing / kg, L g, kg as/ha Water controlled e.g. safener/synergist per ha or Kind Growth stage product/ha L/ha (crop destination / I of crop & (min. 🖉 a) max. a) max. rate per purpose of crop) (additionally: e.g. recommended or interval min / season rate per appl. developmental mandatory tank mixtures between appl. b) max. total rate max stages of the Lentornet the file applications) b) max. per crop/season pest or pest 5 - July 2020 orthological and a state of the series of th a) per use total rate group) b) per crop/ per season crop/season Post-emergence 5c EU a) 1 – 3 a) 2 L/ha a) 0.72 kg as/ha 100 -7 Avoid crop contamination (28 days) b) 6 L/ha b) 2.16 kg as/ha 400 during treatment. b) 1 – 3 (28 days) Maximum application rate of 2.16 kg as/ha treated area glyphosate in any 12 months period. Band application in the rows below the vine stock or as spot treatments. The treated area represents not more than 50% of the total vineyard area. The application rate with reference to the total vineyard surface area is not more than 50 % of the stated dose rate.

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Constant of the second second

13

PHI

(days)

14

Remarks:

e.g. safener/synergist per ha

mandatory tank mixtures

e.g. recommended or

Leone Contraction of the contrac Poville Inder Table 10-1 : MON 52276 (360 g/L glyphosate) Conc. of safener: **PPP (product name/code)** MON 52276 active substance 1 glyphosate as isopropylammonium salt safener synergist non-professional use GRG **Applicant:** Zone(s): central, southern and northern Qr Di ill'h 00 Verified by MS: y/n 000 NI I 10 2 3 4 5 6 7 8 11 12 1 - And ×° **♦**Application rate Use-F Member Crop and/ Pests or Group Application No. state(s) or situation G of pests Max. Method / Timing / kg, L g, kg as/ha Water controlled or Growth stage Kind product/ha L/ha (crop destination / Ι of crop & (min. 🖉 a) max. rate per a) max. purpose of crop) (additionally: interval season appl. min / rate per developmental E. between appl. b) max. total rate max stages of the ALL STRONG applications) b) max. per crop/season pest or pest der der a) per use total rate aroun) 6a

				group)			b) per crop/ season	per crop/season				
	EU	Vegetables (Root and tuber vegetables Bulb vegetables, Fruiting vegetables Legume vegetables Leafy vegetables)	F	Emerged annual, biennial and perennial weeds	Inter-row application; ground directed; shielded free for the formation spray of the formation of the format	CropBBCH < 2005 H	a) 1 b) 1	a) 3 L/ha b) 3 L/ha	a) 1.08 kg as/ha b) 1.08 kg as/ha	100 - 400	60	Avoid crop contamination during treatment. Maximum application rate of 1.08 kg as/ha glyphosate in any 12 months period. Applications are performed between the crop rows. The rate refers to the treated area only, which represents not more than 50 % of the total area. The application rate with reference to the total surface area is not more than 50 % of the stated dose rate
e Rene	val Group A	IR 5 – July 2020	40, 42, 0,50, 0,0							Doc ID: 1	10054-M0	CP10_GRG_Rev 1_Jul_2020

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MON 52276

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Contraction of the second seco A Contraction of the second se Poly North Contraction Table 10-1 : MON 52276 (360 g/L glyphosate) SLO **PPP (product name/code) MON 52276** Formulation type: Carls Contract Contra glyphosate as isopropylammonium salt 360 g/L (486 g/L isopropylammonium salt) active substance 1 Conc. of as 1: 000 Conc. of safener: safener 6000 Conc. of synergist synergist non-professional use \boxtimes **Applicant:** GRG Zone(s): central, southern and northern ili, 0, 0 107 2° Verified by MS: y/n -01-0 -01-0 All the 10 2 3 4 5 7 8 11 12 13 14 6 Nº Nº F PHI Use-Member Crop and/ Pests or Group Application Application rate **Remarks:** No. state(s) or situation G of pests (days) Method / Timing / kg, L g, kg as/ha Water controlled e.g. safener/synergist per ha or Kind Growth stage product/ha L/ha (crop destination / I of crop & (min. 🖉 a) max. rate per a) max. purpose of crop) (additionally: e.g. recommended or interval min / season rate per appl. developmental mandatory tank mixtures between appl. b) max. total rate max stages of the LICOUNDER STORES applications) tillet for the second b) max. per crop/season pest or pest A 5 – July 2020 por an interior and interior a) per use total rate group) b) per crop/ per season crop/season Crop(BBCH < a) 1 a) 2 L/ha a) 0.72 kg as/ha 100 -60 Avoid crop contamination b) 1 b) 2 L/ha b) 0.72 kg as/ha 400 during treatment. Maximum application rate 0.72 kg as/ha glyphosate in any 12 months period. Applications are performed between the crop rows. The rate refers to the treated area only, which represents not more than 50 % of the total area. The application rate with reference to the total surface area is not more than 50 % of the stated dose rate

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MON 52276

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Contraction of the second seco A CONTRACTOR Poly Molecular Table 10-1 : MON 52276 (360 g/L glyphosate) علیہ ہے۔ 360 g/L (486 g/L isopropylammonium salt) Charles and the second **PPP (product name/code) MON 52276** Formulation type: active substance 1 glyphosate as isopropylammonium salt Conc. of as 1: Conc. of safener: safener 1000 July Conc. of synergist synergist non-professional use \boxtimes **Applicant:** GRG Zone(s): central, southern and northern ill. 0, 0 10 los los Verified by MS: y/n -00 -00 -00 , th 10 2 3 4 5 7 8 11 12 13 14 6 Application rate PHI Use-Member Crop and/ F Pests or Group Application **Remarks:** No. state(s) or situation G of pests (days) Method / Timing / kg, L g, kg as/ha Water controlled e.g. safener/synergist per ha or Kind Growth stage product/ha L/ha (crop destination / Ι of crop & (min. 🖉 a) max. rate per a) max. purpose of crop) (additionally: e.g. recommended or interval appl. min / season rate per developmental mandatory tank mixtures between appl. b) max. total rate max stages of the Les Hours the file applications) b) max. per crop/season pest or pest a) per use total rate group) b) per crop/ per season crop/season Post-emergence 7a EU Railroad tracks F Emerged annual, Ground a) 2 (90 days) a) 5 L/ha a) 1.8 kg as/ha 100 -N/A Application by spray train of weeds biennial and directed, b) 2 (90 days) b) 10 L/ha b) 3.6 kg as/ha 400 hin of the second Will Clift perennial weeds Maximum application rate 3.6 spray 000 Mag kg as/ha glyphosate in any 12 months period. directed of EU Railroad tracks F Emerged annual, a) 5 L/ha a) 1.8 kg as/ha 100 -N/A 7b Post-emergence a) 1 Application by spray train biennial and of weeds b) 1 b) 5 L/ha b) 1.8 kg as/ha 400 perennial weeds Maximum application rate 1.8 Phi Orling & kg as/ha glyphosate in any 12 months period. Giant hogweed EU Invasive species in F Spot a) 1 a) 5 L/ha a) 1.8 kg as/ha 5 - 400N/A Maximum application rate 1.8 Post-emergence agricultural and (Heracleum 8 treatment of invasive b) 1 b) 5 L/ha b) 1.8 kg as/ha kg as/ha glyphosate in any 12 mantegazzianum) non-agricultural (shielded) months period. species areas G

And a service of the Glyphosate Renewal Group AIR 5 - July 2020

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Table 10-1 : MON 52276 (360 g/L glyphosate)

				as isopropylamn	nonium sal	t	Formulatio Conc. of as Conc. of sa Conc. of sy	n type: 1: fener: nergist: [©] A	⁴ SL 5 SL 5 SL 5 SL 5 SL 6 SL 	86 g/L is	opropy	ammonium salt)
Applie Zone(GRG central,	sou	thern and north	ern		professiona non-profess	il uses for s sionalarse				
Verifi	ed by MS:	y/n		1	1		ja ja	St St St	1		1	I
1	2	3	4	5	6	7	8	10	11	12	13	14
Use- No. —	Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F G or I	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	Application Method / Kind	Timing / Growth stage of crop & season	Max.	Application kg, L product/ha a) max. rate per appl. b) max. total rate per crop/season	rate g, kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max	PHI (days)	Remarks: e.g. safener/synergist per ha e.g. recommended or mandatory tank mixtures
9	EU	Invasive species in agricultural and non-agricultural areas	F	Japanese knotweed (<i>Reynoutria</i> <i>japonica</i>)	Spot treatment (shielded), cut stems spray application Spot treatment diagad)		a) 1 b) 1	a) 5 L/ha b) 5 L/ha	a) 1.8 kg as/ha b) 1.8 kg as/ha	5-400	N/A	Maximum application rate 1.8 kg as/ha glyphosate in any 12 months period.
10a	EU	Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables, Sugar beet	F	Couch grass (Elymus repens)	Spot C treatment (shielded)	Post-harvest, pre-sowing, pre-planting	a) 1 b) 1	a) 3 L/ha b) 3 L/ha	a) 1.08 kg as/ha b) 1.08 kg as/ha	100 – 400	N/A	Application to existing row cropland after harvest for removal of couch grass. Maximum application rate of 1.08 kg as/ha glyphosate in any 12 months period. The treated area represents not more than 20 % of the cropland
Jyphosa	te Renewal Group A	Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables, Sugar beet	40, 43/							Doc ID: 1	10054-M	CP10_GRG_Rev 1_Jul_2020

Table 10-1 : MON 52276 (360 g/L glyphosate)

Annex to	o Regulat	ion 284/201	3				MON 52276			2	1988 1916 1916 11	Its outling	S ⁻ M-CP, Section 10 Page 25 of 553
Tabl	e 10-1	:	MON 5	227	76 (360 g/L gly	phosate)				1. C	<u>ي</u> و		
active	e substa	ct name/c ance 1			ó as isopropylamı	nonium sal	t	Formulatio Conc. of as Conc. of sa Conc. of sy professiona non-profes	on type: 1:	4, SL 3, 5360 g/L (4	186 g/L is	opropy	lammonium salt)
safen syner			-					Conc. of sa Conc. of sy	fener: 🔗 nergist: 🌮 🔬				
Appli Zone			GRG central,	sou	thern and north	nern		-	il uses 50 5 sionalcuse				
Verif	ied by I	MS:	y/n					×	N. S. S.				
1		2	3	4	5	6	7	8	0	11	12	13	14
Use- No		Member state(s)	Crop and/ or situation (crop destination / purpose of crop)	F G or I	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	Application Method / Kind	Timing / Growth stage of crop & season	Max number (min. interval between applications) a) per use b) per crop/ season	Application kg, L product/ha a) max. rate per appl. b) max. total rate per crop/season	g, kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max	PHI (days)	Remarks: e.g. safener/synergist per ha e.g. recommended or mandatory tank mixtures
10b		EU	Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables, Sugar beet	F	Couch grass (Elymus repens)	Spot treatment (shielded) () () () () () () () () () (Post-harvest, pre-siowing, pre-planting	a) 1 b) 1	a) 2 L/ha b) 2 L/ha	a) 0.72 kg as/ha b) 0.72 kg as/ha	100 – 400	N/A	Application to existing row cropland after harvest for removal of couch grass. Maximum application rate of 0.72 kg as/ha glyphosate in any 12 months period. The treated area represents not more than 20 % of the cropland.
Glyphos	ate Renev	val Group A	AIR 5 – July 2020	40, 43, 01, 01,							Doc ID: 1	10054-M	CP10_GRG_Rev 1_Jul_2020

Table 10-1 : MON 52276 (360 g/L glyphosate)

Annex	to Regulat	ion 284/201	3				MON 52276				19 CLONE	Its Out of the second	M-CP, Section 10 Page 26 of 553
Tab	le 10-1	:	MON 5	5227	76 (360 g/L gly	phosate)				1. C	e le		
	(produ ve subst	ct name/c ance 1			ó as isopropylamr	nonium sal	t	Formulatio Conc. of as	on type: 1:	SL) 360 g/L (4	186 g/L is	opropy	ammonium salt)
safe syne	ner ergist		-					Formulatio Conc. of as Conc. of sa Conc. of sy professiona non-profes	fener:				
App Zon	licant: e(s):		GRG central,	sou	thern and north	iern		professiona non-profes	nl use Signalause				
	fied by	MS:	y/n						S. S. L.				
1		2	3	4	5	6	7	8 01.0	10	11	12	13	14
Use- No.		Member state(s)	Crop and/ or situation (crop destination /	F G or I	Pests or Group of pests controlled	Application Method / Kind	Timing / Growth stage of crop &	Max. ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	Application kg, L product/ha a) max.	rate g, kg as/ha a) max. rate per	Water L/ha	PHI (days)	Remarks: e.g. safener/synergist per ha
			purpose of crop)		(additionally: developmental stages of the pest or pest group)		season	interval between applications) a) per use b) per crop/ season	a) max. rate per appl. b) max. total rate per crop/season	a) max. rate per appl. b) max. total rate per crop/season	min / max		e.g. recommended or mandatory tank mixtures
10c		EU	Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica, Leafy vegetables, Stem vegetables,	F	Couch grass (Elymus repens)	Spot treatment (shielded)	Post-harvest, pre-siowing, pre-planting	a) 1 b) 1	a) 2 L/ha b) 2 L/ha	a) 0.72 kg as/ha b) 0.72 kg as/ha	100 – 400	N/A	Application to existing row cropland after harvest for removal of couch grass once every three years. Maximum application rate of 0.72 kg as/ha glyphosate in any 36 months period.
			Sugar beet		Contraction of the second seco	2 0 0 10 10 11 0 10 10							The treated area represents not more than 20 % of the cropland.
Rema table headi	(b) ng: (c)	Catalogu Internatio g/kg or g	Able powder (WP), emulsi e of pesticide formulation onal Technical Monograp /I AIR 5 – July 2020	types	concentrate (EC), gran	ule (GR) 1g system CropLi		(e) U ca (f) N	olumn 1	ossible for uses where the	line is highlig	hted in gre	t B, Section 0 should be given in y, Use should be crossed out when the CP10_GRG_Rev 1_Jul_2020
			A CONTRACTION OF THE STREET										

7

- Remarks Numeration necessary to allow references
- (phone Raceord Group ALB 1- uh 2007) Marked Mark

- Growth stage at first and last treatment (BBC) Monograph, Growth Stages of Plants, 1997,
- Blackwell, ISBN 3-8263-3152-4) including where relevant, information on season at time of application

Contraction of the second seco

- The maximum number of application possible under practical conditions of use must be provided
- Minimum interval (in days) between applications of the same product For specific uses other specifications might be possible, $e g : g/m^3$ in case of fumigation of empty rooms See also EPPO-Guideline PP 1/239 Dose expression for plant protection products
- The dimension (g, kg) must be clearly specified (Maximum) dose of a s per treatment (usually g, kg or L product / ha) If water volume range, depends on application equipments (e g ULVA or LVA) it should be mentioned

CP 10.1 Effects on Birds and Other Terrestrial Vertebrates

CP 10.1.1 Effects on birds

Studies considering the toxicity of glyphosate and relevant metabolites to birds were assessed for their validity to current and relevant guidelines. The results of these studies demonstrate that glyphosate and AMPA are of low acute and chronic toxicity to avian species.

Relevant and reliable studies for the risk assessment for birds of glyphosate and relevant metabolites are summarised in the tables below. Details of the acute studies are summarised in the Document M-CA, and U. Section 8, point 8.1.1.1.

Table 10.1.1-1: Relevant endpoints for risk assessment: Acute oral toxicity of give hosate and Drofor NOT NOT AMPA to birds

				X
Reference	Substance	Species	Test design	LD50
				(mg a.e./kg bw)
CA 8.1.1.1	Glyphosate	Bird ¹	Acute oral	Extrapolated
			E & A	$LD_{50} = 4334 \text{ mg/kg}$
				bw/day ²
	AMPA	Colinus virginianus	Acute oral	LD_{50} > 2250 mg/kg bw/day
1991		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	200	
CA 8.1.1.1/009				

¹Tested species: Bobwhite quail (Colinus virginianus), Japanese quair (Colurnix coturnix japonica), Mallard duck (Anas platyrhynchos)

All acute oral bird studies resulted in endpoints > 2000 mg/kg bw (see Section CA 8.1.1.1). Therefore an extrapolations factor of 2.167 as recommended in the Guidance Document on Risk Assessment for Birds and Mammals on request from EFSA (EFSA K CONTRACTION Journal 2009; 7(12): 1438) was applied.

Endpoints in **bold** are used for risk assessment

Details of this reproduction study is summarised in the Document M-CA, Section 8, point 8.1.1.3.

Table 10.1.1-2: Relevant endpoints for risk assessment: Reproductive toxicity of glyphosate to birds °

Reference	Substance	Species	Test design	NOAEL (mg a.e./kg feed)	NOAEL (mg a.e./kg bw/d)
1978 CA 8.1.1.3/003	Glyphosate technical	Colinus virginianus	17 weeks reproduction	1000	96.3

a.e.: acid equivalents

Risk assessment for metabolites

ð

The primary metabolite of glyphosate is aminomethylphosphonic acid (AMPA). Most of the parent glyphosate is eliminated unchanged and only a small amount (less than 1 % of the applied dose) is transformed to aminomethylphosphonic acid (AMPA). The metabolite AMPA has been tested in several manimal toxicity studies which demonstrated that it is of lower toxicity than glyphosate acid (see Section CA 5.8). Avian toxicity tests with metabolites of glyphosate showed equally low acute toxicity as glyphosate.

Following application to plant tissues, unchanged glyphosate was the only significant residue. In presence of soil as a substrate the active substance is quickly degraded, leaving AMPA at rates comparable or even higher than parent glyphosate. However, the uptake via the roots and the translocation in the plants was very low, not resulting in significant residue levels as confirmed by plant metabolism and confined rotational crop studies. A major part of the glyphosate was degraded into CO₂. Therefore, it carbé concluded that the risk to birds will be acceptably low and no further quantitative risk assessment is conducted. Ó

Risk assessment for the representative formulation

An acute oral mammalian study is available with the formulation which is presented in the toxicological section under Section CP 7.1.1/01. This study shows, that the acute toxicity of the formulation (>5000 mg/kg bw) is not more elevated than the toxicity of the active substance alone (>2000 mg/kg bw). Therefore the avian risk assessment for the representative formulation is considered to be covered by the avian risk assessment presented for the active substance glyphosate.

reliable with restrictions with regards to the impact of glyphosate or its relevant metabolites on avian species. Full literature evaluation is provided in document M-CA Section 9. A summary of previously evaluated peer reviewed literature from the RAR 2015 is also available in Annex M-CA 8-01 of the M-CA Section 8. For discussions of literature regarding toxicity to birds, please refer to document M-CP Contraction of the second Section 10.2. 19 Mel

Risk assessment for birds

à The risk assessment is based on the methods presented in the Guidance Document on Risk Assessment for Birds and Mammals on request from EFSA (EFSA Journal 2009; 7(12): 1438); hereafter referred to as 2000 owno EFSA/2009/1438.

The table below summarises how the risk assessment for birds considers all the proposed uses and the NOT application rates presented in the GAP.

GAI	P number and summary of use	Âpp	licatio	n rate o	conside	ered (28	8 day ir	nterval	unless o	otherw	vise stated)
		° L×	1 ×	1 ×	2 ×	1 ×	3 ×	1 ×	2 ×	2 ×	2 × 1800
	20 20 20 20	540	720	1080	720	1440	720	1800	1080		g/ha (90
	the second se	g∕ha	g/ha	g/ha	g/ha	g/ha	g/ha	g/ha	g/ha ¹	g/ha	days apart)
Uses	1a-c : Applied to weeds; pre- ng, pre-planting, pre emergence	0,	Х	Х		Х					
sowir of fie	ng, pre-planting, pre emergence										
Uses	2 a-c: Applied to weeds; post-		Х	Х	Х	Х	Х		Х		
harve	st, pre-sowing, pre-planting of										
	crops.										
Use 3	a-b: Applied to cereal	Х									
	teers; post-harvest, pre-sowing,										
	lanting of field crops.										
	a-c: Applied to weeds (post		Х	Х	Х	Х	Х		Х	Х	
	gence) below trees in orchards.										
	a-c: Applied to weeds (post		Х	Х	Х	Х	Х		Х	Х	
	gence) below vines in vineyards										
	a-b . Applied to weeds (post		Х	Х							
	gence) in field crops BBCH										
<20											
Use 7	a-b : Applied to weeds (post							Х			Х
8 emerg	gence) around railroad tracks										
	and 9: Applied to invasive							Х			
specie	es (post emergence) in										
Use 8 energy Construction C	osate Renewal Group AIR 5 – July 2020						Doc	ID: 11005	54-MCP1()_GRG_	_Rev 1_Jul_2020

Table 10.1.1-3: Risk assessment strategy for birds



Table 10.1.1-3: Risk assessment strategy for birds

GAP number and summary of use	App	olicatio	n rate o	conside	ered (28	8 day ii	nterval	unless o	otherv	vise stated)
	1 ×	1 ×	1 ×	2 ×	1 ×	3 ×	1 ×	2 ×	2 ×	2 × 1800
	540	720	1080	720	1440	720	1800	1080	1440	g/ha (90 🖉
	g/ha	g/ha	g/ha	g/ha	g/ha	g/ha	g/ha	g/ha ¹	g/ha	days apart)
agricultural and non-agricultural										
areas										
Uses 10 a-c: Applied to couch grass;		Х	Х							10 10
post-harvest, pre-sowing, pre-planting									S	e la
of field crops								Ì	C X	

X = this use is covered by the application rate indicated.

¹ Due to the long spray interval of 28 days this use covers also the following possible application pattern: 3×1080 g a.e./ha plus 1×720 g a.e./ha (28 day interval between each application) ALL CONTRACT

1 × 720 g a.e./ha (28 day interval between each application) For the screening assessment; crops that maybe present at time of application to target weeds and the relevant application rates shown in the table above are considered. The acute and long-term screening assessment results are presented below according to the following main uses

- in field crops (covering GAP uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c); pre-sowing, pre-planting pre-٠ emergence, post-harvest. Exposure to birds via grassland, bare soil and field crops is considered and is covered by the general screening scenarios grassfand, bare soil and bulb and onion like crops (etc.).
- in orchards (covering GAP uses 4 a-c) applied to weeds post emergence exposure below trees; • exposure to small insectivorous birds in orchards is considered and is covered by the general screening scenario orchards (etc.)
- in vineyards (covering GAP uses 5 a-c) applied to weeds post emergence exposure below vines; exposure to small omnivorous birds in vine vards is considered and is covered by the general screening scenario vineyard.
- in railroad tracks (covering GAP uses Za-b) and in the control of invasive species (covering • GAP uses 8 and 9) applied to weeds post emergence; exposure to birds via grassland, bare soil and field crops is considered and is overea by the general screening scenarios grassland, bare soil and bulb and onion like crops (etc.).

Screening assessment

Field crops

and is the Table 10.1.1-4: Screening assessment of the acute risk for birds due to the use of glyphosate in field crops: Uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c 10 2 G

Active substance		Glyphosate								
Acute toxicity (mg/kg b	w)	4334								
TER criterion		10								
GAP crop	Application rate (g a.e./ha)	Crop scenario	Indicator species	SV90	MAF90	DDD90 (mg/kg bw/d)	TERa			
Pre-sow pre-planting, pre-emergence & post- harvest of;	1 × 1440	Grassland	Large herbivorous birds	30.5	1	43.9	98.7			
Root and Stem veg, Potato Bulb and onion like		Bare soil	Small granivorous birds	24.7	1	35.6	122			
crops, fruiting veg,		Bulb and	Small	158.8	1	229	19.0			



Table 10.1.1-4: Screening assessment of the acute risk for birds due to the use of glyphosate in field crops: Uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c

Active substance		Glyphosate								
Acute toxicity (mg/kg b	w)	4334					30			
TER criterion		10					A.S.			
GAP crop	Application rate (g a.e./ha)	Crop scenario	Indicator species	SV90	MAF90	DDD90 (mg/kg bw/d)	TEB a			
leafy veg, Sugar beet.	(0)	onion like crops	omnivorous birds			100 No. 00	e li e			
pre-emergence & post- harvest of;	2 × 1080 (28 d)	Grassland	Large herbivorous birds	30.5	1.1		120			
Root and Stem veg, Potato Bulb and onion like		Bare soil	Small granivorous birds	24.7			148			
crops, fruiting veg, leafy veg, Sugar beet.		Bulb and onion like crops	Small omnivorous birds	158.8 158.8 158.8 10 10 10 10 10 10 10 10 10 10	0,000 10,000 0,000 0,000 1000 1000 1000	189	23.0			
pre-emergence & post- harvest of;	1 × 540	Grassland	Large herbivorous birds	30.50 11 10.50 11 10.50 11 10.50	1	16.5	263			
Root and Stem veg, Potato Bulb and onion like		Bare soil	birds Small Stress granivarous birds Stress Small Stress	24.7	1		325			
crops, fruiting veg, leafy veg, Sugar beet.		crops	pude	158.8	1	85.8	50.5			
Pre-sow, pre-planting, pre-emergence & post- harvest of;	1 × 720	Grassland	Large herbivorous birds	30.5	1	22.0	197			
Root and Stem veg, Potato Bulb and onion like	50	Bare soil Bare soil Barb and	Small granivorous birds	24.7	1	17.8	244			
crops, fruiting veg, leafy veg, Sugar beet.	19 10 10 10 10 10 10 10 10 10 10 10 10 10	Builb and onion like crops	Small omnivorous birds	158.8	1	114	37.9			
Pre-sow, pre-planting, pre-emergence & post harvest of;	25× 720~	Grassland	Large herbivorous birds	30.5	1.1	24.2	179			
Root and Stem veg, Potato Bulb and onion like	100	Bare soil	Small granivorous birds	24.7	1.1	19.6	222			
Root and Stem veg, Potato Bulb and onion like crops, fruiting veg, leafy veg, Sugar beet.		Bulb and onion like crops	Small omnivorous birds	158.8	1.1	126	34.5			
Glyphosate Renewal Group All		·	- -				·			
Glyphosate Renewal Group All	R 5 – July 2020			Ι	Doc ID: 11	.0054-MCP10_GR	G_Rev 1_Jul_			

Table 10.1.1-4: Screening assessment of the acute risk for birds due to the use of glyphosate in field crops: Uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c

Active substance		Glyphosate					CQ II
Acute toxicity (mg/kg l	bw)	4334					J. L
TER criterion		10					St. Sol
GAP crop	Application rate (g a.e./ha)	Crop scenario	Indicator species	SV90	MAF90	DDD90 (mg/kg bw/d) 32.9 26.7 26.7 5 7.2 5 7.2 5 7.2 5 7.2 5 7.2 5 7.2 5 7.2 5 7.2 5 7.2 5 7.2 5 7.2 5 7.2 5 7.2 5 7.2 5 7.2 7 7 7 7	
Pre-sow, pre-planting, pre-emergence & post- harvest of;	1 × 1080	Grassland	Large herbivorous birds	30.5	1	32.9 10 00 0	132
Root and Stem veg, Potato Bulb and onion like		Bare soil	Small granivorous birds	24.7	1		163
crops, fruiting veg, leafy veg, Sugar beet.		Bulb and onion like crops	Small omnivorous birds	158.8		¥725	25.3
Pre-sow, pre-planting, pre-emergence & post- harvest of;	3 × 720 (28 d)	Grassland	Large herbivorous birds	10.01	94 191	24.2	179
Root and Stem veg, Potato Bulb and onion like		Bare soil	Small granivorous birds		1.1	19.6	222
crops, fruiting veg, leafy veg, Sugar beet.		Bulb and onion like crops	Small	158.8	1.1	126	34.5

SV: shortcut value; MAF: multiple application factor; DDD: daily dietary dose; TER: toxicity to exposure ratio. entron in the second

Table 10.1.1-5: Screening assessment of the long-term/reproductive risk for birds due to the use of glyphosate in field crops: Uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c

GAP crop	rate (@a.e./ha)	Crop scenario	Indicator species	SV m	MAF _m × TWA	DDD _m (mg/kg bw/d)	TER
Pre-sow, pre-planting, pre-emergence & post- harvest of; Root and Stem yeg,	17440 17440 19 19 19 19 19 19 19 19		Large herbivorous birds	16.2	$1.0 \times$	12.4	7.80
Potato Bulb and onion like crops, fruiting veg,	S.	Bare soil	Small granivorous birds			8.70	11.1
leafy veg, Sugar beet, A Post-emergence of weeds		like crops	Small omnivorous birds			49.5	1.95
Pre-sow, pre-planting, pre-emergence & post- harvest of;		Grassland	Large herbivorous birds	-		10.2	9.44
> ~		1	1	1	1	1	
	pré-emergence & post- harvest of;	(ga.e./ha) Pre-sow, pre-planting, pre-emergence & post- harvest of; Root and Stem veg, Potato Bulb and onion like crops, fruiting veg, leafy veg, Sugar beet, Post-emergence of weeds	(ga.e./ha) Pre-sow, pre-planting, pre-emergence & post- harvest of; Grassland Root and Stem veg, Potato Bare soil Bulb and onion like crops, fruiting veg, leafy veg, Post-emergence of weeds Bulb and onion like crops	(ga.e./ha) Pre-sow, pre-planting, pre-emergence & post- harvest of; Grassland Large herbivorous birds Root and Stem veg, Potato Bare soil Small granivorous birds Bulb and onion like crops, fruiting veg, leafy veg, Bulb and onion like crops Small omnivorous birds	(g a.e./ha)Pre-sow, pre-planting, pre-emergence & post- harvest of; PotatoRoot and Stem veg, PotatoBulb and onion like crops, fruiting veg, leafy veg, Post-emergence of weedsBulb and onion like cropsBulb and onion birdsBulb and onion birdsBulb and onion birdsBulb and onion birdsCrops, fruiting veg, leafy veg, Post-emergence of weedsBulb and onion birdsBulb and onion birdsBulb and onion birdsBulb and onion birdsSugar beet, birdsComparison birdsBulb and onion birdsBulb and onion birdsBulb and onion birdsBulb and onion birdsBulb and onion birdsSugar beet, birdsBulb and onion birdsBulb and onion birdsBulb and onion birds	(ga.e./ha)TWAPre-sow, pre-planting, pre-emergence & post- harvest of; PotatoGrasslandLarge herbivorous birds16.21.0 × 0.53Bulb and onion like crops, fruiting veg, leafy veg, Post-emergence of weedsBare soilSmall granivorous birds11.41.0 × 0.53Bulb and onion like orops, fruiting veg, leafy veg, Post-emergence of weedsBulb and onion like cropsSmall omnivorous birds11.41.0 × 0.53	(g a.c./ha)TWAPre-sow, pre-planting, pre-emergence & post- harvest of; Root and Stem veg, Potato1440GrasslandLarge herbivorous birds16.21.0 × 0.5312.4Bulb and onion like crops, fruiting veg, leafy veg, Post-emergence of weedsBare soilSmall granivorous birds11.41.0 × 0.538.70Bulb and onion like crops, fruiting veg, leafy veg, Post-emergence of weedsBulb and onion like cropsSmall omnivorous birds10. × 0.5349.5



Table 10.1.1-5: Screening assessment of the long-term/reproductive risk for birds due to the use of glyphosate in field crops: Uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c

Reprod. Toxicity (mg/kg	bw/d)	96.3								
TER criterion		5								
GAP crop	Application rate (g a.e./ha)	Crop scenario	Indicator species	SVm	MAF _m × TWA	DDD _m (mg/kg bw/d)	TER _L O MARCO BAR			
Root and Stem veg, Potato Bulb and onion like crops,		Bare soil	Small granivorous birds	11.4	1.1 × 0.53	1. 0. 10 1. 0. 10	A A A A A A A A A A A A A A A A A A A			
fruiting veg, leafy veg, Sugar beet. Post-emergence of weeds		Bulb and onion like crops	Small omnivorous birds		1.1 × 0.53		2.36			
		Grassland	Large herbivorous birds	16.2	0.39°	484	20.8			
Potato Bulb and onion like crops, fruiting veg,		Bare soil	Small granivorous 5 birds 5 Small 0 2	Periou	1.0 × 0.53	3.26	29.5			
leafy veg, Sugar beet. Post-emergence of weeds		Bulb and onion like crops	omnivorous	64.8	1.0 × 0.53	18.6	5.19			
Pre-sow, pre-planting, pre-emergence & post- harvest of; Root and Stem veg,		NOLOO CO	Large herbivorous birds	16.2	1.0 × 0.53	6.18	15.6			
Potato Bulb and onion like crops, fruiting veg,			Small granivorous birds	11.4	1.0 × 0.53	4.35	22.1			
leafy veg, Sugar beet. Post-emergence of weeds		Bulk and onion like crops	Small omnivorous birds	64.8	1.0 × 0.53	24.7	3.89			
Pre-sow, pre-planting, pre-emergence & post- harvest of;	(ron Loc)	Grassland	Large herbivorous birds	16.2	1.1 × 0.53	6.80	14.2			
Potato Bulb and onion like crops, fruiting veg,		Bare soil	Small granivorous birds	11.4	1.1 × 0.53	4.79	20.1			
leafy veg, Sugar beet. Post-emergence of weeds		Bulb and onion like crops	Small omnivorous birds	64.8	1.1 × 0.53	27.2	3.54			
Glyphosate Renewal Group AIR		1	1	1	1	1	1			
Glyphosate Renewal Group AIR	5 – July 2020			Do	oc ID: 110	054-MCP10_GRG	_Rev 1_Jul_20			



Table 10.1.1-5: Screening assessment of the long-term/reproductive risk for birds due to the use of glyphosate in field crops: Uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c

	Reprod. Toxicity (mg/kg	g bw/d)	96.3					
	TER criterion GAP crop	Application rate (g a.e./ha)	5 Crop scenario	Indicator species	SVm	MAF _m × TWA	(mg/kg bw/d)	×, · · ·
	Pre-sow, pre-planting, pre-emergence & post- harvest of; Root and Stem veg,	1 × 1080	Grassland	Large herbivorous birds	16.2	1.0 × 0.53	9.27 6.53 5 0 4 5 5 0 5 5 5 0 39.1	
	Potato Bulb and onion like crops, fruiting veg,		Bare soil	Small granivorous birds	11.4	1.0 × 0.53		14.8
	leafy veg, Sugar beet. Post-emergence of weeds		Bulb and onion like crops	Small omnivorous birds	64.8	1.0×0 0.53	39.1 2	2.60
	Pre-sow, pre-planting, pre-emergence & post- harvest of; Root and Stem veg,	3 × 720 (28 d)	Grassland	Large herbivorous	\$6.2 10 10 10 10	1.2 × 0.53	7.42	13.0
	Potato Bulb and onion like crops, fruiting veg,		Bare soil	Small & A & S grantvorous birds & A	11.4	1.2 × 0.53	5.22	18.5
	leafy veg, Sugar beet. Post-emergence of weeds		Bulb and onion	Small omnivorous bitds	64.8	1.2 × 0.53	29.7	3.25
	Bulb and onion like crops, fruiting veg, leafy veg, Sugar beet. Post-emergence of weeds Pre-sow, pre-planting, pre-emergence & post- harvest of; Root and Stem veg, Potato Bulb and onion like crops, fruiting veg, leafy veg, Sugar beet. Post-emergence of weeds SV: shortcut value; MAF: m toxicity to exposure ratio.							
10 10 10 10 10 10 10 10 10 10 10 10 10 1	Glyphosate Renewal Group AIR	5 – July 2020			Do	oc ID: 110	054-MCP10_GRG	_Rev 1_Jul_2020

Orchards

Table 10.1.1-6: Screening assessment of the acute and long-term/reproductive risk for birds due to the use of glyphosate in orchards: Uses 4 a-c

Orchards Table 10.1.1-6: Scr	eening assessm	ent of the	e acute and long	-term	/reprod	lucti	ve risk for	birds due to
the use of glyphosa	te in orchards:	Uses 4 a-	c					birds due to
Active substance		Glyphosat	te					20
Acute toxicity (mg/kg	; bw)	4334						1) O
TER criterion	· · · ·	10				1	DDD	
GAP crop	Application rate (g a.e./ha)	Crop scenario	Indicator species	SV90	MAF90	(m	DDD90 g/kg bw/d)	TERa 58.5
Orchards post-emergence of weeds	2 × 1440 (28 d)	Orchards	Small insectivorous birds	46.8		2º		58.5
Orchards post-emergence of weeds	1 × 720	Orchards	Small insectivorous birds	46.8	500			129
Orchards post-emergence of weeds	1 × 1080	Orchards	Small insectivorous birds	46.8		50.5		85.7
Orchards post-emergence of weeds	2 × 720 (28 d)	Orchards	Small insectivorous	46.8		37.1		117
Orchards post-emergence of weeds	1 × 1440	Orchards	Small	46.8	1.0	67.4		64.3
Orchards post-emergence of weeds	3 × 720 (28 d)	and the state of t	insectivorous birds	46.8	1.1	37.1		117
Orchards post-emergence of weeds	2 × 1080 (28 d)	Orehards		46.8	1.1	55.6		78.0
Reprod. Toxicity (mg TER criterion	/kg bw/d)	96,3 5			1	1		
GAP crop	Application	Crop	Indicator	SVn			DDD _m	TER _{lt}
Orchards	2 1440	scenario Orchards	species Small	18.2	× TW		mg/kg bw/c 5.3	6.30
post-emergence of weeds	28 0 (28 0)		insectivorous birds		0.53			
Orchards post-emergence of s weeds	at × 720	Orchards	Small insectivorous birds	18.2	1.0 × 0.53	6	.95	13.9
Orchards	1 × 1080	Orchards	Small insectivorous birds	18.2	1.0 × 0.53	1	0.4	9.24
Orchards posteemergence of weeds	2 × 720 (28 d)	Orchards	Small insectivorous birds	18.2	1.1 × 0.53	7	7.64	12.6
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Table 10.1.1-6: Screening assessment of the acute and long-term/reproductive risk for birds due to the use of glyphosate in orchards: Uses 4 a-c

Active substance		Glyphosa	te					
Acute toxicity (mg/k	4334							
TER criterion	10							
GAP crop	Application rate (g a.e./ha)	Crop scenario	Indicator species	SV90	MAF90	DDD90 (mg/kg bw/d)	TER.	
Orchards post-emergence of weeds	1 × 1440	Orchards	Small insectivorous birds	18.2	1.0 × 0.53		6.93	
Orchards post-emergence of weeds	3 × 720 (28 d)	Orchards	Small insectivorous birds	18.2	1.2 × 0.53	8336 5°	11.6	
Orchards post-emergence of weeds	2 × 1080 (28 d)	Orchards	Small insectivorous birds	18.2		रुँ भा.5 5	8.40	

the use of glyphosate	ning assess in vineyarc	ment of the ls: Uses 5 a	e acute and tong	-term/r	eproduc	tive risk for bi	rds due
Active substance		Glyphosate	J. J. J.				
Acute toxicity (mg/kg b	w)	4334					
TER criterion	,	10 , ඒ					
GAP crop	Application rate	Crop 4	S Indicator	SV90	MAF90	DDD ₉₀ (mg/kg bw/d)	TER
post-emergence of	(g a.e./ha) 2 × 1440 (28 d)	Vineyard	Small omnivorous birds	95.3	1.1	151	28.7
Vineyard post-emergence of weeds	1 × 729 4 1 × 72	Vineyard	Small omnivorous birds	95.3	1.0	68.6	63.2
Vineyard post-emergence of weeds	1 ×1080	Vineyard	Small omnivorous birds	95.3	1.0	103	42.1
Vineyard post-emergence of weeds	2 × 720 (28 d)	Vineyard	Small omnivorous birds	95.3	1.1	75.5	57.4
	3 × 720 (28 d)	Vineyard	Small omnivorous birds	95.3	1.1	75.5	57.4
Vineyard post-emergence of weeds Glyphosate Renewal Group All	1 × 1440	Vineyard	Small omnivorous birds	95.3	1.0	137	31.6

Table 10.1.1-7: Screening assessment of the acute and long-term/reproductive risk for birds due to the use of glyphosate in vineyards: Uses 5 a-c

	Active substance		Glyphosate					٥. الأي .
	Acute toxicity (mg/kg	bw)	4334					J. J. K.
	TER criterion	,	10					St. St.
	GAP crop	Application rate	Crop scenario	Indicator species	SV90	MAF90	DDD90 (mg/kg bw/d)	TER.
	Vineyard post-emergence of weeds	(g a.e./ha) 2 × 1080 (28 d)	Vineyard	Small omnivorous birds	95.3	1.1		38.3
	Reprod. Toxicity (mg / TER criterion	kg bw/d)	96.3 5					
	GAP crop	Application rate (g a.e./ha)	Crop scenario	Indicator species		MAFm × TWA	fmg/kg bw/d)	TER _{lt}
	Vineyard post-emergence of weeds	(g deci ha) 2 × 1440 (28 d)	Vineyard	Small omnivorous birds	38.9	0.53	32.7	2.95
	Vineyard post-emergence of weeds	1 × 720	Vineyard	Small omnivorous birds	\$ 5	1.0 × 0.53	14.8	6.49
	Vineyard post-emergence of weeds	1 × 1080	Vineyard	Small Small	38.9	1.0 × 0.53	22.3	4.32
	Vineyard post-emergence of weeds	2 × 720 (28 d)		omnivorous birds		1.1 × 0.53	16.3	5.90
	Vineyard post-emergence of weeds	3 × 720 (28 d)	V IIIC gard	Small Small Somnivorous birds	38.9	1.2 × 0.53	17.8	5.41
	Vineyard post-emergence of weeds	1 × 1440	Vineyard	Small omnivorous birds	38.9	1.0 × 0.53	29.7	3.24
	Vineyard post-emergence of weeds SV: shortcut value; MAF: mu	(28°d) ¹⁰ č	Vineyard	Small omnivorous birds	38.9	1.1 × 0.53	24.5	3.93
	Glyphosate Renewal Group A	ltiple application Nd fall below the	factor; TWA: ti relevant trigger	me-weighted average f	actor; DDE): daily dieta	ary dose; TER: toxic	city to exposure
170 97-00 97-00 97-00 100 100 100 100 100 100 100 100 100	Glyphosate Renewal Group A	IR 5 – July 2020				Doc ID: 11	0054-MCP10_GRG	_Rev 1_Jul_2020

Railroad tracks and control of invasive species

Table 10.1.1-8: Screening assessment of the acute and long-term/reproductive risk for birds du	ie to
the use of glyphosate on railroad tracks and to control invasive species: Uses 7a-b, 8, 9	in the second se

Annex to Regulation 284/2013		MON	52276				P, Section 10 age 38 of 553
Railroad tracks and contro Table 10.1.1-8: Screening the use of glyphosate on	g assessmen	t of the acu					s due to
		1		specie	5. 6 565	, u 0, 0,)	
Active substance Acute toxicity (mg/kg bw)		Glyphosate 4334					2 . S. S.
TER criterion		10					3.0
GAP crop	Application rate (g a.e./ha)		Indicator species	SV90	MAF90	ک (mg/kg bw/d) ک ک	TER _a
Railroad tracks – application by spray train. Post			Large herbivorous birds	30.5	1.0	549. (° .) 19. (° .)	78.9
emergence of weeds (90d apart).		Bare soil	Small granivorous birds		1.0	44.50 44.50	97.5
	1 × 1800		Large herbivorous birds	30.5		\$4.9	78.9
		Bare soil	Small granivorous birds	24.¥	\$0,¢	44.5	97.5
Invasive species in agricultural and non-	1 × 1800		Large herbivorous birds	30.5 %	1.0	54.9	78.9
agricultural areas. Post emergence of invasive		Bare soil	Small granivorous birds	æ4.7	1.0	44.5	97.5
species.		Bulb and onion like crops	Small opprison ous birds	158.8	1.0	286	15.2
Reprod. Toxicity (mg/kg bw/d) TER criterion		96.3 5					
GAP crop	Application rate (g a.e./ha)	Crop scenario	Indicator species	SV _m	MAF _m × TWA	DDD _m (mg/kg bw/d)	TER _{lt}
Railroad tracks – application by spray train. Post	2 × 1800 (90 d)	Grassland	Large herbivorous birds	16.2	1.0 × 0.53	15.5	6.23
emergence of weeds (90d apart).	0,0	Bare soil	Small granivorous birds	11.4	1.0 × 0.53	10.9	8.85
/	1 × 18000	Grassland	Large herbivorous birds	16.2	1.0 × 0.53	15.5	6.23
Ś	1 × 18000 5	Bare soil	Small granivorous birds	11.4	1.0 × 0.53	10.9	8.85
Invasive species in agricultural and non- agricultural areas. Post emergence of invasive species.	1 800	Grassland	Large herbivorous birds		1.0 × 0.53	15.5	6.23
agricultural areas. Post 88 emergence of invasives	∪ -	Bare soil	Small granivorous birds		1.0 × 0.53	10.9	8.85
agricultural areas. Post		Bulb and onion like crops	Small omnivorous birds	64.8	1.0 × 0.53	61.8	1.56
SV: shortout velves KAAE, multi	nla annliasti	factory TWA	timo maiabtad arrest	l fast :	. DDD, J		TED.

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Field crops (Uses: 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c)

The screening TER_{it} values for use of MON 52276 in field crops for the scenarios "bare soil" and "grassland" are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5. For the use rate of 1×540 g a.e./ha (Uses 3 a-b) acceptable long-term risk for the "bulbs and onion like crops" scenario is. concluded in the screening assessment. However, regarding the scenario "bulbs and onion like crops" a Tier 1 risk assessment is necessary for the application rates 1×1440 g a.e./ha, 2×1080 g a.e./ha, 4×320 g a.e./ha, 1×1080 g a.e./ha and 3×720 g a.e./ha. 11 of 101

Orchards (Uses: 4 a-c)

The screening TER_{lt} values for use of MON 52276 are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that the long-term risk to birds is acceptable following the proposed use patterns in orchards. NOVICE OF CONTRACT OF CONTRACT.

Vineyards (Uses: 5a-c)

The screening TER_{lt} values for use of MON 52276 are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5 for the application rates; 2×720 g a.e./ha, $3 \sqrt[8]{720}$ g a.e./ha, 1×1440 g a.e./ha and 2×1080 g a.e./ha, indicating that the long-term risk to birds is acceptable following the proposed use patterns in vineyards. For the application rates of 2×1440 g a.e./ha and 1×1080 g a.e./ha a Tier 1 risk assessment is necessary.

Railroad tracks – application by spray train (Uses: 7a-c)

The screening TER_{lt} values for use of MON 52276 on railroad tracks are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that the long-term risk to birds is acceptable following the proposed use patterns around railroad tracks

Mon Invasive species in agricultural and non-agricultural areas (Uses: 8 and 9)

The screening TER_{lt} values for use of MON 52276 on invasive species in agricultural and non-agricultural areas for the scenarios "bare soil" and "grassland" are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that the tong-term risk to birds is acceptable following the proposed use pattern. Regarding the scenario "bulbs and onion like crops" a Tier 1 risk assessment is necessary for the intended application rate of 1×1800 g a.e./ha.

Tier 1 assessment

Dall Hild Sil The Tier 1 risk assessment is conducted for those proposed uses, for which the calculated TER_{lt} values are below the trigger of 5 in the screening assessment e.g. uses in field crops (except use 3 a-b), uses in vineyards and uses to controlain asive species. The Tier 1 assessment initially requires identification of the appropriate crop groupings and generic focal bird species from Appendix A of EFSA/2009/1438.

Due to the proposed uses of the product MON 52276 in agricultural and non-agricultural areas, justifications are provided below considering which scenarios are relevant for the risk assessment. For those proposed uses where a large number of scenarios is relevant (Field crops: Use 2 a-c, 6 a-b, 10 a-c, Control of invasive species Use 8 - 9) an approach has been taken to present only the worst-case risk assessment in this section. Therefore the worst-case scenarios have been selected based on the relevant generic focal species with the highest short-cut values as these are considered protective of the other scenarios with lower short-cut values. For completeness, a full and complete avian Tier I risk assessment that considers all other scenarios and focal species is presented in Annex M-CP 10-01 of this document. 3

A summary of all relevant scenarios and focal species (includes those presented in this section and in Annex M-CP 10-01 of this document) is provided in the table below. Please note that numbers in brackets refer to the bird scenarios stated in the Appendix A of EFSA/2009/1438.

Selling Selling

Field crops (Use 1 a-c, 2 a-c, 6 a-b, 10 a-c)

For the Tier 1 assessment of the crop group "field crops", the intended use of MON 52276 includes several general uses on field crops as described further below. The applications are intended to be made by tractors mounted sprayers (Uses 1 a-c, 2 a-c, 6 a-b) or by hand-held equipment (Uses 10 a-c).

Use 1 a-c is, the "pre-sowing, pre-planting, pre-emergence" use, where the intention of this use is to prepare a non-agricultural area for agriculture use, meaning that the product is applied when no agricultural crop is present. Therefore the "bare soil", the "grassland" and the "leafy vegetable" scenarios are considered relevant. As an acceptable risk for the "bare soil" and "grassland" scenarios was concluded at the screening assessment, a Tier 1 risk assessment will be presented only for "leafy vegetables". The "leafy vegetables" scenario was considered relevant to cover species that feed on broad-leaved weeds; the small granivorous bird "finch" (71, 72), the small omnivorous bird "lark" (79, 81), the medium herbivorous/granivorous bird pigeon" (82) and the small insectivorous bird "wagtail" (83, 84) are taken into accounts"

Uses 2 a-c and 10 a-c are the "post-harvest, pre-sowing, pre-planting" use where the product can be applied to existing cropland after harvest for removal of remaining crops. Thus, for this use almost all field crops need to be considered. Only for those crops where safe risk could be concluded in the screening assessment, i.e. "bare soil" and "grassland" and for crops which are generally not considered relevant ("cotton") or for spatial cultures like "bush & cane fruit", "hops", "orchards", "ornamentals/aursery" and "vineyards" a risk assessment is not considered necessary. As the product is applied after post-harvest, late crop stages will be taken into account for risk assessment. Frugivorous bird scenarios were not taken into account, as the product is intended to be applied after harvest and will not be applied at typical crop stages when fruits are ripe. For the same reason also the two cereals scenario (late post emergence (May-June), BBCH 71 - 89(19); late season, seed heads (35)) and the sunflower scenario (Late (Flowering, seed ripening) BBCH 61 - 92 (216) are not considered relevant.

Thus, for the Tier 1 risk assessment for the uses 2 a_{τ} and 10 a-c, the relevant generic focal species with the highest short-cut values at late crop stages <u>across</u> all refevant crop scenarios were taken into account; the medium granivorous bird "gamebird" in maize (104), the medium herbivorous / granivorous bird "pigeon" in maize (117), the small insectivorous bird "authock" (120), the small granivorous bird "finch" in oilseed rape (122), the small insectivorous bird "wagtal" in bulbs & onion like crops (18) and the small omnivorous bird "lark" in bulbs & onion like crops (16). These selected scenarios cover the risk for all relevant scenarios. For completeness, a risk assessment for all other relevant scenarios and species is presented in Annex M-CP 10-01 of this document?

Uses 6 a-b are the "shielded ground directed inter-row application" uses at crop stages <BBCH 20 and all crops scenarios at early growth stages are taken into account, which are presented in the GAP, i.e. vegetables (root and tuber regetables, bulb vegetables, fruiting vegetables, legume vegetables and leafy vegetables). To avoid exposure of crops, a shielded sprayer is used to ensure that the product is only applied to grasses and weeds in the inter-row. Therefore, only those vegetables crop scenarios are considered relevant where the generic focal species does not directly feed on the crop. In addition, the "bare soil" and the "grassland" scenario are considered relevant. However, as an acceptable risk was concluded for these scenarios already at the screening assessment the Tier 1 risk assessment is not required.

f. Thus, for the tier Vrisk assessment for the uses 6a-b, the relevant generic focal species with the highest short-cut values at early crop stages (<BBCH 20) across all relevant crops scenarios were taken into account, i.e. the medium herbivorous/granivorous bird "pigeon" in leafy vegetables (82), the small insectivorous bird "wagtail" in bulbs & onion like crops (17), the small omnivorous bird "lark" in bulbs & onion like crops (14) and the small granivorous bird "finch" in leafy vegetables (71). These selected scenarios cover the risk for all relevant scenarios. For completeness, a risk assessment for all other relevant scenarios and species is presented in Annex M-CP 10-01 of this document.

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Vineyards (Use 5 a-c)

For the crop grouping "vines" all non-frugivorous bird scenarios were taken into account, i.e. the small insectivorous bird "redstart" (217, 218), the small granivorous bird "finch" (219, 220, 221) and the smalls Dublic omnivorous bird "lark" (231, 232, 233) are taken into account.

For the use on invasive species in agricultural and non-agricultural areas (Use 8-9) For the use on invasive species in agricultural and non-agricultural areas, almost all crops need to be considered. Only for those crops where safe risk could be proven in the screening associate to be soil" and "grassland" or which are not considered. 1 risk assessment. In general, those scenarios need to be taken into account, where a downward application of the product is relevant. Frugivorous bird scenarios were not taken into account, as the product is intended to be applied only on the invasive species Giant hogweed (*Heracleum mantegazzianum*) and Japanese knotweed (Reynoutria japonica) and due to the specific application method (handheid spraying shield) fruits will not be exposed to the product. For the same reason also the cereal scenario (late season, seed heads; 35) and the sunflower scenario (Late (Flowering, seed ripening) BBCH 61 - 92 (216) are not 09. 19 considered relevant. Ó Ś

Thus, for the Tier 1 risk assessment for uses 8 and 9, the relevant generic tocal species with the highest short-cut values across all relevant crop scenarios were taken into account i.e. the large herbivorous bird "goose" in cereals (22), the medium granivorous bird "gamebird" in maize (99), the medium herbivorous granivorous bird "pigeon" in leafy vegetables (82), the small granivorous bird "finch" in leafy vegetables .see .ne" in .d "wagtail' .ane fruit (20), th .eeding species" thr .arios cover the risk for a .er relevant scenarios .cument. (71), the small insectivorous bird "dunnock" in oilseed rape (120), the small insectivorous bird "finch" in hop (66), the small insectivorous bird "passerine" in cereals (2,1), the small insectivorous bird "tit" in orchards (141), the small insectivorous bird "wagtail" in Sulps and onion like crops (17), the small insectivorous bird "warbler" in bush and cane fruit (20), the small insectivorous bird "redstart" in vineyards A Contraction of the second of (217), the small insectivorous / worm feeding species "thrush" in maize (102), and the small omnivorous adio contration of the service of th bird "lark" (14). These selected scenarios cover the risk for all relevant scenarios. For completeness, a risk species and is presented in

Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

EFSA Appendix A Scenario Number	Tier 1 scenario	Generic focal species	SVm	Risk assessment presented
	Field crops (Pre-sow	ing, pre-planting, pre-emergence): Use Ra-e		
No. 71	Leafy vegetables BBCH 10 – 49	Small granivorous bird 'finch' Serin (<i>Serinus serinus</i>)	12.6	MCP 10.1.1
No. 72	Leafy vegetables BBCH ≥ 50	Small granivorous bird "finch" Serin (Serinus serinus)	3.8	MCP 10.1.1
No. 79	Leafy vegetables BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	MCP 10.1.1
No. 81	Leafy vegetables BBCH ≥ 50	Small omniverens bird "lark" Woodlark (Lullula arborea)	3.3	MCP 10.1.1
No. 82	Leafy vegetables Leaf development BBCH 10 – 19	Medium herbivorous/granivorous bird "pigeon"	22.7	MCP 10.1.1
No. 83	Leafy vegetables BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	MCP 10.1.1
No. 84	Leafy vegetables 0 BBCH ≥ 20 0	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	MCP 10.1.1
	Field crops (Post-harve	st, pre-sowing, pre-planting): Use 2 a-c, 10 a-c		
Jo. 7	Bulb and onion like crops a BBCH ≥ 40 a Bulb and onion like crops a Bulb and onion like crops a BBCH ≥ 40 a	Small granivorous bird "finch" Linnet (<i>Carduelis cannabina</i>)	6.9	Annex M-CP 10-01 (Covered by scenario no. 12
No. 16	Bulb and onion like crops 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	6.5	MCP 10.1.1 (Worst case scenario)
No. 18	Bulb and onion like crops of S	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	MCP 10.1.1 (Worst case scenario)
Jo. 34	Cereals BBCH≥40	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	3.3	Annex M-CP 10-01 (Covered by scenario no. 16
yphosate Renewal Group AIR 5	BBCH ≥ 20 $(\sqrt{3})^{0}$ Cereals BBCH ≥ 40 $(\sqrt{3})^{0}$		Doc ID: 110	0054-MCP10_GRG_Rev 1_Jul_2020

Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

EFSA Appendix A Scenario Number	Tier 1 scenario	Generic focal species	SVm	Risk assessment presented
Io. 49	Fruiting vegetables BBCH ≥ 50	Generic focal species	3.4	Annex M-CP 10-01 (Covered by scenario no. 7)
lo. 58	Fruiting vegetables $BBCH \ge 50$	Small omnivorous bird "larks" 6 Woodlark (<i>Lullula arbarea</i>)	3.3	Annex M-CP 10-01 (Covered by scenario no 16)
lo. 61	Fruiting vegetables BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motageilla flava</i>)	9.7	Annex M-CP 10-01 (Covered by scenario no. 18
Io. 72	Leafy vegetables BBCH ≥ 50	Small granivorous bird "finch" Serin (Serinus serinus)	3.8	Annex M-CP 10-01 (Covered by scenario no. 7)
Jo. 81	Leafy vegetables BBCH ≥ 50	Small omniverous bird "lark" Woodlark (Luffula arborea)	3.3	Annex M-CP 10-01 (Covered by scenario no 16
Jo. 84	Leafy vegetables BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	9.7	Annex M-CP 10-01 (Covered by scenario no. 18
Io. 86	Legume forage BBCH ≥ 50	Small granivorous bird "finch" Linnet (Carduelis cannabina)	3.4	Annex M-CP 10-01 (Covered by scenario no. 7)
Jo. 95	Legume forage BBCH ≥ 50	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	3.3	Annex M-CP 10-01 (Covered by scenario no 16
Io. 98	Legume forage	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	Annex M-CP 10-01 (Covered by scenario no. 18
No. 101	Maize BBCH ≥ 40	Medium granivorous bird "gamebird" Partridge (<i>Perdix perdix</i>)	0.8	MCP 10.1.1 (Worst case scenario)
Jo. 114	$BBCH \ge 20$ $e^{C_{11}} + O_{11}^{11}$ Maize $BBCH \ge 40$ Maize $e^{C_{11}} + O_{11}^{11}$ BBCH \ge 40 $e^{C_{11}} + O_{11}^{11}$ Maize $e^{C_{11}} + O_{11}^{11}$ BBCH \ge 40 $e^{C_{11}} + O_{11}^{11}$ Maize $e^{C_{11}} + O_{11}^{11}$ BBCH \ge 40 $e^{C_{11}} + O_{11}^{11}$ Maize $e^{C_{11}} + O_{11}^{11}$ Maize $e^{C_{11}} + O_{11}^{11}$ Maize $e^{C_{11}} + O_{11}^{11}$	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	2.7	Annex M-CP 10-01 (Covered by scenario no 16
lo. 117	Maize BBCH ≥ 40	Medium herbivorous/granivorous bird "pigeon"	5.7	MCP 10.1.1 (Worst case scenario)
Io. 119	BBCH > 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	4.8	Annex M-CP 10-01 (Covered by scenario no. 18
yphosate Renewal Group AIR 5			Doc ID: 110	0054-MCP10_GRG_Rev 1_Jul_2020

Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

EFSA Appendix A Scenario Number	Tier 1 scenario	Generic focal species	SVm	Risk assessment presented
No. 120	Oilseed rape Late (with seeds) BBCH 30 – 99	Small insectivorous bird "dumoek" Dunnock (<i>Prunella modularts)</i>	2.7	MCP 10.1.1 (Worst case scenario)
No. 122	Oilseed rape Late (with seeds) BBCH 80 – 99	Small granivorous bird finch of Linnet (<i>Carduelis cangabina</i>)	11.4	MCP 10.1.1 (Worst case scenario)
Jo. 134	Oilseed rape BBCH ≥ 40	Small omnivorous bird 'tark' Woodlark (Lullula argorea)	2.7	Annex M-CP 10-01 (Covered by scenario no 16)
No. 138	Oilseed rape BBCH ≥ 40	Medium herbivorous (granivorous bird "pigeon" Wood pigeon (<i>Columba palumbus</i>)	0.9	Annex M-CP 10-01 (Covered by scenario no 117
No. 160	Potatoes BBCH \geq 40	Small omniverous bird "lark" Woodlark (Luffula arborea)	3.3	Annex M-CP 10-01 (Covered by scenario no 16)
No. 162	Potatoes BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	9.7	Annex M-CP 10-01 (Covered by scenario no. 18
No. 164	Pulses BBCH ≥ 50	Small granivorous bird "finch" Einnet (<i>Carduelis cannabina</i>)	3.4	Annex M-CP 10-01 (Covered by scenario no. 7)
No. 173	Pulses BBCH ≥ 50	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	3.3	Annex M-CP 10-01 (Covered by scenario no 16)
No. 176	Pulses	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	Annex M-CP 10-01 (Covered by scenario no. 18
No. 178	BBCH ≥ 20 Root & stem vegetables BBCH ≥ 40 Root & stem vegetables	Small granivorous bird "finch" Linnet (<i>Carduelis cannabina</i>)	3.4	Annex M-CP 10-01 (Covered by scenario no. 7)
No. 187	Root & stem vegetables 6° BBCH ≥ 40 5°	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	3.3	Annex M-CP 10-01 (Covered by scenario no 16)
No. 189	Koot & stelli vegetables.	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	Annex M-CP 10-01 (Covered by scenario no. 18
No. 198	Strawberries BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	4.4	Annex M-CP 10-01 (Covered by scenario no 16)
lyphosate Renewal Group AIR 5	BBCH ≥ 20 $(1, 5, 5, 5)$ Strawberries BBCH ≥ 40 $(1, 5, 5, 5)$ (3, - July 2020) $(1, 5)$ $(1, 5$		Doc ID: 110	054-MCP10_GRG_Rev 1_Jul_2020

Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

EFSA Appendix A Scenario Number	Tier 1 scenario	Generic focal species	SVm	Risk assessment presented
No. 201	Strawberries BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	9.7	Annex M-CP 10-01 (Covered by scenario no. 18
	Field crops (Shielded gro	und directed inter-row application): Ose 6a, b		
Jo. 6	Bulbs and onion like crops BBCH 10 – 39	Small granivorous bird "finch" Linnet (Carduelis campabina)	11.4	Annex M-CP 10-01 (Covered by scenario no. 71
No. 14	Bulbs and onion like crops BBCH 10 – 39	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	MCP 10.1.1 (Worst case scenario)
No. 17	Bulbs and onion like crops BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	MCP 10.1.1 (Worst case scenario)
No. 48	Fruiting vegetables BBCH 10 – 49	Small granivorous bird "finch" Linnet (Carduelis cannabina)	11.4	Annex M-CP 10-01 (Covered by scenario no. 71
No. 56	Fruiting vegetables BBCH 10 – 49	Small Omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
No. 60	Fruiting vegetables BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17
No. 71	Leafy vegetables	Small granivorous bird "finch"	12.6	MCP 10.1.1 (Worst case scenario)
No. 79	Leafy vegetables BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
No. 82	Leafy vegetables	Medium herbivorous/granivorous bird "pigeon"	22.71	MCP 10.1.1 (Worst case scenario)
No. 83	BBCH 10 - 49 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17)
No. 85	BBCH 10 – 49	Small granivorous bird "finch" Linnet (<i>Carduelis cannabina</i>)	11.4	Annex M-CP 10-01 (Covered by scenario no. 71
lyphosate Renewal Group AIR 5			Doc ID: 110	0054-MCP10_GRG_Rev 1_Jul_2020

Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

EFSA Appendix A Scenario Number	Tier 1 scenario	Generic focal species	SVm	Risk assessment presented
Vo. 93	Legume forage BBCH 10 – 49	Small omnivorous bird "lark" () Woodlark (<i>Lullula arborea</i>) ()	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 97	Legume forage BBCH 10 – 19	Small insectivorous bird 'Svagtad' Yellow wagtail (<i>Motacijia flava</i>)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17
No. 158	Potatoes BBCH 10 – 39	Small omnivorous bird 'tark' Woodlark (Lullula argorea)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
No. 161	Potatoes BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17
No. 163	Pulses BBCH 10 – 49	Small granivorous bird "finch" Linnet (Carduelis cannabina)	11.4	Annex M-CP 10-01 (Covered by scenario no. 71
No. 171	Pulses BBCH 10 – 49	Small onnivorous bird "lark" Woodfark (Lullula arborea)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
No. 174	Pulses Leaf development BBCH 10 – 19	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba palumbus</i>)	22.7	Annex M-CP 10-01 (Covered by scenario no. 82
No. 175	Pulses BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17
No. 177	Pulses BBCH 10 – 19 Root & stem vegetables BBCH 10 – 39	Small granivorous bird "finch" Linnet (<i>Carduelis cannabina</i>)	11.4	Annex M-CP 10-01 (Covered by scenario no. 71
No. 185	BBCH 10 - 39 Root & stem vegetables BBCH 10 - 39 Root & stem vegetables BBCH 10 - 19 Root & stem vegetables BBCH 10 - 19 Root & stem vegetables	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 188	Root & stem vegetables	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17
Jo. 206	Sugar beet	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 207	Sugar beet BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	5.9	Annex M-CP 10-01 (Covered by scenario no. 17
lyphosate Renewal Group AIR 5	Early (spring) (BBCH40, 510) Sugar beet BBCH 10 – 19 - July 2020 State of the of t		Doc ID: 110	054-MCP10_GRG_Rev 1_Jul_2020

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Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

EFSA Appendix A Scenario Number	Tier 1 scenario	Generic focal species	SVm	Risk assessment presented
		Vineyard: Use 5 a-c		
0. 217	Vineyard BBCH 10 – 19	Small insectivorous bird, "redstart" Black redstart (<i>Phoenjeurus ochruros</i>)	11.5	MCP 10.1.1
o. 218	Vineyard BBCH 20 – 39	Small insectivorous bird "redstart" Black redstart (<i>Phoenicurus ochruros</i>)	9.9	MCP 10.1.1
lo. 219	Vineyard BBCH 10 – 19	Small granivosous bird "finch" Linnet (<i>Carduells gannabina</i>)	6.9	MCP 10.1.1
o. 220	Vineyard BBCH 20 – 39	Small granixorous bird "finch" Linnet (Carduelis cannabina)	5.7	MCP 10.1.1
0. 221	Vineyard BBCH ≥ 40	Small granivorous bird "finch" Linnet (Carduelis cannabina)	3.4	MCP 10.1.1
0. 231	Vineyard BBCH 10 – 19	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	6.5	MCP 10.1.1
0. 232	VineyardSignatureBBCH 20 – 39Signature	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	5.4	MCP 10.1.1
0. 233	BBCH 20 – 39 0 Vineyard 0 BBCH ≥ 40 0	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	3.3	MCP 10.1.1
	Control of invasive species in	agricultural and non-agricultural areas: Use 8 -	9	
o. 6	Bulbs and onion like crops 5 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Small granivorous bird "finch" Linnet (<i>Carduelis cannabina</i>)	11.4	Annex M-CP 10-01 (Covered by scenario no. 7
o. 7	Bulb and onion like crops 5 5 5 5 BBCH ≥ 40	Small granivorous bird "finch" Linnet (<i>Carduelis cannabina</i>)	6.9	Annex M-CP 10-01 (Covered by scenario no. 7
[0. 14]	Bulbs and onion like erops	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	MCP 10.1.1 (Worst case scenario)
/phosate Renewal Group AIR 5			Doc ID: 11()054-MCP10_GRG_Rev 1_Jul_202(

Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

EFSA Appendix A Scenario Number	Tier 1 scenario	Generic focal species Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>) Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	SVm	Risk assessment presented
No. 16	Bulb and onion like crops $BBCH \ge 40$	Small omnivorous bird "lark" () Woodlark (<i>Lullula arborea</i>)) ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	6.5	Annex M-CP 10-01 (Covered by scenario no. 14
No. 17	Bulbs and onion like crops BBCH 10 – 19	Small insectivorous bird, "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	MCP 10.1.1 (Worst case scenario)
No. 18	Bulb and onion like crops $BBCH \ge 20$	Small insectivorous bird "wagtail" Yellow wagtail (Motocilla flava)	9.7	Annex M-CP 10-01 (Covered by scenario no. 17
No. 20	Bush & cane fruit Whole season BBCH 00 – 79 Currants	Small insectivorous bird "warbler" Willow warbler (<i>Phylloscopus trochilus</i>)	20.3	MCP 10.1.1 (Worst case scenario)
No. 21	Cereals Late post-emergence (May-June) BBCH 71 – 89	Small insectivorous bird "passerine" Fan tailed warbler	22.4	MCP 10.1.1 (Worst case scenario)
No. 22	Cereals Early (shoots) autumn-winter BBCH 10 – 29	Large herbivorous bird "goose" Fink-foot goose (Anser brachyrhynchus)	16.2	MCP 10.1.1 (Worst case scenario)
No. 31	Cereals BBCH 10 – 29	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
No. 33	Cereals BBCH 30 – 39	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	5.4	Annex M-CP 10-01 (Covered by scenario no. 14)
No. 34	Cereals	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	3.3	Annex M-CP 10-01 (Covered by scenario no. 14)
No. 48	BBCH 10 – 49	Small granivorous bird "finch" Linnet (<i>Carduelis cannabina</i>)	11.4	Annex M-CP 10-01 (Covered by scenario no. 71)
No. 49	Fruiting vegetables	Small granivorous bird "finch" Linnet (<i>Carduelis cannabina</i>)	3.4	Annex M-CP 10-01 (Covered by scenario no. 71)
No. 56	Fruiting vegetables BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14)
No. 58	Fruiting vegetables 50 50 50 50 50 50 50 50 50 50 50 50 50	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	3.3	Annex M-CP 10-01 (Covered by scenario no. 14)
lyphosate Renewal Group AIR 5	1000 1000 1000 1000 1000 1000 1000 100		Doc ID: 110	0054-MCP10_GRG_Rev 1_Jul_2020

Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

EFSA Appendix A Scenario Number	Tier 1 scenario	Generic focal species	SVm	Risk assessment presented
No. 60	Fruiting vegetables BBCH 10 – 19	Small insectivorous bird "wagtal"	11.3	Annex M-CP 10-01 (Covered by scenario no. 17
Io. 61	Fruiting vegetables BBCH ≥ 20	Small insectivorous bird 'Svagtaid' Yellow wagtail (<i>Motacifia flava</i>)	9.7	Annex M-CP 10-01 (Covered by scenario no. 17
No. 66	Hops BBCH 10 – 19	Small insectivorous bird "finch" Chaffinch (<i>Fringilla colebs</i>)	9.1	MCP 10.1.1 (Worst case scenario)
No. 67	Hops BBCH ≥ 20	Small insectivorous bird "finch" Chaffinch (<i>Fringilla colebs</i>)	10.6	Annex M-CP 10-01 (Covered by scenario no. 66)
No. 68	Hops BBCH 10 – 19	Small granivorous bird "finch" Goldfinch (Carduelis carduelis)	11.4	Annex M-CP 10-01 (Covered by scenario no. 71)
No. 69	Hops BBCH 20 – 39	Small granivorous bird "finch" Goldfinch (Carduelis carduelis)	5.7	Annex M-CP 10-01 (Covered by scenario no. 71)
No. 70	Hops BBCH ≥ 40	Small granivorous bird "finch" Goldfinch (<i>Carduelis carduelis</i>)	3.4	Annex M-CP 10-01 (Covered by scenario no. 71
No. 71	Leafy vegetables BBCH 10 – 49	Small granivorous bird "finch" Serin (<i>Serinus serinus</i>)	12.6	MCP 10.1.1 (Worst case scenario)
No. 72	Leafy vegetables	Small granivorous bird "finch" Serin (Serinus serinus)	3.8	Annex M-CP 10-01 (Covered by scenario no. 71)
No. 79	Leafy vegetables BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
No. 81	Leafy vegetables 6^{+} BBCH ≥ 50 5^{+}	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	3.3	Annex M-CP 10-01 (Covered by scenario no. 14)
No. 82	Leafy vegetables	Medium herbivorous/granivorous bird "pigeon"	22.71	MCP 10.1.1 (Worst case scenario)
No. 83	Leafy vegetables BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17)
lyphosate Renewal Group AIR 5			Doc ID: 11(0054-MCP10_GRG_Rev 1_Jul_2020

Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

EFSA Appendix A Scenario Number	Tier 1 scenario	Generic focal species	SVm	Risk assessment presented
Io. 84	Leafy vegetables BBCH ≥ 20	Yellow wagtail (Motacilla flava)	9.7	Annex M-CP 10-01 (Covered by scenario no. 17
o. 85	Legume forage BBCH 10 – 49	Small granivorous bird "finch" 6 Linnet (Carduelis cannabina)	11.4	Annex M-CP 10-01 (Covered by scenario no. 71
lo. 86	Legume forage $BBCH \ge 50$	Small granivorous bird "finch" Linnet (Carduelis camabina)	3.4	Annex M-CP 10-01 (Covered by scenario no. 71
Io. 93	Legume forage BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (Lullula grborea)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 94	Legume forage BBCH ≥ 50	Small omnivorous bird "lark" Woodlark (Euflula arborea)	3.3	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 96	Legume forage Leaf development BBCH 21 – 49	Medum herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)	22.7	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 97	Legume forage BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17
lo. 98	Legume forage BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	Annex M-CP 10-01 (Covered by scenario no. 17
No. 99	Legume forage BBCH ≥ 20 Maize BBCH 10 - 29	Medium granivorous bird "gamebird" Partridge (<i>Perdix perdix</i>)	3.0	MCP 10.1.1 (Worst case scenario)
Jo. 100	Maize BBCH 30 – 39	Medium granivorous bird "gamebird" Partridge (<i>Perdix perdix</i>)	1.5	Annex M-CP 10-01 (Covered by scenario no. 99
Jo. 101	BBCH 10 – 29Maize 0 0 BBCH 30 – 39 0 0 Maize 0 0 BBCH ≥ 40 0 0 0 0 0	Medium granivorous bird "gamebird" Partridge (<i>Perdix perdix</i>)	0.8	Annex M-CP 10-01 (Covered by scenario no 99)
lo. 102	Maize	Small insectivorous / worm feeding species "thrush"	5.7	MCP 10.1.1 (Worst case scenario)
Io. 111	Maize BBCH 10 – 29	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
yphosate Renewal Group AIR 5	10 40 10 40 10 40		Doc ID: 110	0054-MCP10_GRG_Rev 1_Jul_2020

Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

EFSA Appendix A Scenario Number	Tier 1 scenario	Generic focal species	SVm	Risk assessment presented
Jo. 113	Maize BBCH 30 – 39	Small omnivorous bird "lark" () Woodlark (<i>Lullula arborea</i>) ()	5.4	Annex M-CP 10-01 (Covered by scenario no. 14
Io. 114	Maize BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula arbored</i>) Medium herbivorous granivorous bird "pigeon"	2.7	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 115	Maize BBCH 10 – 29	Medium herbivorous granisorous bird "pigeon" Wood pigeon (<i>Calumba palumbus</i>)	22.7	Annex M-CP 10-01 (Covered by scenario no. 14
No. 116	Maize BBCH 30 – 39	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)	11.4	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 117	Maize BBCH ≥ 40	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)	5.7	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 118	Maize BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17
Io. 119	Maize BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	4.8	Annex M-CP 10-01 (Covered by scenario no. 17
No. 120	Oilseed rape Late (with seeds) BBCH 30 – 99	Small insectivorous bird "dunnock" Dunnock (<i>Prunella modularis</i>)	2.7	MCP 10.1.1 (Worst case scenario)
Jo. 121	Oilseed rape Late (with seeds) BBCH 30 – 99 Oilseed rape Early (shoots) BBCH 10 – 19	Large herbivorous bird "goose" Greylag goose (<i>Anser anser</i>)	15.9	Annex M-CP 10-01 (Covered by scenario no. 22
Jo. 122	Oilseed rape Late (with seeds) BBCH 80 – 99	Small granivorous bird "finch" Linnet (<i>Carduelis cannabina</i>)	11.4	Annex M-CP 10-01 (Covered by scenario no. 71
Jo. 131	Oilseed rape BBCH 10 – 29	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 133	Oilseed rape	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	3.3	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 134	Oilseed rape BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	2.7	Annex M-CP 10-01 (Covered by scenario no. 14
yphosate Renewal Group AIR 5	BBCH $30 - 39$ Oilseed rape BBCH ≥ 40 5 - July 2020 5 - July 20		Doc ID: 110	0054-MCP10_GRG_Rev 1_Jul_2020

Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

EFSA Appendix A Scenario Number	Tier 1 scenario	Generic focal species	SVm	Risk assessment presented
Jo. 135	Oilseed rape BBCH 10 – 19	Medium herbivorous/granivorous bird [®] pigeon" Wood pigeon (<i>Columba palymbus</i>)	22.7	Annex M-CP 10-01 (Covered by scenario no. 14
Io. 136	Oilseed rape BBCH 20 – 29	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columbic patumbus</i>)	3.5	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 137	Oilseed rape BBCH 30 – 39	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba palumbus</i>)	1.1	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 138	Oilseed rape BBCH ≥ 40	Medium herbivorous granivorous bird "pigeon" Wood pigeon (<i>Columba palumbus</i>)	0.9	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 139	Oilseed rape BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	5.9	Annex M-CP 10-01 (Covered by scenario no. 17
Jo. 140	Oilseed rape BBCH 20 – 29	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	2.8	Annex M-CP 10-01 (Covered by scenario no. 17
No. 141	Orchard Spring Summer	Small insectivorous bird "tit" Bluetit (Parus caeruleus)	18.2	MCP 10.1.1 (Worst case scenario)
Jo. 142	Orchard Not crop directed application all season	Small insectivorous/worm feeding species "thrush" Robin (<i>Erithacus rubecula</i>)	2.7	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 146	Orchard Not crop directed application all season	Small granivorous bird "finch" Serin (Serinus serinus)	12.6	Annex M-CP 10-01 (Covered by scenario no. 71
Jo. 158	Potatoes BBCH 10 – 39	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 160	Potatoes 6^{10} , 8^{10} , 6^{10} BBCH ≥ 40 5^{10} , 8^{10} , 5^{10}	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	3.3	Annex M-CP 10-01 (Covered by scenario no. 14
Io. 161	Potatoes	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17
Jo. 162	BBCH > 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	Annex M-CP 10-01 (Covered by scenario no. 17
lyphosate Renewal Group AIR 5		1	Doc ID: 11(0054-MCP10_GRG_Rev 1_Jul_2020

Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

EFSA Appendix A Scenario Number	Tier 1 scenario	Generic focal species	SVm	Risk assessment presented
Jo. 163	Pulses BBCH 10 – 49	Small granivorous bird "finch" (Linnet (<i>Carduelis cannabing</i>) (11.4	Annex M-CP 10-01 (Covered by scenario no. 71
Io. 164	Pulses BBCH \geq 50	Small granivorous bird "finch" 5 Linnet (Carduelis cannabina)	3.4	Annex M-CP 10-01 (Covered by scenario no. 71
Jo. 171	Pulses BBCH 10 – 49	Small omnivorous bird flark" Woodlark (<i>Lullula arborea</i>)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 173	Pulses BBCH \geq 50	Small omnivorous bird "lark" Woodlark (Lullula arborea)	3.3	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 174	Pulses Leaf development BBCH 10 – 19	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)	22.7	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 175	Pulses BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17
Io. 176	Pulses BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motcailla flava</i>)	9.7	Annex M-CP 10-01 (Covered by scenario no. 17
Jo. 177	Root & stem vegetables BBCH 10 – 39	Small granivorous bird "finch" Linnet (<i>Carduelis cannabina</i>)	11.4	Annex M-CP 10-01 (Covered by scenario no. 71
lo. 178	Root & stem vegetables	Small granivorous bird "finch" Linnet (<i>Carduelis cannabina</i>)	3.4	Annex M-CP 10-01 (Covered by scenario no. 71
Io. 185	BBCH \geq 40 BBCH \geq 40 Root & stem vegetables BBCH 10 - 39 Root & stem vegetables BBCH \geq 40	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14
Jo. 187	Root & stem vegetables 5° BBCH ≥ 40 5°	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	3.3	Annex M-CP 10-01 (Covered by scenario no. 14
Io. 188	BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17
Io. 189		Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	Annex M-CP 10-01 (Covered by scenario no. 17
lyphosate Renewal Group AIR 5			Doc ID: 110	0054-MCP10_GRG_Rev 1_Jul_2020

Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

EFSA Appendix A Scenario Number	Tier 1 scenario	Generic focal species	SVm	Risk assessment presented
No. 196	Strawberries BBCH 10 – 39	Small omnivorous bird "lark" () Woodlark (<i>Lullula arborea</i>) ()	10.9	Annex M-CP 10-01 (Covered by scenario no. 14)
No. 198	Strawberries BBCH ≥ 40	Small omnivorous bird "larko" o Woodlark (<i>Lullula arbgrea</i>) Small insectivorous bird "wagtail"	4.4	Annex M-CP 10-01 (Covered by scenario no. 14)
No. 200	Strawberries BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motocilla flava</i>)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17)
No. 201	Strawberries BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Mogacilla flava</i>)	9.7	Annex M-CP 10-01 (Covered by scenario no. 17)
No. 202	Sugar beet Late (summer / autumn)	Small gran vorous bird "finch" Linnet (Carduelis cannabina)	11.4	Annex M-CP 10-01 (Covered by scenario no. 71)
No. 206	Sugar beet Early (spring) (BBCH 10 – 19)	Small omnivorous bird "lark" Woodlark (Lullula arborea)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14)
No. 207	Sugar beet BBCH 10 – 19	Small insectivorous bird "wagtail" Xellow wagtail (<i>Motacilla flava</i>)	5.9	Annex M-CP 10-01 (Covered by scenario no. 17)
No. 209	Sugar beet 0^{17} BBCH 10 - 19 0^{17} Sugar beet 0^{17} BBCH 20 - 49 0^{17}	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	5.9	Annex M-CP 10-01 ² (Covered by scenario no. 17)
No. 210	Sugar beet BBCH 20 – 49	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	Annex M-CP 10-01 (Covered by scenario no. 17)
No. 214	Sunflower Early germination / Leaf development (BBCH 00	Small omnivorous bird "lark" Woodlark (<i>Lullula arborea</i>)	10.9	Annex M-CP 10-01 (Covered by scenario no. 14)
No. 215	Sunflower	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	Annex M-CP 10-01 (Covered by scenario no. 17)
No. 217	Vinevard	Small insectivorous species "redstart" Black redstart " <i>Phoenicurus ochruros</i> "	11.5	MCP 10.1.1 (Worst case scenario)
No. 218	Vineyard BBCH ≥ 20	Small insectivorous species "redstart" Black redstart " <i>Phoenicurus ochruros</i> "	9.9	Annex M-CP 10-01 (Covered by scenario no. 217
Hyphosate Renewal Group AIR 5	BBCH 10 – 19 $(I I I I I I I I I I I I I I I I I I $		Doc ID: 110)054-MCP10_GRG_Rev 1_Jul_2020

Table 10.1.1-9: Summary of avian scenarios presented for Tier 1

		N. K.	Page 55 of 55.
ry of avian scenarios presented for Tier	1	194 JS	
Tier 1 scenario		SVm	Risk assessment presented
Vineyard BBCH 10 – 19	Small granivorous bird "finch"	6.9	Annex M-CP 10-01 (Covered by scenario no. 71)
Vineyard	Small granivorous bird "finch" of	5.7	Annex M-CP 10-01
BBCH 20 – 39	Linnet (<i>Carduelis cannabina</i>)		(Covered by scenario no. 71)
Vineyard	Small granivorous bird "finch"	3.4	Annex M-CP 10-01
BBCH ≥ 40	Linnet (Carduelis camabina)		(Covered by scenario no. 71)
Vineyard	Small omnivorous bird "lark"	6.5	Annex M-CP 10-01
BBCH 10 – 19	Wood lark (Lullula arborea)		(Covered by scenario no. 14)
Vineyard	Small omnyorous bird "lark"	5.4	Annex M-CP 10-01
BBCH 20 – 39	Wood kark (Lyffula arborea)		(Covered by scenario no. 14)
Vineyard	Small omnivorous bird "lark"	3.3	Annex M-CP 10-01
BBCH ≥ 40	Wood lack (Lullula arborea)		(Covered by scenario no. 14)
	Tier 1 scenarioTier 1 scenarioVineyard BBCH 10 – 19Vineyard BBCH ≥ 40 Vineyard BBCH 10 – 19Vineyard BBCH 20 – 39Vineyard BBCH 20 – 39Vineyard BBCH 20 – 39Vineyard BBCH 20 – 39Vineyard BBCH ≥ 40	Tier 1 scenarioGeneric focal speciesVineyard BBCH 10 – 19Small granivorous bird "finch" Linnet (Carduelis cannabina)Vineyard BBCH 20 – 39Small granivorous bird "finch" Linnet (Carduelis cannabina)Vineyard BBCH ≥ 40 Small granivorous bird "finch" Linnet (Carduelis cannabina)Vineyard BBCH 10 – 19Small granivorous bird "finch" Linnet (Carduelis cannabina)Vineyard BBCH ≥ 40 Small granivorous bird "finch" Linnet (Carduelis cannabina)Vineyard BBCH 10 – 19Small omnivorous bird "lark" Wood lark (Lallula arborea)Vineyard BBCH 20 – 39Small omnivorous bird "lark" Wood lark (Lallula arborea)Vineyard BBCH 20 – 39Small omnivorous bird "lark" Wood lark (Lallula arborea)Vineyard BBCH 20 – 39Small omnivorous bird "lark" Wood lark (Lallula arborea)	Tier 1 scenarioGeneric focal speciesSVmVineyard BBCH 10 - 19Small granivorous bird "finch" Linnet (Carduelis cannabina)6.9Vineyard BBCH 20 - 39Small granivorous bird "finch" Linnet (Carduelis cannabina)5.7Vineyard BBCH ≥ 40 Small granivorous bird "finch" Linnet (Carduelis cannabina)3.4Vineyard BBCH 10 - 19Small granivorous bird "finch" Linnet (Carduelis cannabina)6.5Vineyard BBCH 20 - 39Small omnivorous bird "finch" Linnet (Carduelis cannabina)6.5Vineyard BBCH 20 - 39Small omnivorous bird "lark" Wood lark (Lullula arborea)5.4Vineyard BBCH 20 - 39Small omnivorous bird "lark" Wood lark (Lullula arborea)5.4Vineyard BBCH 20 - 39Small omnivorous bird "lark" Wood lark (Lullula arborea)3.3

Worst case scenarios are indicated in **bold**. ¹ The given short-cut value is corrected and deviates from the short-cut value presented in the Appendix A of the EFSA/2009/1438. In the Appendix A for the wood pigeon (*Columba palumbus*) a ¹The given short-cut value is corrected and deviates from the short-cut value presented in the Appendix A of the EFSA/2009/1438. In the short-cut value of 37.0 is stated. This value was calculated by multiplication of the FIR BW (6/29) with the mean RUD value (28.7). A for all other crop scenarios in the Appendix A the risk assessment was done with the corrected short-cut value of 22.7 (28.7 × 0.79). ² Same scenario like scenario 207. Only presented once in the Annex M-CP 10-01 short-cut value of 37.0 is stated. This value was calculated by multiplication of the FIR/BW (5.29) with the mean RUD value (28.7). As the correct FIR/BW for the wood pigeon is 0.79, as stated

M-CP, Section 10 Page 56 of 553 The Tier 1 risk assessment is presented in the following tables for the relevant uses in field crops (except use 3 a-b), uses in vineyards and uses to control invasive species, taking into account those generic focal species scenarios which were indicated in bold in the table above.

Table 10.1.1-10: Tier glyphosate in field cr	r 1 assessm rops (Pre-so	ent of the long owing, pre-pla	-term/reproductive risl nting, pre-emergence):	k for Use	birds d 1 a-c	lue the use of	
Active substance		Glyphosate				1. C .e	
Reprod. toxicity (mg/k	ag bw/d)	96.3			Ś		
TER criterion		5			12.		
GAP crop	Application rate (g a.e./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAFm	© DDD _m (mg/kg bw/d)	TER
Field crops (Pre- sowing, pre-planting, pre-emergence)	(<u>g utes nu)</u> 1 × 1440	Leafy vegetables BBCH 10 – 49	Small granivorous bird "finch" Serin (<i>Serinus</i> <i>serinus</i>)			9.62	10.0
		Leafy vegetables BBCH≥50	Small granivorous bird "finch" Serin (Sevinus serinus)	3.8	1.0 × 0.53	2.90	33.2
		Leafy vegetables BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (Lullula arborea)		1.0 × 0.53	8.32	11.6
		Leafy vegetables BBCH ≥ 50	Small onnivorous bird "latk" Woodlark (Lullula arborea)	3.3	1.0 × 0.53	2.52	38.2
		vegetables Leaf development BBCH 10 - 19		22.7	1.0 × 0.53	17.3	5.60
		vegetables BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	8.62	11.2
		Leafy vegetables BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.0 × 0.53	7.40	13.0
T A		Leafy vegetables BBCH 10 – 49	Small granivorous bird "finch" Serin (<i>Serinus</i> <i>serinus</i>)	12.6	1.0 × 0.53	7.21	13.4
4) 0 0 0		Leafy vegetables BBCH≥50	Small granivorous bird "finch" Serin (<i>Serinus</i> <i>serinus</i>)	3.8	1.0 × 0.53	2.18	44.3
1000 1000 1000 1000 1000 1000		Leafy vegetables BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53	6.24	15.4
ship is of of the of the is of the is		Leafy vegetables BBCH≥50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	1.89	51.0
Glyphosate Renewal Group A		Leafy vegetables Leaf development BBCH 10 – 19	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba</i> <i>palumbus</i>)	22.7	1.0 × 0.53	13.0	7.40



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			-term/reproductive risl nting, pre-emergence):			lue the use of	
Active substance		Glyphosate					
Reprod. toxicity (mg	/kg bw/d)	96.3					2 JUNIC
TER criterion		5				Ŕ	N.S
GAP crop	Application rate (g a.e./ha)	Crop scenario Growth stage	Generic focal species	SV _m	MAF _m × TWA	DDD _m (mg/kg bw/d)	ŤER _{lt}
		Leafy vegetables BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	6475 °	14.9
		Leafy vegetables BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.0× 0.53	5 85 2 95 4 81	17.3
	1 × 720	Leafy vegetables BBCH 10 – 49	Small granivorous bird "finch" Serin (<i>Serinus</i> serinus)	12.6	0.53	4.81	20.0
		Leafy vegetables BBCH≥ 50	Small granivorous bird "finch" Serin (Serinus, serinus)	3.8	1.0 × 0.53	1.45	66.4
		Leafy vegetables BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (Lullula	10.9	0.53	4.16	23.2
		Leafy vegetables BBCH≥50	Small on nivorous bird "lark" Woodlark (Lullula arborea)	3.3	1.0 × 0.53	1.26	76.5
		Leafy vegetables Leaf development BBCH210-49	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba</i> <i>palumbus</i>)	22.7	1.0 × 0.53	8.66	11.1
	Ó	Leafy vegetables BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	11.3	1.0 × 0.53	4.31	22.3
		Leafy vegetables BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.0 × 0.53	3.70	26.0
SV: shortcut value; MAI toxicity to exposure ratio	T: mutříptě appli	cation factor; TW <i>4</i>	arbored) Small oninivorous bird "lark" Woodlark (Lullula arborea) Medium harbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus) Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava) Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava) A: time-weighted average fact	or; DD	D: daily	dietary dose; TE	R:
Glyphosate Renewal Group	AIR 5 – July 2020)	Do	c ID: 11	0054-MC	CP10_GRG_Rev 1_	Jul_2020

Table 10.1.1-10: Tier 1 assessment of the long-term/reproductive risk for birds due the use of glyphosate in field crops (Pre-sowing, pre-planting, pre-emergence): Use 1 a-c

in the second second

Glyphosate Active substance 1010 96.3 Reprod. toxicity (mg/kg on bw/d) **TER** criterion 5 SV_m MAF_m× DDDm & **GAP** crop TER_{it} Application **Crop scenario** Generic focal species (mg/kg bw/d) TWA Growth stage rate (g a.e./ha) Field crops 1×1440 Maize Medium granivorous bird 0.8 $1.0 \times$ 158 0.612 $BBCH \ge 40$ (Post-harvest, 'gamebird" Partridge 0.53 pre-sowing, (Perdix perdix) Ù pre-planting) 0 Maize Medium 5.7 **4**.35 22.1 0,0 0,0 $BBCH \ge 40$ herbivorous/granivorous 470 00 . bird "pigeon" Wood pigeon ň, (Columba palumbus) Small insectivorous bird 273 1%) × Oilseed rape 2.06 46.7 Late (with 'dunnock" **∛**0.53

Dunnock (Prunella

Linnet (Carduelis

(Motacilla flava)

v č Small omnivorous bird

cannabina)

arborea)

Medium

"dunnock"

modularis)

cannabina)

arborea)

"finch"

Small granivorous bird

3

Small insectivorous bird

wagtail" Yellow wagtail

Sark Woodlark (Lullula

Medium granivorous bird

herbivorous/granivorous

Small insectivorous bird

Small granivorous bird

Small insectivorous bird

Small omnivorous bird

"lark" Woodlark (Lullula

'wagtail" Yellow wagtail

Dunnock (Prunella

Linnet (Carduelis

(Motacilla flava)

bird "pigeon" Wood pigeon (Columba palumbus)

"gamebird" Partridge

(Perdix perdix)

1ºcl

Š

seeds) BBCH

30 - 99 Oilseed rape

80 - 99

Bulbs and

onion like

 $BBCH \geq 20$

like crops

Maize

 $BBCH \ge 40$

BBCH≥40

BBCH® 40

Oilseed rape

seeds) BBCH

Oilseed rape

seeds) BBCH

Late (with

Bulbs and

onion like

 $BBCH \ge 20$ Bulbs & onion

like crops

 $BBCH \ge 40$

80 - 99

crops

Late (with

30 - 99

Out 1000

1.0H

00

H.

Bulbs & onion

crops

 2×1080

(28 d)

Late (with

seeds) BBCH

Tour

11.4

9.7

6.5

0.8

5.7

2.7

11.4

9.7

6.5

 $1.0 \times$

0.53

 $1.0 \times$

0.53

 $1.0 \times$

0.53

1.1 ×

0.53

 $1.1 \times$

0.53

 $1.1 \times$

0.53

 $1.1 \times$

0.53

1.1 ×

0.53

 $1.1 \times$

0.53

8.70

7.40

4.96

0.504

3.59

1.70

7.18

6.11

4.09

11.1

13.0

19.4

191

26.8

56.6

13.4

15.8

23.5

Table 10.1.1-11: Tier 1 assessment of the long-term/reproductive risk for birds due the use of glyphosate in field crops (Post-harvest, pre-sowing, pre-planting): Use 2 a-c, 10 a-c

Š.	Glyphosate Renewal Gro
**************************************	Glyphosate Renewal Gro

Table 10.1.1-11: Tier 1 assessment of the long-term/reproductive risk for birds due the use of glyphosate in field crops (Post-harvest, pre-sowing, pre-planting): Use 2 a-c, 10 a-c

			ne long-term/reproductive pre-sowing, pre-planting				Section 10 59 of 553 f
Active substa	nce	Glyphosate					36
Reprod. toxic	ity (mg/kg	96.3					And Cliff
bw/d) TER criterior	1	5					
GAP crop	Application	Crop scenario	Generic focal species	SVm	MAF _m ×	DDDm S	TER
Ĩ	rate (g a.e./ha)	Growth stage	, , , , , , , , , , , , , , , , , , ,		TWA	(mg/kg bw/d)	
	1 × 720	Maize BBCH≥40	Medium granivorous bird "gamebird" Partridge (<i>Perdix perdix</i>)	0.8	1.0 × 0.53	0.305	315
		Maize BBCH≥40	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)	5.7		2.48	44.3.
		Oilseed rape Late (with seeds) BBCH 30 – 99	Small insectivorous bird "dunnock" Dunnock (Prunella modularis)	9 10 10	Q?53	1.13	85.0
		Oilseed rape Late (with seeds) BBCH 80 – 99	modularis) Small granivorous bird "finch" Linnet (Carduelis cannabina)	¢1.4	1.0 × 0.53	4.79	20.1
		Bulbs and onion like crops BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	9.7	1.0 × 0.53	3.70	26.0
		like crops BBCH≥ 40	Small omnivorous bird "latk" Woodlark (<i>Lullula</i> arborea)	6.5	1.0 × 0.53	2.48	38.8
	2 × 720 (28 d)	Maize BBCH≥40	gamebird" Partridge (Perdix perdix)	0.8	1.1 × 0.53	0.336	287
		Maize BBCH ≥ 40	Medium herbivorous/granivorous	5.7	1.1 × 0.53	2.39	40.2
		Offseed rape Late (with seeds) BBCH 30 - 99 Oilseed rape Late (with seeds) BBCH 80 - 99 Bulbs and onion like crops BBCH ≥ 20 Bulbs & onion like crops BBCH ≥ 40 Maize BBCH ≥ 40 July 2020	Small insectivorous bird "dunnock" Dunnock (<i>Prunella</i> <i>modularis</i>)	2.7	1.1 × 0.53	1.13	85.0
	11 11 10 10 10 10 10 10 10 10 10 10 10 1	Oilseed rape Late (with seeds) BBCH 80 – 99	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	11.4	1.1 × 0.53	4.79	20.1
en contraction of the contractio		Bulbs and onion like crops BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.1 × 0.53	4.07	23.7
ALL		Bulbs & onion like crops BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	6.5	1.1 × 0.53	2.73	35.3
- Maria	1 × 1080	Maize BBCH≥40	Medium granivorous bird "gamebird" Partridge (<i>Perdix perdix</i>)	0.8	1.0 × 0.53	0.458	210

			he long-term/reproductive pre-sowing, pre-planting				Section 10 e 60 of 553 f
Active substa	nce	Glyphosate					. Č
Reprod. toxic bw/d)	ity (mg/kg	96.3					and
TER criterion	l	5				1	° O`
GAP crop	Application rate (g a.e./ha)	Crop scenario Growth stage		SV _m	MAF _m × TWA	DDD _m (mg/kg bw/d)	TER
	(g acona)	Maize BBCH≥40	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba palumbus</i>)		1.0 × 0.53	(mg/kg bŵ/d) 3.26	29.5
		Oilseed rape Late (with seeds) BBCH 30 – 99	Small insectivorous bird "dunnock" Dunnock (<i>Prunella</i> <i>modularis</i>)	2.7		\$.55	62.3
		Oilseed rape Late (with seeds) BBCH 80 – 99	modularis) Small granivorous bird "finch" Linnet (Carduelis cannabina) Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)		190 × 0.53	6.52	14.8
		Bulbs and onion like crops BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	9.7	1.0 × 0.53	5.55	17.3
		Bulbs & onion like crops BBCH ≥ 40	Small omnivorous bird "lark" Woodbarks Lullula arborea	6.5	1.0 × 0.53	3.72	25.9
	3 × 720 (28 d)	Maize BBCH≥40	Medium granivorous bird "gamebirg" Partridge (<i>Perdix perdix</i>)	0.8	1.2 × 0.53	0.366	263
		Maize BBCH ≥ 40	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba palumbus</i>)	5.7	1.2 × 0.53	2.61	36.9
	3.	Oilseed rape Late (with seeds) BBCH 30-99	Small insectivorous bird "dunnock" Dunnock (<i>Prunella</i> <i>modularis</i>)	2.7	1.2 × 0.53	1.24	77.9
	A C C C C C C C C C C C C C C C C C C C	Oilseed rape Eate (with seeds) BBCH 80 – 99	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	11.4	1.2 × 0.53	5.22	18.4
2		Bulbs and onion like crops BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.2 × 0.53	4.44	21.7
10100000000000000000000000000000000000	00	Bulbs & onion like crops BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	6.5	1.2 × 0.53	2.98	32.4
SV: shortcut valu toxicity to expos	ue; MAF: multip ure ratio. al Group AIR 5 –		or; TWA: time-weighted average			ly dietary dose; TE MCP10_GRG_Rev 1	

Table 10.1.1-11: Tier 1 assessment of the long-term/reproductive risk for birds due the use of glyphosate in field crops (Post-harvest, pre-sowing, pre-planting): Use 2 a-c, 10 a-c

Table 10.1.1-12: Tier 1 assessment of the long-term/reproductive risk for birds due the use of glyphosate in field crops (Shielded ground directed inter-row application): Use 6 a-b

Active substanc	e	Glyphosate					.00
Reprod. toxicity bw/d)	y (mg/kg	96.3					S. S
TER criterion		5				AL.	<i>S</i>
GAP crop	Application rate (g a.e./ha)	Crop scenario Growth stage	Generic focal species	SV _m	MAF _m × TWA	DDDm (mg/kg bw/d)	TER _{it}
Field crops (Shielded ground directed inter-row application)	1 × 1080	Bulbs and onion like crops BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	1.0 × 0.53	(mg/kgðw/d) <u>3</u> 6477 6477 6 6 6 6 6 6 6 6 6 6 6 6 6	14.9
		Bulbs & onion like crops BBCH 10 – 39	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9 10.9 10.9 12.6 12.6	N.0× 2 0530	6.24	15.4
		Leafy vegetables BBCH 10 – 49	Small granivorous bird, 5 "finch" Serin (Serinus" serinus)	12.8 Š	1.0 × 0.53	7.21	13.4
		Leafy vegetables Leaf development BBCH 10 – 19	Medium herbivorous/gramivorous bird "pigeon" Wood pigeon (Columba patumbus)	22.7	1.0 × 0.53	13.0	7.40
	1 × 720	Bulbs and onion like crops BBCH 10 19	Small insectivorous bird wagtail Yellow wagtail (Motacilla flava)	11.3	1.0 × 0.53	4.31	22.3
	, 6	Bulbs & A	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53	4.16	23.2
		Leafy vegetables BBCH 10 – 49	Small granivorous bird "finch" Serin (<i>Serinus</i> <i>serinus</i>)	12.6	1.0 × 0.53	4.81	20.0
Ś	7 2) 2) 2) 2) 2) 2) 2) 2) 2) 2) 2) 2) 2)	Leafy vegetables Leaf development BBCH 10 –	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba palumbus</i>)	22.7	1.0 × 0.53	8.66	11.1

SV: shortest value; MAF: multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER:

..... The Tier 1 TER_{lt} values are indicating that long-term risk t Glyphosate ^p The Tier 1 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-term risk to birds is acceptable following the proposed use patterns in field crops (Uses

Vineyard

Table 10.1.1-13: Tier 1 assessment of the long-term/reproductive risk for birds due the use of glyphosate in vineyards: Use 5 a-c

Annex to Regulati			MON 52276			Page	Section 10 62 of 553
Vineyard							
	-13: Tier 1 a n vineyards:		e long-term/reproductive	e risk f	or birds	due the use of	Section 10 62 of 553
Active substa		Glyphosate				, Ke	8
Reprod. toxic bw/d)	ity (mg/kg	96.3				10 10 10 10 10 10 10 10 10 10 10 10 10 1	S.
TER criterio		5				2. Creife	
GAP crop	Application rate (g a.e./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m (mg/kg bw/d)	TER _{lt}
Vineyard post- emergence of weeds	(2×1440) (28 d)	Vineyard BBCH 10 – 19	Small insectivorous bird "redstart" Black Redstart (<i>Phoenicurus ochrurus</i>)	11.5 Č	1.1 & S 0.53 S		9.97
		Vineyard BBCH 20 – 39	Small insectivorous bird "redstart" Black Redstart (Phoenicurus ochrurus)	9.9. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	0.53	8.31	11.6
		Vineyard BBCH 10 – 19	Small granivorous bird "finch" Linnet (Carductiss cannabina)	6.9	1.1 × 0.53	5.79	16.6
		Vineyard BBCH 20 – 39	Small granivorous bird "finch" Linnet (Carduelis cannabing)	5.7	1.1 × 0.53	4.79	20.1
		Vineyard BBCH≥40	Small granivorous bird "finch" Linnet (Carduelis cambabing)	3.4	1.1 × 0.53	2.85	33.7
		Vineyard BBCH 10 – 19	Smatl omnivorous bird 'lark' Woodlark (<i>Lullula</i> ar <i>borea</i>)	6.5	1.1 × 0.53	5.46	17.6
		Vineyard	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	5.4	1.1 × 0.53	4.53	21.2
	5	BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.1 × 0.53	2.77	34.8
		Vineyard BBCH 10 – 19	Small insectivorous bird "redstart" Black Redstart (<i>Phoenicurus ochrurus</i>)	11.5	1.0 × 0.53	6.58	14.6
Dout Oner Of Dr		Vineyard BBCH 20 – 39	Small insectivorous bird "redstart" Black Redstart (<i>Phoenicurus ochrurus</i>)	9.9	1.0 × 0.53	5.67	17.0
11 12 12 12 12 12 12 12 12 12 12 12 12 1		Vineyard BBCH 10 – 19	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	6.9	1.0 × 0.53	3.95	24.4
5° 16		Vineyard BBCH 20 – 39	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	5.7	1.0 × 0.53	3.26	29.5
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Table 10.1.1-13: Tier 1 assessment of the long-term/reproductive risk for birds due the use of glyphosate in vineyards: Use 5 a-c

	nce	Glyphosate					
Reprod. toxici bw/d)	ity (mg/kg	96.3					100 M
TER criterion		5					S.
GAP crop	Application rate (g a.e./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDgy ((mg/kg(bw/d)	TER
		Vineyard BBCH≥40	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4	1.0 × 0.53	1987	49.5
		Vineyard BBCH 10 – 19	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	6.5	1.0× 5 0.53 5 5	DDD ₀ ³ (mg/kgft 4d) (mg/kgft 4d) \$.95° (0 3.09	25.9
		Vineyard BBCH 20 – 39	Small omnivorous bird "lark" Woodlark (<i>Lullula</i>		1.0 × 0.53	3.09	31.2
		Vineyard BBCH≥40	Small omnivorous bird "lark" Woodlark (Lulluta arborea) Small insectivety bird	3.3	1.0 × 0.53	1.89	51.0
	1 × 1440	Vineyard BBCH 10 – 19	Small insectiverous bird "redstart" Black Redstart (Phoenicurus ochrurus)	11.5	1.0 × 0.53	8.78	11.0
		Vineyard BBCH 20 – 39	Small Insectivorous bird Fedstart Black Redstart (Phoenicurus ochrurus)	9.9	1.0 × 0.53	7.56	12.7
		Vineyard	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	6.9	1.0 × 0.53	5.27	18.3
		Vineyard & BBCH 20-39	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	5.7	1.0 × 0.53	4.35	22.1
	00 01 01 01 00 00 00 00	Vineyard BBCH ≥ 40	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4	1.0 × 0.53	2.59	37.1
		Vineyard BBCH 20 – 39 Vineyard BBCH ≥ 40 Vineyard BBCH 10 – 19 Vineyard BBCH 20 – 39 Vineyard BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	6.5	1.0 × 0.53	4.96	19.4
	10 COM	Vineyard BBCH 20 – 39	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	5.4	1.0 × 0.53	4.12	23.4
Salar Salar		Vineyard BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	2.52	38.2



Table 10.1.1-13: Tier 1 assessment of the long-term/reproductive risk for birds due the use of glyphosate in vineyards: Use 5 a-c

Active substa	nce	Glyphosate					.)))		
Reprod. toxic bw/d)	eity (mg/kg	96.3					and		
TER criterion		5							
GAP crop	Application rate (g a.e./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD@`\S (mg/kg@tw/d)	TER		
	2 × 1080	Vineyard BBCH 10 – 19	Small insectivorous bird "redstart" Black Redstart (<i>Phoenicurus ochrurus</i>)	11.5	1.1 × 0.53	mg/kg/fw/d)	13.3		
		Vineyard BBCH 20 – 39	Small insectivorous bird "redstart" Black Redstart (<i>Phoenicurus ochrurus</i>)	9.9		6.23	15.4		
		Vineyard BBCH 10 – 19	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	6.9	1.1 × 0.53	4.34	22.2		
		Vineyard BBCH 20 – 39	Small granivorous bird 5 "finch" Linnet (Carduelis cannabina) 5	5.7	1.1 × 0.53	3.59	26.8		
		Vineyard BBCH≥40	Small granivorous bird "finch" Linnet (Carduelis cannabing)	3.4	1.1 × 0.53	2.14	45.0		
		Vineyard BBCH 10 – 19	Small omn vorous bird "lark" Woodfark (Lullula Grboreg)	6.5	1.1 × 0.53	4.09	23.5		
		Vineyard BBCH 20 – 39	Smal ⁴ omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	5.4	1.1 × 0.53	3.40	28.3		
		Vineyard & S BBCH # 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.1 × 0.53	2.08	46.3		

SV: shortcut value; MAF: multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER: toxicity to exposure ratio...

The Tier 1 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-ferm risk to birds is acceptable following the proposed use patterns in vineyards (Uses

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Control of invasive species

m 13 < 2 ·	nvasive speci				• • -		<u>a</u>
			of the long-term/reprod ricultural and non-agr				i.
Active subst	ance	Glyphosate					100 M
Reprod. tox bw/d)	icity (mg/kg	96.3					
TER criterio		5					
GAP crop	Application rate (g a.e./ha)	Crop scenario Growth stage	Generic focal species		MAF _m × TWA	DDD _m (mg/kg by/d)	S S 16.K1
Invasive species in agricultural and non- agricultural areas. Post emergence of invasive species.	1 × 1800	Cereals Early (shoots) autumn- winter BBCH 10 – 29	Large herbivorous bird "goose" Pink-foot goose (Anser brachyrhynchus)	16.2	1.0 × 0.53		6.20
		Maize BBCH 10 – 29	Medium granivorous bird "gamebird" Partridge (<i>Perdix perdix</i>)	3.0	₽.0 × 0.53	2.86	33.6
		Leafy vegetables BBCH 10 – 19	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbusg	22.7	1.0 × 0.53	21.7	4.40
		//U	Small grantvorous bird "finch" Serie (Serinus servius)	12.6	1.0 × 0.53	12.0	8.00
		Oilseed rape Late (with seeds) BBCH $30 - 99^{\circ}$	Small insectivorous bird dunnock" Dunnock (Prunella modularis) Small insectivorous bird "finch" Chaffinch (Fringilla coelebs)	2.7	1.0 × 0.53	2.58	37.4
	20	Hops C BBCH 10 –	Small insectivorous bird "finch" Chaffinch (<i>Fringilla coelebs</i>)	9.1	1.0 × 0.53	8.68	11.1
	ewal Group AIR S	Cereals Gate post – emergence (May – June) BBCH 71 – 89	"passerine" Fan tailed warbler		0.53	21.4	4.50
00/13/		Orchards Spring Summer	Small insectivorous bird "tit" Bluetit (<i>Parus</i> <i>caeruleus</i>)		1.0 × 0.53	17.4	5.50
12 30.01 00,00,00 00,00,00 00,00,00 0,00,00 0,00,0		Bulbs and onion like crops BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	1.0 × 0.53	10.8	8.90

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Table 10.1.1-14: Tier 1 assessment of the long-term/reproductive risk for birds due the use of
glyphosate on invasive species in agricultural and non-agricultural areas: Use 8, 9

Active subst	tance	Glyphosate					
Reprod. tox bw/d)	icity (mg/kg	96.3					La Star
TER criteri	on	5					Mr. O
GAP crop	Application rate (g a.e./ha)	Crop scenario Growth stage	Generic focal species	SV _m	MAF _m × TWA	DDD _m (mg/kg bw/d)	⊰` Ţ£R և Տ [°] Վ [°]
		Bush and cane fruit Whole season BBCH 00 – 79 Currants	Small insectivorous bird "warbler" Willow warbler (<i>Phylloscopus trochilus</i>)		1.0 × 0.53		4.97
		Vineyard BBCH 10 – 19	Small insectivorous bird "redstart" Black redstart (<i>Phoenicurus ochruros</i>)	11.5	1.0×0 0.53	झे.0	8.78
		Maize Leaf development BBCH 10 – 19	Small insectivorous / worm feeding species "thrush" Robin (Erithacus rubecula)		1.0× 0.53 1.0× 0.53	5.44	17.7
		Bulbs and onion like crops BBCH 10 – 39	Small omnivorous birds "lark" Woodlark (Luguda arborea)	10.9	1.0	10.4	9.30

SV: shortcut value; MAF: multiple application factor; TWA time-weighted average factor; DDD: daily dietary dose; TER: toxicity to exposure ratio. TER values shown in bold fall below the relevant togger of

Solito. The Tier 1 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-term risk to birds is acceptable following the proposed use patterns for all the crops in the use to control invasive species considered except in the following two scenarios where a refined risk cereals; the small insectiverous bird "passerine" Fan tailed warbler assessment is required:

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- bulb and onion like vegetables; the small insectivorous bird "warbler" Willow warbler
- leafy vegetables; the medium herbivorous/granivorous bird "pigeon" Wood pigeon

Higher tier assessment

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Long-term Tier 2 exposure was calculated for those intended uses, for which the Tier 1 risk assessment indicates need for a refined long-term risk assessment.

Refinement of TWA and MAF based on glyphosate residue decline on grass

Given based on measured residues on grass foliage.

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(2002). According to the approach outlined in the Guidance Document on Terrestrial Ecotoxicology, the dissipation of glyphosate in grass was estimated using the standard first-order dissipation model: ing in the second

 $Ct = Ci \times e^{-kt}$ k first order rate constant Ci = initial residue concentration Ct residue concentration at time t

The decline of glyphosate residue on grass was characterised using data from 22 residue trials each of which had a day 0 value. Based on this data, the k value for grass foliage was calculated to be 0.2476 days⁻¹ (Renewal Assessment Report for glyphosate, 29 January 2015, Volume 3, Annex B. B. 9.13). For convenience these calculations are reproduced without change, in Annex M-CP 10-02 to this document.

Residue half-life times (DT₅₀) in days were calculated with following equation: $\sqrt{2}$

 $DT_{50} = \frac{-\ln 0.5}{k}$

The average DT_{50} for grass foliage was **2.8 days**.

The 21-day time weighted average (TWA) for glyphosate on grass to liage has been calculated according Security Sec Jesus Colored to the second se boold and a second to the following formula:

$$TWA = \frac{\left(1 - e^{-kt}\right)}{kt}$$

The 21-day TWA is calculated to be 0.19 for the active substance glyphosate acid and grass. For the refined risk assessment this value is applied for the medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus). Although the calculated 29-day TWA of 0.19 is based on residue decline on "grass" it is considered to be valid for "non-grass heres" as well. This assumption can be supported by Ebeling & Wang $(2018)^{10}$, who evaluated the residue dissipation of 30 active substances (including glyphosate) on grasses / cereals (177 trials) and non-grass herbs (101 trials). No significant difference between residue dissipation on grasses / cereals and nonegrass herbs was found. In addition also in the EFSA Conclusion for glyphosate (2015)¹¹ (EFSA Journal 2015;13(11):4302) the 21-day TWA of 0.19 was applied to refine the risk to the medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus).

Use specific considerations

Control of invasive species

For the use on invasive species on agricultural and non-agricultural areas (Use 8-9) the product MON 52276 is intended to be applied on the two invasive species; Giant hogweed (Heracleum montegazzianum) and Japanese knotweed (Remoutrica japonica). Both species are easy recognisable, are usually well known by operators and can reach impressive sizes (more than 2 m height).

Control of invasive plant species that pose a risk to man and society, may be achieved by direct targeted overspray of the plant or by first cutting back the plants and applying directly to fresh regrowth. In both cases, the aim is to achieve exposure of the plant systemically, targeting all growing areas of the plant. The type of plant to be controlled and the density of plants in the target area, will dictate the management approach that is ultimately used. In all cases, the spray applications made, will be directed and targeted to a specific plant or stand of plants. This approach contrasts with a boom spray application where the entire R

STO. Ebeling, M., Wang, M. Dissipation of Plant Protection Products from Foliage. Environmental Toxicology and Chemistry (2018). Wiley Online Library.

¹⁰⁰⁰ C Conclusion on the peer review of the pesticide risk assessment of the active substance glyphosate (2015). European Food Safte Authority (EFSA), Parma, Italy.

area under the boom is exposed, whether there is a target plant present or not. It is therefore appropriate when considering applications made to control invasive plant species, that the total applied area considered in the risk calculation, is reduced compared to a boom spray application, given the very directed and targeted application method used, which includes use of shielded sprayers that further reduces the risk to OMONO 010)0 non-target plants.

When spraying invasive plant species, different plant density scenarios are applicable. A small reduction in the application rate (10-30 % reduction) would reflect a scenario where a high density of invasive species can be expected. Such a scenario is considered relevant in non-agricultural fields where higher densities of the invasive plant species Giant hogweed or Japanese knotweed may occur. The only scenario which is considered relevant in non-agricultural fields and did not pass the Tier 1 risk assessment is the leafy vegetables scenario with the medium herbivorous/granivorous bird "pigeon" Wood pigeon (82). Therefore, as a conservative worst case approach, a reduction of the application rate to 90% applied is taken into account for the chronic risk assessment in non-agricultural areas. In agricultural areas farmers won't tolerate higher amounts of invasive plant species in their fields. Thus

the density in comparison to non-agricultural fields is much lower and plants are more dispersed as they are not allowed to spread over several years. The product is applied by hand-held equipment to invasive plant species at BBCH stages when the intended crop is present, it can be expected that only few invasive plant species are present and that the operator avoids exposure of the intended crops. In conclusion to address the lower plant density of invasive species in agricultural fields, a 40% reduction in the application rate based on the reduced total area is applied and considered appropriate to cover the chronic risk to birds.

Control of invasive species (Non-agricultural areas): Use 8-9

Active substan	ce	Glyphosate	E so o				
Reprod. toxicit	Reprod. toxicity (mg/kg 96.3 5 5 5						
bw/d)							
TER criterion		5 ్ర	AN ST				
GAP crop	Application	Crop scenario	Generic Focal species	SVm	MAF _m ×	DDDm	TER _{lt}
_	rate	Growth stage			TWA	(mg/kg bw/d)	
	(g a.e./ha)		0				
Invasive	1×1620^{1}	Leafy	Medium	22.7	$1.0 \times$	6.99	13.8
species in non-			herbivorous/granivorous		0.19		
agricultural		BBCH 10 – 19	bird "pigeon" Wood				
areas. Post		S. M. S.	pigeon (<i>Columba</i>				
emergence of	25	Le S	palumbus)				
invasive	800						
species.		2					
	1000						
	8.2						

Table 10.1.1-15: Tier 2 assessment of the long-term/reproductive risk for birds due the use of glyphosate on invasive species in non-agricultural areas: Use 8-9 6.2.2

SV: shortcut value; MAF; multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER: Hodo on the state of the state toxicity to exposure ratio. TER values shown in bold fall below the relevant trigger

¹ Equivalent to 90% of 1×1800 g a.e./ha

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Control of invasive species (Agricultural areas): Use 8-9

Table 10.1.1-16: Tier 2 assessment of the long-term/reproductive risk for birds due the use of
glyphosate on invasive species in agricultural areas: Use 8-9

Active substan	ce	Glyphosate					U.C.	
Reprod. toxici	ty (mg/kg	96.3				~	1, 2, 0, 1, 1,5	
bw/d)								
TER criterion		5	1		1	j: %	\$	
GAP crop	Application	Crop scenario	Generic Focal species	SVm	$MAF_m \times$	DDDa	TER _{lt}	
	rate	Growth stage			TWA	(mg/kg bw/d)		
	(g a.e./ha)	_				0. 0°		
Invasive	1×1080^{1}	Leafy	Medium	22.7	1.0 × 、	4.66 5	20.7	
species in		vegetables	herbivorous/granivorous		0.19 🞸	5 2		
agricultural		BBCH 10 – 19	bird "pigeon" Wood			4.66 (A) (A) (A) (A) (A) (A) (A) (A) (A) (A)		
areas. Post		bben to ty	pigeon (Columba					
emergence of			palumbus)		12° ° °			
invasive		Cereals	Small insectivorous bird	20.3	1.0×0°	11.6	8.29	
species.		Late post-	"passerine"		£0.5 3			
		emergence	Fan tailed warbler	A B				
		(May-June)	(Cisticola juncidis)		1.0 ×° 0.53			
		BBCH 71 – 89		A CAR				
		Bush and cane	Small insectivorous birds	22.4	$1.0 \times$	12.8	7.51	
		fruit Whole	"warbler" Willow warbler		0.53			
		season BBCH	(Phylloscopus treehilus)					
		00 - 79						
		Currants	S. S. S					

SV: shortcut value; MAF: multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER: toxicity to exposure ratio. TER values shown in bold fall below the relevant trigger , though

¹ Equivalent to 60% of 1×1800 g a.e./ha

The refined TER_{it} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-term risk to birds is acceptable following the proposed use patterns for the use on invasive species in agricultural and non-agricultural areas (Uses 8, 9).

ð .50

14 100 1110 1110 1010 Drinking water exposure P. Contraction of the second s water.

Leaf scenario

This you The 'Leaf scenario' is relevant for birds taking water that is collected in leaf whorls after application and applies to leafy vegetables forming heads or with a morphology that facilitates collection of rain / irrigation water sufficiently to attract birds, i.e. for the before named crops at BBCH \geq 41.

Since none of the proposed uses falls into these categories, the leaf scenario does not apply to the use of MON 52276.

હે Puddle scenario Ş

The Puddle scenario' is relevant for birds taking water from puddles formed on the soil surface of a field when a (heavy) rainfall event follows the application of a pesticide to a crop or bare soil. This is therefore relevant for all uses of MON 52276 and should therefore be assessed.

Due to the characteristics of the exposure scenario in connection with the standard assumptions for water uptake by animals, no specific calculations of exposure and TER are necessary since the ratio of effective application rate (in g/ha) to acute and long-term endpoint (in mg/kg bw/d) does not exceed 50 (Koc <s inco 500 L/kg) or 3000 ($K_{OC} \ge 500$ L/kg), as specified in EFSA/2009/1438.

As pointed out in EFSA/2009/1438, specific calculations of exposure and TER values are only necessary when the ratio of effective application rate (in g a.e./ha) to relevant endpoint (in mg a.e./kg bw/d) exceeds 50 in the case of less sorptive (K_{OC} < 500 L/kg) or 3000 in the case of more sorptive (K_{OC} \ge 500 L/kg) substances.

For glyphosate, the ratio of highest application rate (1800 g a.e./ha) to lowest relevant endpoint (NOAEL = 96.3 mg a.e./kg bw/d) is 19. As the $K_{f,OC}$ for glyphosate is 4245 mL/g (See MCA section 7) the risk can be considered acceptable without the need for further calculations. i)

Effects of secondary poisoning

According to the EFSA/2009/1438, substances with a log $P_{OW} \ge 3$ have potential for bioaccumulation and should be assessed for the risk of biomagnification in aquatic and terrestrial food chains.

Since the log P_{OW} values of glyphosate is log P_{OW} < -3.2 (pH $2 - 5.20^{\circ}$ G), the active substance is deemed to have a negligible potential to bioaccumulate in animal tissues. No formal risk assessment from secondary iall un poisoning is therefore required.

The primary metabolite of glyphosate is aminomethylphosphonic acid (AMPA). Most of the parent glyphosate is eliminated unchanged and only a small amount (less than 1 % of the applied dose) is transformed to aminomethylphosphonic acid (AMPA). The metabolite AMPA has been tested in several mammal toxicity studies which demonstrated that it is of tower toxicity than glyphosate acid (see Section CA 5.8). Furthermore, the log Pow for AMPA estimated via EpiSuite Program and SMILES code (C(N)P(=O)(O)O) - is -2.47 and does not indicate a potential for bioaccumulation (EFSA Journal 2015;13(11): 4302).

4 JUS Indirect effects via trophic interactions

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A large regulatory data package exists with acute and long-term studies to inform the avian risk assessments (MCA section 8.1.1). The results of the axian risk assessment (Section 10.1.1) demonstrate that under the intended uses of glyphosate there is negligible risk from direct effects.

An assessment of indirect effects is in part covered by the current EFSA Birds and Mammals assessment guidance through an evaluation of the potential for secondary poisoning (e.g., consumption of earthworms, fish, drinking water) as discussed above.

However, methodology for assessing indirect effects through trophic interaction resulting from in-crop weed control is not addressed. Throughout the development of the EFSA (2009) bird and mammal guidance document, it was raised that indirect effects through trophic interactions should be eventually be addressed, and it was decided when the guidance on how this could be achieved was finalized, that this topic would need to be addressed by revised guidance. However, many experts in the Member States who reviewed the guidance document commented that this is area that requires further research and that it may be preferable to manage indirect effects to birds through mechanisms other than that pesticide approvals (e.g., farmland management and/or conservation policies).

Furthermore, concerning specifically potential impacts on biodiversity, there currently is no EU wide guidance on how this should be assessed at the taxa group level within the context of a single active substance renewal risk assessment. AL CONTROLOGIC

Further information on the biodiversity assessment for glyphosate may be found in the [doc number] accompanying this dossier submission.

Scientific literature that informs the avian and mammal indirect effects assessment

10 Farmland is the most important habitat for bird conservation in Europe, harbouring more than 50% of bird species in the European Union (EU) and 55 % of European bird species listed in the IUCN Red List (Burfield, 2005; Donald et al., 2006).

In Europe, trend data are available from the Pan-European Common Bird Monitoring Scheme, which is currently implemented in 18 countries (Gregory et al. 2003; Traba and Morales, 2019). The data show trends in farmland and woodland birds since 1980. On average, populations of woodland birds in Europe have remained stable. In contrast, populations of farmland birds in Europe declined particularly in the 1980s and the downward trend over the next two decades continued, but at a slower rate (trend 1980–2002, 29 %). This rapid decrease in farmland birds is believed to reflect deterioration in the quality of farmland habitats in Europe (Traba and Morales, 2019). Ś

Several reviews and studies on indirect effects through trophic interactions to populations of farmland bird species are available. These studies and reviews mainly focus on arable landscapes in the UK (Campbell et al. 1997; Marshall et al., 2001; Boatman et al. 2004; DEFRA 2005; Bright et al. 2008; Jahn et al. 2013; Traba and Morales, 2019). After forestry applications, changes in bird community composition, and reductions in abundance, densities

and species richness of bird populations often occurred in the first few years after glyphosate application (Guiseppe et al. 1986, Easton and Martin, 1998, Santillo et al. 1989b), and in Santillo et al. (1989b) the decline in bird densities was correlated with the decline in habitat complexity. These changes were assessed against untreated control sites to differentiate the effects of glyphosate from other background environmental factors such as the recovery trajectory following tree harvest and showed similar declines in bird densities where habitats removed following the use of other herbicides commonly used in managed forests (Guvnn et al., 2004).

Sullivan and Sullivan (2003) published a comprehensive glyphosate assessment addressing vegetation management and ecosystem disturbance focusing on plant and animal biodiversity that considered both direct effects at the individual level, but also indirect effects on habitats / refuges and resource. Their analysis was based on 60 published studies of terrestrial plants and animals in temperate forests and agroecosystems. Species richness of plants was either unaffected or increased in the case of herbaceous species in those receiving glyphosate treatments. Species richness and diversity of songbirds, in open habitats representative of agricultural lands, did not appear to be negatively impacted in glyphosate use areas. In fact, conservation tillage, which is enabled by glyphosate, promoted greater abundance of songbirds and other fowl compared with ploughed fields (McLaughlin and Mineau, 1995; Cunningham et al., 2005).

Overall, the magnitude of changes in species richness and diversity of plants, birds, and small mammals in the studies reviewed by Sullivan and Sullivan (2003) were within the mean range of natural fluctuations and considered direct and indirect effects.

The following approach has been taken to assess potential indirect effects via trophic interactions, considers the proposed Specific Protection Goals drawn from the existing EU guidance and working documents, and the 2006 EFSA Guidance on developing protection goals for ecological risk assessments (ERA) for pesticides. The SPGs based on direct effects assessment considering representative sensitive populations Glyphonte D no-spray buffer zones - a standard mitigation measure to protect non-target terrestrial plant communities in off-target areas, which indirectly supports bird biodiversity by maintaining habitat and refuges for birds to nest and feed. Therefore, where an acceptable direct effects risk assessment is concluded upon after incorporation of standard mitigation measures to reduce off-target movement via drift to off-target areas, coupled with the standard mitigation measures, is considered protective of indirect effects occurring outside of the target area. When defining SPGs for birds that reflects both direct and indirect effects, it is the responsibility of the risk assessors in the Member States to acknowledge existing protection goals and regulatory data requirements, to propose possible SPG options, and describe the possible environmental consequences of each option. The risk assessors within the Member States will need to propose realistic SPGs and exposure assessment goals and the interrelationships between them in a clear and transparent manner.

In the following table, the specific protection goals relevant to birds are presented with the relationship between the SPGs, the direct effects study types, assessment and measurement endpoints. The assessment endpoint is an explicit expression of an environmental entity and the specific property of that entity to be protected. Measurement endpoints relates directly to the effects study endpoints.

A conclusion that a given data requirement has been satisfied, requires that an acceptable level of risk has been achieved (i.e. there is a protective margin of exposure or through a weight of evidence).

Based on the measurement endpoints from the study types, and the direct effects assessment presented above in this section, it is anticipated that for the proposed uses on the GAP table, that there will be no reduction in bird survival, growth, development and reproduction of avian populations and this in turn meets the specific protection goal for birds.

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Table 10.1.1-17: Protection goals and as	sociated assessment an	d measurement endpoints for birds.
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Specific Protection Goals ¹	Assessment Endpoints	Measurement Endpoints	Glyphosate Study Types
No visible mortality and long-term impacts on abundance and diversity	No reduction in survival growth, development, reproduction of avian populations.	Survival, growth, development and reproduction	Acute oral avian and rat Avian reproduction

Avian Biodiversity Assessment

Based on the current direct effects risk assessment for glyphosate, there is acceptable acute and long-term risk assessments based on current guidance and the intended use patterns for glyphosate.

However, if additional risk mitigation measures are determined to be required, to mitigate indirect effects resulting from in-crop weed control on avian populations, options to be considered by risk assessors and risk managers within Member States are presented in Table 10.1.1-18.

When protection goals are defined more precisely by risk managers or legislators to address indirect effect, then the protection goals and assessment procedures should be revised.

Conclusion on Indirect effects to birds via trophic interactions

Based on the current direct effects risk assessment for glyphosate, there is acceptable acute and long-term risk assessments based on current guidance and the intended use patterns for glyphosate. Currently, the EFSA (2009) guidance for birds and mammals does not include assessment methodology for indirect effects through trophic interactions. Addressing potential indirect effects to birds by limiting in-crop weed control may be better handled though policies and programs outside the PPP framework. However, if additional risk mitigation measures are determined to be required, to mitigate indirect effects resulting from in-crop weed control on avian populations, options to be considered by risk assessors and risk managers within Member States are presented in the following tables.

Table 10.1.1-18: Examples of standard mitigation measures as described in MAgPIE (2017) across the various Member States to mitigate effects of glyphosate on biodiversity.

Type of Mitigation	Risk Mitigation	Benefits	Glyphosate renewal dossier (2020)
Measure	Measure	Denents	Gryphosate renewal dossier (2020)
Restrictions or	Application rate,	Lower transfers to	Significant reductions (50 % in volume)
modifications of	Application frequency,		in newly proposed application rates
products' conditions	application timing,	water; Reduces exposure	compared with the representative use
of application	and interval between		presented in the 2012 renewal dosser.
of application	applications	off-crop.	See ¹² Appendix 2 of the biodiversity
	applications	on-crop.	document accompanying this
			submission.
			Treated area restriction
			1. for the representative use GAPs:
			applying to only 50 % of the total area in
			orchard/vineyard area.
			2. maximum of 50% of the total area for
			broad acre vegetable inter-row
			3. Invasive species control e.g., couch grass
			maximum of 20 % of the cropland +
			extended application intervals.
		, China Chin	8
			Limited frequency and timing of
			application: 28-day interval between
			applications and no pre-harvest
			applications
		Lefter and a second sec	3. Invasive species control e.g., couch grass maximum of 20 % of the cropland + extended application intervals. Limited frequency and timing of application: 28-day interval between applications and no pre-harvest applications
Application	Spray drift reduction	Reduces exposure of	Reduction of spray drift to the off-field:
equipment	nozzles (SDRN),	organisms in-crop	1. Use 75 % drift reducing nozzles for pre-
with Spray Drift	shields,	(precision treatment) and	
Reduction	Precision treatment,	off-crop	2. Use of ground directed, shielded spray
Technology (SDRT)	etc.	off crop 6	for band application in orchards /
		S S S	vineyards and broad-acre vegetable inter-
	A.		row application.
Buffer zones	Non-sprayed zone at	Reduces exposure of organisms and off-crop	Establishment of buffer zones:
	the edge of a crop	organisms and off-crop	Buffer zones of varying size (depending on
			the type of SDRT) are required as
	No N		protection for off-crop NTTP communities
	L & L		from spray drift.
			1 5
	en an an	1	I

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Acute oral toxicity CP 10.1.1,1

An avian acute oral toxicity study with the formulation MON 52276 is not considered required for the following reasons:

A comparison between the acute oral toxicity of glyphosate acid technical and MON 52276 to mammals indicates that no increased risk needs to be expected from the product over that posed from the technical Contraction of the second seco grade. Furthermore, all available toxicity data for birds demonstrate that glyphosate acid is of relatively low

toxicity to birds. Thus, it was concluded that toxicity can be reasonably predicted based on the data for the active substances.

In addition, a risk assessment for birds was performed in accordance with the recommendations of the EFSA/2009/1438 and showed acceptable risk for all intended uses of the representative formulation MON 52276.

ð In conclusion, for reasons listed above and for reasons of animal welfare (in order to avoid unnecessary testing on terrestrial vertebrates in particular with regard to the European legislation on animal welfare, (e.g. Articles 61 and 62 of the Regulation (EC) No 1107/2009), it is not considered necessary to conduct an avian acute oral toxicity study with the product MON 52276 in addition to the data available for the

active substance. **CP 10.1.1.2 Higher tier data on birds** Additional studies are not considered required, since an acceptable risk for birds in consideration of each %) 8 potential route of exposure was concluded (see data point CP 10.1.1).

Effects on terrestrial vertebrates other than birds **CP 10.1.2**

Studies considering the toxicity of glyphosate and relevant metabolities to mammals were assessed for their validity to current and relevant guidelines. The results of these studies demonstrate that glyphosate and AMPA are of low acute and chronic toxicity to mammals and are summarised in the tables below.

A detailed evaluation is provided in Annex M-CA 8-02 of the document M-CA Section 8 which outlines the selection of endpoints and the discussion surrounding those used in the risk assessment.

Details of the acute studies are summarised in the document M-CA, Section 5.

Table 10.1.2-1: Relevant endpoints for risk assessment: Acute oral toxicity of glyphosate and - Oglice No the state **AMPA** to mammals ð

Reference	Substance	Species	Test design	LD50
KCA 5.2.1/001 to KCA 5.2.1/039	Glyphosateacid	Rat/Mice	Acute toxicity	Screening Step / Tier 1: > 2000 mg a.e./kg bw
KCA 5.2.1/001 to KCA 5.2.1/039	Calyphosate acid	Rat/Mice	Acute toxicity	Tier 2: 3694.1 mg a.e./kg bw
M-CA Section 5	AMPA	Mouse	Acute toxicity	> 5000 mg/kg bw

a.e.: acid equivalents

Endpoints in **bold** are used for risk assessment

ALL CONTRACTION OF THE CONTRACTI Details of the reproduction studies are summarised in the document M-CA, Section 5.

Table 10.1.2-2: Relevant endpoints for risk assessment: Reproductive toxicity of glyphosate and
AMPA to mammals

Reference	Substance	Species	Test design	NOAEL
M-CA Section 5	Glyphosate acid	Rabbit	Developmental	Screening Step / Tier 4:
			toxicity	50 mg a.e./kg bw/d 🖉
			(long-term)	Nº O
M-CA Section 5	Glyphosate acid	Rabbit	Developmental	Tier 2.
			toxicity	100 mg a.e. kg bw/d
			(long-term)	
M-CA Section 5	Glyphosate acid	Rat	Developmental	Tiet 3:
			toxicity (long-term)	300 mg a.e./kg bw/d
M-CA Section 5	AMPA	Rat	13 week oral	>> 1000 mg/kg bw/d
.: acid equivalents dpoints in bold are used	for risk assessment		and and a second s	

Risk assessment for metabolites

North Contraction of the second secon The primary metabolite of glyphosate is aminomethylphosphonic acid (AMPA). Most of the parent glyphosate is eliminated unchanged and only a small amount (less than 1 % of the applied dose) is transformed to aminomethylphosphonic acid (AMPA). The metabolite AMPA has been tested in several mammal toxicity studies which demonstrated that it is of fower toxicity than glyphosate acid (see 800¹⁵¹ Section CA 5.8).

Following application to plant tissues, unchanged glyphosate was the only significant residue. In presence of soil as a substrate the active substance is quickly degraded, leaving AMPA at rates comparable or even higher than parent glyphosate. However, the uptake via the roots and the translocation in the plants was very low, not resulting in significant residue levels as confirmed by plant metabolism and confined rotational crop studies. A major part of the gyphosate was degraded into CO_2 . Therefore, it can be concluded that the risk to mammals will be acceptably low and no further quantitative risk assessment on L'HING the main metabolite is conducted.

Risk assessment for the representative formulation

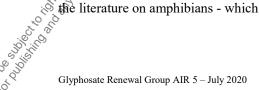
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An acute oral mammalian study is available with the formulation which is presented in the toxicological section under document M-CP Section 3.1/01. This study shows, that the acute toxicity of the formulation (>5000 mg/kg bw) is not more elevated than the toxicity of the active substance alone (>2000 mg/kg bw). Therefore the mammalian risk assessment for the representative formulation is considered to be covered by the mammalian risk assessment presented for the active substance glyphosate.

, o , y Table 10.1.2-3: Relevant enepoints for risk assessment: Acute oral toxicity of MON 52276 to mammals

Reference	Substance	Species	Test design	LD50
, \$991	MON 52276	Rat	Acute toxicity	> 5000 mg
CP 7.1.1/001 [©]				a.e./kg bw

There are no literature articles and peer-reviewed published data considered to be relevant and reliable or reliable with restrictions with regards to the impact of glyphosate or its relevant metabolites on mammals. Full literature evaluation is provided in document M-CA Section 9. A summary of previously evaluated peer reviewed literature from the RAR 2015 is also available in Annex M-CA 8-01 of the document MCA Section 8. In common with the previous literature review, there were no endpoints considered relevant for use in the mammalian risk assessment. In the previous literature review, reference is made to the literature on amphibians - which is discussed within this dossier.



Effects on vertebrates by the action of surface-active substances in glyphosate based formulations was also discussed in the previous literature review, with two papers relating to mammals, Santilio et al., (1989) and Sullivan et al., (2003) which were both considered in the previous RMS concluding weight of evidence The conclusion by the RMS to the first paper on the 'Response of small mammals and habitat to glyphosate application on clearcuts' was to emphasise that herbicides cause indirect effects and highlighted the need for risk mitigation measures by the Member States, proposing compensation measures as a suitable tool. The second paper on 'Ecosystem disturbance: Impact of glyphosate herbicide on plant and animal diversity in terrestrial systems' was considered supporting information. This paper considered the impact of Anglo-Saxon practice of managing the vegetation for purposes of enhancing forest and other crop yields. This paper considered roadside vegetation management and its role in the maintenance of ecological processes in terrestrial ecosystems. There were four other papers considered in the weight of evidence for vertebrates and un - specifically birds.

Concerning effects at the ecosystem level – specifically indirect effects on mammals via trophic interactions, and considering impacts on biodiversity at a wider landscape level, a biodiversity assessment 94. 949 is presented at the end of this section. ò Ś

For the mammalian risk assessment, supporting information are presented on endpoint selection and on the population dynamics of small herbivorous mammals that is considered relevant to the risk assessment. These data are presented in Annex M-CA 8-02 of the document M-CA Section 8. outro outro

Risk assessment for other terrestrial vertebrates

The risk assessment is based on the methods presented in the Guidance Document on Risk Assessment for Mammals and Mammals on request from EFSA (EFSA Journal 2009; 7(12): 1438; hereafter referred to as 100 M ourser EFSA/2009/1438).

ssmen for ssmen for some for some for a contraction of the state of th The table below summarises how the risk assessment for mammals considers all the proposed uses and the

Annex to Regulation 284/2013			MON 52	276						, Section 10
									Pag	ge 78 of 553
Annex to Regulation 284/2013 MON 52276 M-CP, Section 10 Page 78 of 553 Table 10.1.2- 4: Risk assessment strategy for mammals Application rate considered (28 day interval unless otherwise stated)										
	Ap	plicatio	n rate c		ed (28 d	ay inter				N N
GAP number and summary of use	1 × 540 g/ha	1 × 720 g/ha	1 × 1080 g/ha	2 × 720 g/ha	1 × 1440 g/ha	3 × 720 g/ha	1 × 1800 g/ha	2 × 1080 g/ha ¹	2 × 1440 g/ha	2 × 1800 g/ha (90 days apart)
Uses 1a-c: Applied to weeds; pre-sowing, pre-planting, pre emergence of field crops.		Х	X		Х			10	Vol. Conserved	C
Jses 2 a-c: Applied to weeds; bost-harvest, pre-sowing, pre- planting of field crops .		Х	х	Х	Х	X	EL,		10	
Use 3 a-b : Applied to cereal olunteers; post-harvest, pre- owing, pre-planting of field	X					ර්	6 00 00 00 00 00 00 00 00 00 00 00 00 00			
ps. e 4 a-c: Applied to weeds st emergence) below trees in chards.		X	X	X	X			X	X	
e 5 a-c: Applied to weeds ost emergence) below vines in eyards		Х	х	X		S C S X		Х	Х	
ee 6 a-b: Applied to weeds ost emergence) in field crops BCH < 20		Х	X	S) S) S) S) S) S) S) S) S) S) S) S) S) S	14 19 19 19 19					
se 7 a-b: Applied to weeds ost emergence) around ilroad tracks			A CALL				Х			Х
se 8 and 9: Applied to vasive species (post nergence) in agricultural and on-agricultural areas		Cut Cut	5 5 5				Х			
ses 10 a-c: Applied to couch ass; post-harvest, pre-sowing, e-planting of field crops	De Maria		X							

Table 10.1.2- 4: Risk assessment strategy for mammals

X = this use is covered by the application rate indicated.

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¹ Due to the long spray interval of 28 days this use covers also the following possible application pattern: 2×1080 g a.s./ha plus 1 be 1×720 g a.s./ha (28 day interval between each application)

For the screening assessment, crops that maybe present at time of application to target weeds and the relevant application rates shown in the table above are considered. The acute and long-term screening assessment results are presented below according to the following main uses:

the general screening scenarios bare soil and fruiting vegetables (etc.).

distribution, solohodid In control of invasive species (covering GAP uses 8 and 9) applied; exposure to mammals via • grassland, bare soil and field crops is considered and is covered by the general screening scenarios 1/0/0

Field crops							^b
grassland, bare bare soil bush a <i>Screening assessment</i> Field crops Table 10.1.2- 5: Screen field crops: Uses 1 a-c, Active substance Acute toxicity (mg/kg bw TER criterion GAP crop	ning assessm 2 a-c, 3 a-b,	ent of the acute , 6 a-b, 10 a-c.	e risk for mamm	als due	to the	use of glyphos	sate i
Active substance		Glyphosate					
Acute toxicity (mg/kg by	v)	> 2000		~			
TER criterion	,	10		C.N	222		
GAP crop	Application rate (g a.s./ha)	Crop scenario	, i		MAF90	DDD90 (mg/kg bw/d)	TER
Pre-sow, pre-planting, post-harvest of;	1 × 1440	Bare soil	Small	14.4	1.0	20.7	96.6
Root and Stem veg, Potato Bulb and onion like crops,		Bulb and onion like crops	mammal Small hetbixoryus mammal	118.4	1.0	170	11.7
fruiting veg, leafy veg, Sugar beet. Post-emergence of weeds		Fruiting vegetables	Consell	136.4	1.0	196	10.2
Pre-sow, pre-planting, pre-emergence & post- harvest of;	2 × 1080 (28 d)	Bare soil so	O` 0 11	14.4	1.1	17.1	117
Root and Stem veg, Potato Bulb and onion like		Bulb and onion	Small herbivorous mammal	118.4	1.1	141	14.2
crops, fruiting veg, leafy veg, Sugar beet. Post-emergence of weeds	00000000000000000000000000000000000000	Fruiting vegetables	Small herbivorous mammal	136.4	1.1	162	12.3
Pre-sow, pre-planting, post-harvest of; Root and Stem veg,		Bare soil	Small granivorous mammal	14.4	1.0	7.78	257
Potato Bulb and onion like	200 20	Bulb and onion like crops	Small herbivorous mammal	118.4	1.0	63.9	31.3
Potato Bulb and onion like crops, fruiting veg, leafy veg, Sugar beet. Post-emergence of weeds Pre-sow pre-planting, pre-emergence & post- harvest of; Root and Stem veg,		Fruiting vegetables	Small herbivorous mammal	136.4	1.0	73.7	27.1
Pre-sow pre-planting, pre-emergence & post- harvest of;	1 × 720	Bare soil	Small granivorous mammal	14.4	1.0	10.4	192
Root and Stem veg, Potato Bulb and onion like Glyphosate Renewal Group AIR		Bulb and onion like crops	Small herbivorous mammal	118.4	1.0	85.2	23.5

The state is the state of the s Table 10.1.2- 5: Screening assessment of the acute risk for mammals due to the use of glyphosate in field crops: Uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c.

	Active substance		Glyphosate					. Å
	Acute toxicity (mg/kg bw	r)	> 2000					JOILO
	TER criterion	,	10					N.S.
	GAP crop	Application rate (g a.s./ha)	Crop scenario	Indicator species	SV90	MAF90	DDD90 (mg/kg bw/d)	TER _a
	crops, fruiting veg, leafy veg, Sugar beet. Post-emergence of weeds Sugar beet. Post-emergence of weeds		Fruiting vegetables	Indicator species Small herbivorous mammal Small granivorous mammal Small herbivorous Small herbivorous mammal Small for the formation for	136.4		10, 00, 00, 00, 00, 00, 00, 00, 00, 00,	20.4
	Pre-sow, pre-planting, pre-emergence & post- harvest of;	2 × 720 (28 d)	Bare soil	Small granivorous mammal		\$,] ,1	11.4	175
	Root and Stem veg, Potato Bulb and onion like		Bulb and onion like crops	Small herbivorous	18:4 (18:4	1.1	93.8	21.3
	crops, fruiting veg, leafy veg, Sugar beet. Post-emergence of weeds Sugar beet. Post-emergence of weeds		Fruiting vegetables	Small	136.4	1.1	108	18.5
	Pre-sow, pre-planting, pre-emergence & post- harvest of; Root and Stem veg,	1 × 1080	Bare soil	Şmall granivorous mammal		1.0		
	Potato Bulb and onion like crops,		Bulb and onion like crops	Small herbivorous mammal	118.4	1.0	128	15.6
	fruiting veg, leafy veg, Sugar beet. Post-emergence of weeds.		Fruiting vegetables	Small herbivorous mammal	136.4	1.0	147	13.6
	Pre-sow, pre-planting, post-harvest of; Root and Stem veg,	3 x 720 x (28 a)	Bare soil	Small granivorous mammal	14.4	1.1	11.4	175
	Potato Bulb and onion like crops,		Bulb and onion like crops	Small herbivorous mammal	118.4	1.1	93.8	21.3
	fruiting veg, leafy veg, Sugar beet. Post-emergence of weeds		Fruiting vegetables	Small herbivorous mammal	136.4	1.1	108	18.5
50 10 10 10 10 10 10 10 10 10 10 10 10 10	Pre-sow, pre-planting, post-harvest of; Root and Stem veg, Potato Bulb and onion like crops, fruiting veg, leafy veg, Sugar beet. Post-emergence of weeds SV: shortcut value; MAF: mu	ltiple applicatio	n factor; DDD: dail	ly dietary dose; TER:	toxicity	to exposu	re ratio.	
HOLD CONTRACT	Glyphosate Renewal Group AIR	5 – July 2020			Doc ID:	110054-M0	CP10_GRG_Rev 1_	_Jul_2020

Table 10.1.2- 6: Screening assessment of the long-term/reproductive risk for mammals due to the use of glyphosate in field crops: Use 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c.

	Active substance		Glyphosate					TER#
	Reprod. toxicity (mg/kg b	w/d)	50					J. J. J.
	TER criterion	,	5					2204
	GAP crop	Application rate (g a.s./ha)	Crop scenario	Indicator species	SV _m	MAF _m × TWA	DDD ₉₀ (mg/kg bw/d)	ŤER II
	Pre-sow, pre-planting, pre-emergence & post- harvest of;	1 × 1440	Bare soil	Small granivorous mammal	6.6	1.0 × 0.53	1004 100 100 100 100 100 100 100 100 100	9.92
	Root and Stem veg, Potato Bulb and onion like crops,		Bulb and onion like crops	herbivorous mammal	48.3	1.0× 0.53	36.9	1.36
	fruiting veg, leafy veg, Sugar beet. Post-emergence of weeds		Fruiting vegetables	Small herbivorous mammal	1235	0.53	55.2	0.91
	Pre-sow, pre-planting, pre-emergence & post- harvest of;	2 × 1080 (28 d)	Bare soil	Small granivorous		1.1 × 0.53	4.16	12.0
	Root and Stem veg, Potato Bulb and onion like crops, fruiting veg,		Bulb and onion like crops	Small	48.3	1.1 × 0.53	30.4	1.64
	leafy veg, Sugar beet. Post-emergence of weeds		vegetables	Small Berbivorous mammal	72.3	1.1 × 0.53	45.5	1.10
	Pre-sow, pre-planting, pre-emergence & post- harvest of;	1 × 540	Bare soil	Small granivorous mammal	6.6	1.0 × 0.53	1.89	26.5
	Root and Stem veg, Potato Bulb and onion like crops, fruiting veg,	, in the second s	Bulb and onion like crops	Small herbivorous mammal	48.3	1.0 × 0.53	13.8	3.62
	leafy veg,		Fruiting vegetables	Small herbivorous mammal	72.3	1.0 × 0.53	20.7	2.42
	Pre-sow, pre-planting, pre-emergence & post- harvest of;		Bare soil	Small granivorous mammal	6.6	1.0 × 0.53	2.52	19.9
	Root and Stem veg, Potato Bulb and onion like crops fruiting year	8. 10 5. 10		Small herbivorous mammal	48.3	1.0 × 0.53	18.4	2.71
	Root and Stem veg, Potato Bulb and onion like crops fruiting veg, leafy veg, Sugar beet. Post-emergence of weeds		Fruiting vegetables	Small herbivorous mammal	72.3	1.0 × 0.53	27.6	1.81
	Sugar beet.							
4 10 10 10 10 10 10 10 10 10 10 10 10 10	Glyphosate Renewal Group AIR 5	5 – July 2020			Doc ID:	110054-M	CP10_GRG_Rev 1_	_Jul_2020



Table 10.1.2- 6: Screening assessment of the long-term/reproductive risk for mammals due to the use of glyphosate in field crops: Use 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c.

Active substance		Glyphosate					
Reprod. toxicity (mg/kg b	w/d)	50					Control of the second s
TER criterion		5				à	1 × 0 ×
GAP crop	Application rate (g a.s./ha)	Crop scenario	Indicator species	SVm	MAF _m × TWA	DDD _% (mg/kg bw/d)	0°ER#
pre-emergence & post- harvest of;	2 × 720 (28 d)	Bare soil	Small granivorous mammal	6.6	1.1 × 0.53	10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	18.0
Root and Stem veg, Potato Bulb and onion like crops, fruiting veg,		Bulb and onion like crops	herbivorous mammal	48.3	1.4× 0.53	20.3	2.47
leafy veg, Sugar beet. Post-emergence of weeds		Fruiting vegetables	Small herbivorous mammal		%Ĩ.1 [≪] 0.53	30.3	1.65
Pre-sow, pre-planting, pre-emergence & post- harvest of;	1 × 1080	Bare soil	Small granivorous o mammal &	G Tely	1.0 × 0.53	3.78	13.2
Root and Stem veg, Potato Bulb and onion like crops, fruiting veg,		Bulb and onion like crops	Small	48.3	1.0 × 0.53	27.7	1.81
leafy veg, Sugar beet. Post-emergence of weeds			manimal Small Sherbivorous mammal	72.3	1.0 × 0.53	41.38	1.21
pre-emergence & post- harvest of;	3 × 720 (28 d)	Bare soil	Small granivorous mammal	6.6	1.2 × 0.53	3.02	16.5
Root and Stem veg, Potato Bulb and onion like crops, fruiting veg,	×	Bullwand opion Jike crops	Small herbivorous mammal Small	48.3	1.2 × 0.53	22.1 33.1	2.26
leafy veg, Sugar beet. Post-emergence of weeds	tiple amplicatio	Fruiting	herbivorous mammal	12.5	0.53	55.1	1.31
SV: shortcut value; MAF: mul toxicity to exposure ratio. TER	tiple applicatio	n factor; TWA: tin	ne-weighted average f	factor; D	DD: daily	dietary dose; TE	R:
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Orchards and vineyards

Table 10.1.2-7: Screening assessment of the acute risk for mammals due to the use of glyphosate in His His His orchards and vineyards: Uses 4 a-c, 5 a-c.

	Active substance		Glyphosate					
	Acute toxicity (mg/l	kg bw)	> 2000					1. 0 1. 0 1. 0
	TER criterion		10				ji V	101
	GAP crop	Application rate (g a.s./ha)	Crop scenario	Indicator species	SV90	MAF90	DDD905	§ TER _a
	Orchards / vineyards post-emegence of weeds	2 × 1440 (28 d)	Fruiting vegetables	Small herbivorous mammal	136.4	1.1	(mg/kg bŵ//d) 246 %	9.3
	Orchards / vineyards post-emegence of weeds	1 × 720	Fruiting vegetables	Small herbivorous mammal	136.4	1.0° 2 2	98.2	20.4
	Orchards / vineyards post-emegence of weeds	1 × 1080	Fruiting vegetables	Small herbivorous mammal	d36,4	Ø1.0	147	13.6
	Orchards / vineyards post-emegence of weeds	2 × 720 (28 d)	Fruiting vegetables	Small herbivorous	136.4	1.1	108	18.5
	Orchards / vineyards post-emegence of weeds	3 × 720 (28 d)	Fruiting vegetables	Smallherbivorous mammal	136.4	1.1	108	18.5
	Orchards / vineyards post-emegence of weeds	1 × 1440	Fruiting K	Small herbivorous mammal	136.4	1.0	196	10.2
	Orchards / vineyards post-emegence of weeds	2 × 1080 (28 d)	Fruiting vegetables	Small herbivorous mammal	136.4	1.1	162	12.3
	SV: shortcut value; M. shown in bold fall belo shown in bold fall belo global and the shown in bold fall belo shown in bold fall belo the shown in bold fall belo the show	AF: multiple applies	tion factor; DDE): daily dietary dose; TE	R: toxic	ity to expo	osure ratio. TER v	alues
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Reprod. toxicity (mg/kg bw/d)50TER criterion5GAP cropApplication rate (g a.s./ha)Indicator speciesSVmMAFmDDD00 (mg/kg bw/d)TER: TER:Orchards / vineyards post-emegence of weeds 2×1440 (28 d)Fruiting vegetablesSmall herbivorous mammal 72.3 1.1×0.53 60.7 0.53 0.82 Orchards / vineyards post-emegence of weeds 1×720 vegetablesFruiting vegetablesSmall herbivorous mammal 72.3 1×0.53 $2\%6$ 1.81 Orchards / vineyards post-emegence of weeds 1×1080 vegetablesFruiting vegetablesSmall herbivorous mammal 72.3 1.4×0.53 41.4 1.21 Orchards / vineyards post-emegence of weeds 2×720 (28 d)Fruiting vegetablesSmall herbivorous mammal 72.3 1.1×0.53 30.3 1.65 Orchards / wineyards post-emegence of weeds 3×720 (28 d)Fruiting vegetablesSmall herbivorous mammal 72.3 1.2×0.53 33.1 1.51 Orchards / wineyards post-emegence of weeds 1×1440 Fruiting vegetablesSmall herbivorous mammal 72.3 1×0.53 55.2 0.91 Orchards / wineyards post-emegence of weeds 2×1080 (28 d)Fruiting vegetablesSmall herbivorous mammal 72.3 1×0.53 55.2 0.91 <	Table 10.1.2- 8: S of glyphosate in o			ong-term/reductiv s 4 a-c, 5 a-c.	e risk f	or mam		age 84 of 55:
Reprod. toxicity (mg/kg bw/d)50TER criterion5GAP crop (g a.s./ha)Crop scenarioIndicator speciesSVmMAFmDDD00 (mg/kg bw/d)TERuOrchards / vincyards post-emegence of weeds2 × 1440Fuiting 								

Table 10.1.2- 8: Screening assessment of the long-term/reductive risk for mammals due to the use of glyphosate in orchards and vineyards: Uses 4 a-c, 5 a-c.

Table 10.1.2-9: Screening assessment of the acute risk for mammals due to the use of glyphosate on railroad tracks and to control invasive species: Uses 7a-b, 8 and 9.

			- -	-				
	Active substance		Glyphosate					
	Acute toxicity (mg/	kg bw)	> 2000					ON NEW
	TER criterion		10	.	OT I	MAR	DDD	1.2 2.2
	GAP crop	Application rate (g a.s./ha)	Crop scenario	Indicator species	SV90	MAF90	(mg/kg bw/d)	TER
	Railroad tracks – application by	(90 d)	Bare soil	Small granivorous mammal	14.4	1.1	285 5 5	70.1
	spray train. Post emergence of weeds (90d apart).		Fruiting vegetables	Small herbivorous mammal	136.4	1.1		7.41
		1 × 1800	Bare soil	Small granivorous mammal	14.4	ې ۹.۴۵ کې کې کې		77.2
			Fruiting vegetables	Small herbivorous mammal	1364	8 160 8 1	246	8.13
	Invasive species in agricultural and	1 × 1800	Bare soil	Small granivorous mammal	o Lo	1	25.9	77.2
	non-agricultural areas. Post emergence of		Bush and cane fruit	Small herbivorous mammal	č.	1	147	13.6
	invasive species.		Bulbs and onion like crops	Small herbisorous mammal	118.4	1	213	9.38
			Fruiting vegetables	Small herbivorous	136.4	1	246	8.13
	SV: shortcut value; M. shown in bold fall belo shown in bold fall belo glyphosate Renewal Gro			27				
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Glyphosate Renewal Gro	up AIR 5 – July 2020)		Doc II	D: 110054-N	//CP10_GRG_Rev	1_Jul_2020

Active substance		Glyphosate					
Reprod. toxicity (mg	g/kg bw/d)	50					J. N.
TER criterion		5					S. C.
GAP сгор	Application rate (g a.s./ha)	Crop scenario	Indicator species	SVm	MAF _m × TWA		DER a
Railroad tracks – application by spray	2 × 1800 (90 d)	Bare soil	Small granivorous mammal	6.6	1.0 × 0.53	10-630,00 10-630	7.94
train. Post emergence of		Fruiting vegetables	Small herbivorous mammal	72.3	1.0 × 0.53		0.72
weeds (90d apart).	1 × 1800	Bare soil	Small granivorous mammal	6.6	1.0×5 0.59 č	6.30	7.94
		Fruiting vegetables	Small herbivorous mammal	72.30	0.53	69.0	0.72
Invasive species in agricultural and	1 × 1800	Bare soil	Small granivorous mammal	6.6% 19.6%	× 0.53	6.30	7.94
non-agricultural areas. Post		Bush and cane fruit	Small herbivorous mammal	્યેરૂ:લ્વે હા	1.0 × 0.53	41.4	1.21
emergence of invasive species.		Bulbs and onion like crops	Small herbivorous	48.3	1.0 × 0.53	46.1	1.09
		Fruiting vegetables	Small herbivorous	72.3	1.0 × 0.53	69.0	0.72

Table 10.1.2-10: Screening assessment of the long-term/reductive risk for mammals due to the use of glyphosate on railroad tracks and to control invasive species: Uses 7a-b, 8 and 9.

SV: shortcut value; MAF: multiple application factor; DDD: daily detary dose; TER: toxicity to exposure ratio. TER values , 11/s shown in bold fall below the relevant trigger E S , Lo

Field crops (Uses: 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c)

The screening TER_a values for use of MON \$2276 in field crops for all scenarios are greater than the Commission Regulation (EU) No. 546/2010 trigger of 10, indicating that acute risk to mammals is acceptable following use the proposed use patterns for these crops.

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The screening TER_{it} values for use of MON 52276 in field crops for the scenario "bare soil" are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5. Regarding the scenarios "bulbs and onion like crops" and "fruiting vegetables" a long-term Tier 1 risk assessment is necessary for all intended -04 19 19 application rates. ó

Orchards and vineyards (Uses: 4 a-c and 5 a-c)

The screening TER_a values for use of MON 52276 in orchards and vineyards for the scenario "fruiting vegetables" are greater than the Commission Regulation (EU) No. 546/2011 trigger of 10 for the application rates 1×720 g a.s./ha, 1×1080 g a.s./ha, 2×720 g a.s./ha, 3×720 g a.s./ha, 1×1440 g a.s./ha and 2×720 g a.s./ha and 2×720 1080 g a.s./ha, For the application rate of 2×1440 the TER_a value is slightly below the trigger of 10. Therefore, an acute Tier 1 risk assessment is necessary for this rate.

The screening TER_{lt} values for use of MON 52276 in orchards and vineyards for the scenario "fruiting vegetables" are below the Commission Regulation (EU) No. 546/2011 trigger of 5. Therefore, a long-term Tier I risk assessment is necessary for all intended application rates.

all o 3, Raifroad tracks - application by spray train (Uses: 7 a-b)

The screening TER_a and TER_{lt} values for use of MON 52276 on railroad tracks for the scenario "bare soil" are greater than the Commission Regulation (EU) No. 546/2011 trigger of 10 and 5 respectively. The screening TER_a and TER_{lt} values for the "fruiting vegetables" scenario are below the Commission Regulation (EU) No. 546/2011 trigger of 10 and 5, respectively. Therefore, an acute and long-term Tier 1 ouli, and a second second risk assessment is necessary for all intended application rates.

The screening TER_a values for use of MON 52276 on invasive species in agricultural and non-agricultural areas for the scenarios "bare soil" and "bush and cane fruit" are greater than the Greater the Greater than the Greater the Greater than the Greater the Gre (EU) No. 546/2011 trigger of 10. The screening TER_a values for the "bulbs and onion like crops" and "fruiting vegetables" scenarios are below the Commission Regulation (EU) No. 546/2011 frigger of 10. Therefore an acute Tier 1 risk assessment is necessary for the intended application rate of $1 \otimes 1 \otimes 0$ g a.s./ha.

The screening TER_{lt} values for use of MON 52276 on invasive species in agricultural and non-agricultural area for the scenario "bare soil" are greater than the Commission Regulation (EU) No. \$46/2011 trigger of 5. The screening TER_{lt} values for the "bush and cane fruit", "bulbs and onion like crops" and "fruiting vegetables" scenarios are below the trigger of 5. Therefore a long-term Tier risk assessment is necessary for the intended application rate of 1×1800 g a.s./ha. S X in the second se

Tier 1 assessment Tier 1 risk assessment is conducted for those intended uses, for which the calculated TER_a or TER_{lt} values were below the trigger of 10 or 5, respectively, e.g. for uses in field crops, uses in orchards and vineyards, uses on railroad tracks and uses to control invasive species in agricultural and non-agricultural areas. The Tier 1 assessment initially requires identification of the appropriate crop groupings and generic focal mammalian species from Appendix A of EFSA/2009/1438

Due to the proposed uses of the product MON 522\$6 in agricultural and non-agricultural areas, justifications are provided below considering which scenarios are relevant for the risk assessment. For those proposed uses where a large number of scenarios is relevant (Field crops: Use 2 a-c, 6 a, b, 10 a-c, Control of invasive species: Use 8 - 9) an approach has been taken to present only the worst-case risk assessment in this section. Therefore the worst-case scenarios have been selected based on the relevant generic focal species with the highest short-cut values as these are considered protective of the other scenarios with lower short-cut values. For completeness, a full and complete mammalian Tier I risk assessment that considers all other scenarios and focal species is presented in Annex M-CP 10-03 to this document.

A summary of **all** relevant scenarios and focal species (includes those presented in this section and in Annex M-CP 10-03) is provided in the Table below. Please note that numbers in brackets refer to the mammals' scenarios stated in the Appendix A of EFSA/2009/1438.

Le S Field crops (Uses: 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c)

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For the Tier 1 assessment of the crop group "field crops", the intended use of MON 52276 includes several general uses on field exps as described further below. The applications are intended to be made by tractor mounted sprayers (Uses 1 a-c, 2 a-c, 3 a-b, 6 a-b) or by hand-held equipment (Uses 10 a-c). S

Use 1 a-c is, the "pre-sowing, pre-planting, pre-emergence" use, where the intention of this use is to prepare a non-agricultural area for agriculture use, meaning that the product is applied when no agricultural crop is present. Therefore the "bare soil", the "grassland" and the "leafy vegetable" scenarios are considered relevants As an acceptable risk for the "bare soil" scenario was concluded at the screening assessment, a Tier Frisk assessment will be presented only for "grassland" and "leafy vegetables". The "grassland" scenario was considered relevant to cover species that feed on grass; the large herbivorous mammal Glyphoent P "lagomorph" (95) and the small omnivorous mammal "mouse" (102, 103) are taken into account.

Uses 2 a-c, 3 a-b and 10 a-c are the "post-harvest, pre-sowing, pre-planting" use where the product can be applied to existing cropland after harvest for removal of remaining crops. Thus, for this use almost all field crops need to be considered. Only for the crop where safe risk could be concluded in the screeking assessment, i.e. "bare soil" and for crops which are generally not considered relevant ("cotton") of for spatial cultures like "bush & cane fruit", "hops", "orchards", "ornamentals/nursery" and "vineyards" a risk assessment is not considered necessary. As the product is applied after post-harvest, late crop stages will be taken into account for risk assessment. Frugivorous mammal scenarios were not taken into account, as the product is intended to be applied after harvest and will not be applied at typical crop stages when fruits are ripe. For the same reason also the pulses scenario (pre harvest seed, BBCH 81-99) is not considered and his relevant.

Thus, for the Tier 1 risk assessment for the uses 2 a-c, 3 a-b and 10 a-c, the relevant generic focal species with the highest short-cut values at late crop stages across all relevant crop scenarios were taken into account; the small insectivorous mammal "shrew" in bulb and onion like grops (\$), the large herbivorous mammal "lagomorph" in grassland (72), the small herbivorous mammal "vole" in grassland (74) and the small omnivorous mammal "mouse" in grassland (75). These selected scenarios cover the risk for all relevant scenarios. For completeness, a risk assessment for all other relevant scenarios and species is presented in Annex M-CP 10-03.

Uses 6 a-b are the "shielded ground directed inter-row application" uses at crop stages < BBCH 20 and all crops scenarios at early growth stages are taken into account, which are presented in the GAP, i.e. vegetables (root and tuber vegetables, bulb vegetables, fuiting vegetables, legume vegetables and leafy vegetables). To avoid exposure of crops, a shielded sprayer is used to ensure that the product is only applied to grasses and weeds in the inter-row. Therefore, only those vegetables crop scenarios are considered relevant where the generic focal species does not directly feed on the crop. In addition, the "bare soil" and the "grassland" scenario are considered relevant, However, as an acceptable risk was concluded for the "bare soil" scenario already at the screening assessment the Tier 1 risk assessment is not required for this scenario.

Thus, for the Tier 1 risk assessment for the uses 6 a-b, the relevant generic focal species with the highest short-cut values at early crop stages (BBCH 20) across all relevant crops scenarios were taken into account, i.e. the small insectivorous mammal "shrew" in bulb and onion like crops (4), the small omnivorous mammal "mouse" (13) in builds and onion like crops, the small herbivorous mammal "vole" in fruiting vegetables (62) and the large perbivorous mammal "lagomorph" (95) in leafy vegetables.

Orchards (Uses: 4 a-c) For the crop grouping "orchards" due to the downward application of the product all generic focal species for not "crop directed" applications were taken into account, i.e. the small insectivorous mammal "shrew" (148), the small herbivorous mammal "vole" (149), the large herbivorous mammal "lagomorph" (154) and the small omnivorous mammal "mouse" (170).

Vineyards (Uses: 5 a-c)

For the crop grouping "vineyards" due to the downward application of the product all generic focal species, for not "crop directed" applications were taken into account, i.e. the large herbivorous mammal "lagomorph" (267, 268, 269, 270), the small insectivorous mammal "shrew" (271, 272), the small herbivorous mammal "vole" (273) and the small omnivorous mammal "mouse" (287).

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Railroad tracks – application by spray train (Uses: 7 a-b)

ion in the second secon For the use on railroad tracks the same scenarios were selected like for use 1 a-c, i.e. the "bare soil", the "grassland" and the "leafy vegetable" were considered relevant. As an acceptable risk for the "bare soik" scenario was concluded at the screening assessment a Tier 1 risk assessment will be presented only for "grassland" and "leafy vegetables". The "grassland" scenario was considered relevant to cover species that feed on grass; the large herbivorous mammal "lagomorph" (72), the small insectivorous mammal "sheew" (73), the small herbivorous mammal "vole" (74) and the small omnivorous mammal "mouse" (75) are taken into account. The "leafy vegetables" scenario was considered relevant to cover species that feed on broadleaved weeds; the small insectivorous mammal "shrew" (91, 92), the small herbivorous mammal "vole" (93, 94), the large herbivorous mammal "lagomorph" (95) and the small omnivorous mammal "mouse" A Solution Solution Migor Mandel (102, 103) are taken into account.

Invasive species in agricultural and non-agricultural areas (Uses: 8 - 9)

For the use on invasive species in agricultural and non-agricultural areas, almost all crops need to be considered. Only for the crop where safe risk could be concluded in the screening assessment, i.e. "bare soil" and for crops which are generally not considered relevant ("cotton") do not need to be assessed in the Tier 1 risk assessment. In general, those scenarios need to be taken into account, where a downward application of the product is relevant. Frugivorous mammal scenarios were not taken into account, as the product is intended to be applied only on the invasive species Giant hogweed (Heracleum mantegazzianum) and Japanese knotweed (Revnoutria japonica) and due to the specific application method (handheld, spraying shield) fruits will not be exposed to the product. For the same reason also the pulses scenario (pre 80°2 ୍ଦି 20 harvest seed, BBCH 81-99) is not considered relevant. Jol .

Thus, for the Tier 1 risk assessment for uses 8 and 9, the relevant generic focal species with the highest short-cut values across all relevant crop scenarios were taken into account, i.e. the small insectivorous mammal "shrew" in bulb and onion like crops (4), the small omnivorous mammal "mouse" in bulb and onion like crops (13), the large herbivorous mammal agomorph" in cereals (35) and the small herbivorous addronable for the stand of the mammal "vole" in fruiting vegetables (62). These chosen scenarios cover the risk for all relevant scenarios. For completeness, a risk assessment for all other refevant scenarios and species is presented in Annex M-

Tier 1 mammalian scenarios Table 10.1.2-11:

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Table 10.1.2- 11:	Tier 1 mammalian scenarios		. 0 .0 .0 .0 .0 .0	Ş		
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	SV90	SV _m	Risk assessment presented under	
	Field crops (Pre-sowin	ig, pre-planting, pre-emergence): Use 194-6				
No. 72	Grassland All season	Large herbivorous mammal "tagomorph" Brown hare (<i>Lepus europäeus</i>)	-	17.3	MCP 10.1.2	
No. 73	Grassland Late	Small insectivorous mammal "shrew" Common shrew (Sprexaraneus)	-	1.9	MCP 10.1.2	
No. 74	Grassland All season	Small herbivorous manimal "vole" Common vole <i>(Microsulus arvalis</i>)	-	72.3	MCP 10.1.2	
No. 75	Grassland Late season (seed heads)	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	6.6	MCP 10.1.2	
No. 91	Leafy vegetables BBCH 10 - 19	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	-	4.2	MCP 10.1.2	
No. 92	Leafy vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	-	1.9	MCP 10.1.2	
No. 93	Leafy vegetables 8 BBCH 40 - 49	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	-	72.3	MCP 10.1.2	
No. 94	Leafy vegetables BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	-	21.7	MCP 10.1.2	
No. 95	Leafy vegetables All season	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	-	14.3	MCP 10.1.2	
No. 102	BBCH 10 – 49	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	7.8	MCP 10.1.2	
No. 103	Leafy vegetables BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	2.3	MCP 10.1.1	
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Tier 1 mammalian scenarios Table 10.1.2-11:

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Table 10.1.2- 11:	Tier 1 mammalian scenarios	Color Color	10/10/ 10/10/10/10/ 10/10/10/ 10/10/10/ 10/10/10/ 10/10/10/10/ 10/10/10/10/10/10/10/10/10/10/10/10/10/1	*	
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	SV90	SVm	Risk assessment presented under
	Field crops (Post-harvest, p	re-sowing, pre-planting): Use 2 a-c, 3 a-b, 10 a-c			
No. 5	Bulbs and onion like crops BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex argues)	-	1.9	MCP 10.1.2 (Worst case scenario)
No. 6	Bulbs and onion like crops BBCH ≥ 40	Small herbivorous mammal Avole" Common vole (Microtas arvatis)	-	43.4	Annex M-CP 10-03 (Covered by scenario no. 74)
No. 14	Bulbs and onion like crops BBCH ≥ 40	Small omnivorous maximal "mouse" Wood mouse (Apodomus sylvaticus)	-	4.7	Annex M-CP 10-03 (Covered by scenario no. 75)
No. 33	Cereals BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 5)
No. 34	Cereals BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (Microtus arvalis)	-	21.7	Annex M-CP 10-03 (Covered by scenario no. 74)
No. 46	Cereals BBCH ≥ 40	Small ombivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	-	2.3	Annex M-CP 10-03 (Covered by scenario no. 75)
No. 61	Fruiting vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 5)
No. 63			-	21.7	Annex M-CP 10-03 (Covered by scenario no. 74)
No. 71	Fruiting vegetables BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	2.3	Annex M-CP 10-03 (Covered by scenario no. 75)
No. 72	Grassland	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	-	17.3	MCP 10.1.2 (Worst case scenario)
No. 73	Grassland	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 5)
No. 74	Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	-	72.3	MCP 10.1.2 (Worst case scenario)
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Tier 1 mammalian scenarios Table 10.1.2-11:

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Table 10.1.2- 11:	Tier 1 mammalian scenarios		10, CO 10, CO 11, CO 11, CO 11, CO 11, CO 10, CO 10	<u>.</u>	
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic local species	SV90	SVm	Risk assessment presented under
No. 75	Grassland Late season (seed heads)	Small omnivorous mammal "mouse" 5 Wood mouse (Apodemus sylvaticas) 8	-	6.6	MCP 10.1.2 (Worst case scenario)
No. 92	Leafy vegetables BBCH ≥ 20	Small insectivorous mammab "shrew" Common shrew (Sorex argneys)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 5)
No. 94	Leafy vegetables BBCH ≥ 50	Small herbivorous maramat "vole" Common vole (Micronus arvalis)	-	21.7	Annex M-CP 10-03 (Covered by scenario no. 74)
No. 95	Leafy vegetables All season	Large herbivorous mammal "lagomorph" Rabbit (Oryctologis cuniculus)	-	14.3	Annex M-CP 10-03 (Covered by scenario no. 72)
No. 103	Leafy vegetables BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	-	2.3	Annex M-CP 10-03 (Covered by scenario no. 75)
No. 105	Legume forage BBCH ≥ 20	Small msectivorous mammal "shrew" Common shrew (Sorex araneus)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 5)
No. 107	Legume forage BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	-	21.7	Annex M-CP 10-03 (Covered by scenario no. 74)
No. 116	Legume forage BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	2.3	Annex M-CP 10-03 (Covered by scenario no. 75)
No. 118	Maize $BBCH \ge 20$	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 5)
No. 121	Legume forage BBCH ≥ 50 Maize BBCH ≥ 20 Maize BBCH ≥ 40 Maize DBCH ≥ 40	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	-	18.1	Annex M-CP 10-03 (Covered by scenario no. 74)
No. 132	$\begin{array}{c} & & & \\ Maize & & & \\ BBCH \ge 40 & & & \\ \end{array}$	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 75)
No. 134	Oilseed rape $(5,5)$ BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 5)
No. 135	Oilseed rape 6° 6° BBCH ≥ 40 5° 6°	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	-	18.1	Annex M-CP 10-03 (Covered by scenario no. 74)
Glyphosate Renewal Group AI	BBCH ≥ 40 BBCH ≥ 40 Oilseed rape BBCH ≥ 20 Oilseed rape BBCH ≥ 40 BBCH ≥ 4		Do	c ID: 11(0054-MCP10_GRG_Rev 1_Jul_2020

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Tier 1 mammalian scenarios Table 10.1.2-11:

Annex to Regulation 284/2013		MON 52276			M-CP, Section Page 93 of 5
Table 10.1.2- 11:	Tier 1 mammalian scenarios			<u>.</u>	
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	SV90	SV _m	Risk assessment presented under
No. 136	Oilseed rape All season	Large herbivorous mammal "lagonorph" Rabbit (<i>Oryctolagus cuniculus</i>)	-	14.3	Annex M-CP 10-03 (Covered by scenario no. 72)
No. 147	Oilseed rape BBCH ≥ 40	Small omnivorous mammal Smouse? Wood mouse (Apodemus Straticus)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 75)
No. 186	Potatoes BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sogex graneus)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 5)
No. 187	Potatoes BBCH ≥ 40	Small herbivorous mammal "vole" Common vole <i>Microaus arvalis</i>)	-	21.7	Annex M-CP 10-03 (Covered by scenario no. 74)
No. 189	Potatoes BBCH ≥ 40	Large herbivorsus mammal "lagomorph" Rabbit (<i>Quy Golagus cuniculus</i>)	-	4.3	Annex M-CP 10-03 (Covered by scenario no. 72)
No. 197	Potatoes BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	-	2.3	Annex M-CP 10-03 (Covered by scenario no. 75)
No. 199	Pulses BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 5)
No. 201	Pulses BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	-	21.7	Annex M-CP 10-03 (Covered by scenario no. 74)
No. 203	Pulses $BBCH \ge 50$ Pulses $BBCH \ge 50$	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	-	4.3	Annex M-CP 10-03 (Covered by scenario no. 72)
No. 212	Pulses BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	2.3	Annex M-CP 10-03 (Covered by scenario no. 75)
No. 214	$DDCH \ge 20$ $\delta^2 \circ \circ^2$	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 5)
No. 215	Root and stem vegetables 5° 5° BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	-	21.7	Annex M-CP 10-03 (Covered by scenario no. 74)
No. 223	Root and stem vegetables	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	2.3	Annex M-CP 10-03 (Covered by scenario no. 75)
Glyphosate Renewal Group AI	BBCH ≥ 40 $R 5 - July 2020$ $C^{1/0}$ C^{1		Do	c ID: 110	0054-MCP10_GRG_Rev 1_Jul_2020

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Tier 1 mammalian scenarios Table 10.1.2-11:

Annex to Regulation 284/2013		MON 52276	Nuc.	01/10 01/20 11/20	M-CP, Section 1 Page 94 of 55
Table 10.1.2- 11:	Tier 1 mammalian scenarios				
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	SV90	SV _m	Risk assessment presented under
No. 225	Strawberries BBCH ≥ 20	Small insectivorous mammal "shrew? Common shrew (Sorex araneus)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 5)
No. 226	Strawberries BBCH ≥ 40	Small herbivorous mammal Svole	-	28.9	Annex M-CP 10-03 (Covered by scenario no. 74)
No. 228	Strawberries BBCH≥40	Large herbivorous manimal "lagomorph" Rabbit (Oryctolagus cuniculus)	-	5.7	Annex M-CP 10-03 (Covered by scenario no. 72)
No. 236	Strawberries BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	-	3.1	Annex M-CP 10-03 (Covered by scenario no. 75)
No. 238	Sugar beet BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 5)
No. 239	Sugar beet BBCH ≥ 40	Small herbivorous mammal "vole Common vole (Microtus arvalis)	-	18.1	Annex M-CP 10-03 (Covered by scenario no. 74)
No. 241	Sugar beet BBCH ≥ 40	Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus)	-	3.6	Annex M-CP 10-03 (Covered by scenario no. 72)
No. 249	Sugar beet BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 75)
No. 251	Sunflower BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 5)
No. 252	Sugar beet BBCH \geq 40 Sunflower BBCH \geq 20 Sunflower BBCH \geq 40 Sunflower BBCH \geq 40 Sunflower BBCH \geq 40 Sunflower BBCH \geq 40	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	-	18.1	Annex M-CP 10-03 (Covered by scenario no. 74)
No. 255		Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	-	3.6	Annex M-CP 10-03 (Covered by scenario no. 72)
No. 266	Sunflower C.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	1.9	Annex M-CP 10-03 (Covered by scenario no. 75)
Glyphosate Renewal Group AI	BBCH ≥ 40 BBCH ≥ 40 Sunflower BBCH ≥ 40 R 5 - July 2020		Do	c ID: 110	0054-MCP10_GRG_Rev 1_Jul_2020

Tier 1 mammalian scenarios Table 10.1.2-11:

Annex to Regulation 284/2013		MON 52276	N.Co.	01/10 10 20 10 20	M-CP, Section Page 95 of 5
Table 10.1.2- 11:	Tier 1 mammalian scenarios			.	
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	⇒ SV90	SV _m	Risk assessment presented under
	Field crops (Shielded grou	und directed inter-row application) Use 6 a, b			
No. 4	Bulbs & onion like crops BBCH 10 – 19	Small insectivorous mammat"shrew" Common shrew (Sorex argneys)	-	4.2	MCP 10.1.2 (Worst case scenario)
No. 13	Bulbs & onion like crops BBCH 10 – 39	Small omnivorous manmal [®] mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	7.8	MCP 10.1.2 (Worst case scenario)
No. 60	Fruiting vegetables BBCH 10 – 19	Small insectivorous manipal "shrew" Common shrew (Sorex graneus)	-	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 62	Fruiting vegetables BBCH 10 – 49	Small herbivorous mammal "vole" Common vole <i>Microtus arvalis</i>)	-	72.3	MCP 10.1.2 (Worst case scenario)
No. 70	Fruiting vegetables BBCH 10 – 49	Small opinizorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	-	7.8	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 91	Leafy vegetables BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	-	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 95	Leafy vegetables All season	Darge herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	-	14.3	MCP 10.1.2 (Worst case scenario)
No. 102	ų O	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	7.8	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 104	Legume forage くちょう BBCH 10 – 19 やうちょう	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	-	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 115	Legume forage BBCH 10 – 49	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	7.8	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 185	Potatoes BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	-	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 188	Potatoes BBCH 10 – 40	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	-	14.3	Annex M-CP 10-03 (Covered by scenario no. 95)
Glyphosate Renewal Group AI			Do	e ID: 110)054-MCP10_GRG_Rev 1_Jul_2020

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Tier 1 mammalian scenarios Table 10.1.2-11:

Annex to Regulation 284/2013		MON 52276	les.	Mill of the Du	M-CP, Section 1 Page 96 of 55
Table 10.1.2- 11:	Tier 1 mammalian scenarios		(10, 5) (1	<u>\$</u>	
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic tocal species	SV90	SV _m	Risk assessment presented under
No. 196	Potatoes BBCH 10 – 39	Small omnivorous mammal "mouse"	-	7.8	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 198	Pulses BBCH 10 – 19	Small insectivorous mammab "shrew" Common shrew (Sorex argineus)	-	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 202	Pulses BBCH 10 – 49	Large herbivorous manimal "lagomorph" Rabbit (Oryctolagus cuniculus)	-	14.3	Annex M-CP 10-03 (Covered by scenario no. 95)
No. 211	Pulses BBCH 10 – 49	Small omnivorous manipal "mouse" Wood mouse (Apodemus sylvaticus)	-	7.8	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 213	Root & stem vegetables BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	-	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 222	Root & stem vegetables BBCH 10 – 39	Small omnyorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	-	7.8	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 237	Sugar beet BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	-	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 240	Sugar beet BBCH 10 – 39	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	-	14.3	Annex M-CP 10-03 (Covered by scenario no. 95)
No. 248	Sugar beet BBCH 10 – 39 Sugar beet BBCH 10 – 39 Orchards Application crop directed BBCH \$ 10 or not	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	-	7.8	Annex M-CP 10-03 (Covered by scenario no. 4)
		Orchards: Use 4 a-c			
No. 148	Orchards Application crop directed BBCH \$ 10 or not crop directed	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	5.4	1.9	MCP 10.1.2
No. 149	Orchards Application crop directed BBCH < 10 or not	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	136.4	72.3	MCP 10.1.2
Glyphosate Renewal Group Al	R 5 – July 2020 6 the formation of the f		Do	c ID: 11(0054-MCP10_GRG_Rev 1_Jul_2020

Tier 1 mammalian scenarios Table 10.1.2-11:

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Table 10.1.2- 11:	Tier 1 mammalian scenarios			•		
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	SV90	SVm	Risk assessment presented under	
No. 154	Orchards Application crop directed BBCH < 10 or not crop directed	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	35.1	14.3	MCP 10.1.2	
No. 170	Orchards Application crop directed BBCH < 10 or not crop directed	Small omnivorous mammal, "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	17.2	7.8	MCP 10.1.2	
	N	Vineyards: Use 5 a-6 5 5				
No. 267	Vineyard Application ground directed	Large herbivorous mammal "lagomorph" Brown hare (Lepus europaeus)	27.2	11.1	MCP 10.1.2	
No. 268	Vineyard BBCH 10 – 19	Large herbivorous mammal "lagomorph" Brown have (Lepus europaeus)	16.3	6.7	MCP 10.1.2	
No. 269	Vineyard BBCH 20 – 39	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	13.6	5.5	MCP 10.1.2	
No. 270	Vineyard BBCH≥40	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	8.1	3.3	MCP 10.1.2	
No. 271	Vineyard BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	7.6	4.2	MCP 10.1.2	
No. 272	BBCH 10 - 19 Image: Constraint of the second sec	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	5.4	1.9	MCP 10.1.2	
No. 273	Vineyard Application ground directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	136.4	72.3	MCP 10.1.2	
No. 287	Vineyard States Application ground directed States	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	17.2	7.8	MCP 10.1.2	
	Railroad tracks –	application by spray train: Use 7a-b				
No. 72	Grassland 6 6 All season 6 5	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	32.6	17.3	MCP 10.1.2	
Glyphosate Renewal Group All	R 5 – July 2020		Do	c ID: 110	0054-MCP10_GRG_Re	v 1_Jul_2020

Tier 1 mammalian scenarios Table 10.1.2-11:

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Annex to Regulation 284/2013		MON 52276	lever.	N. S. N. S. N. S.	2	M-CP, Section 10 Page 98 of 553
Table 10.1.2- 11:	Tier 1 mammalian scenarios		10, CO 10, CO 12, 00 12, 00 12, 00 12, 00 12, 00 10, 00 10	<u>ço</u> ,		
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	SV90	SV _m	Risk assessment presented under	
No. 73	Grassland Late	Small insectivorous mammal "shrew" Common shrew (Sorex araneys) & &	5.4	1.9	MCP 10.1.2	
No. 74	Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtulus avedis</i>)	136.4	72.3	MCP 10.1.2	
No. 75	Grassland Late season (seed heads)	Small omnivorous manufate mouse" Wood mouse (Apodemus sylvaticus)	14.4	6.6	MCP 10.1.2	
No. 91	Leafy vegetables BBCH 10 - 19	Small insectivorous mammal "shrew" Commnon shrew(Sorex araneus)	7.6	4.2	MCP 10.1.2	
No. 92	Leafy vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	5.4	1.9	MCP 10.1.2	
No. 93	Leafy vegetables BBCH 40 - 49	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	136.4	72.3	MCP 10.1.2	
No. 94	Leafy vegetables BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	40.9	21.7	MCP 10.1.2	
No. 95	Leafy vegetables All season	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	35.1	14.3	MCP 10.1.2	
No. 102	Leafy vegetables BBCH 10 – 49	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	17.2	7.8	MCP 10.1.2	
No. 103	Leafy vegetables All season Leafy vegetables BBCH 10 – 49 Leafy vegetables BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	5.2	2.3	MCP 10.1.1	
	Control of shyasive species in	agricultural and non-agricultural areas: Use 8-9)	•		
No. 4	Bulbs & onion like crops	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	7.6	4.2	MCP 10.1.2 (Worst case scen	ario)
No. 5	Bulbs & onion like crops	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	5.4	1.9	Annex M-CP 10-0 (Covered by scena	
Glyphosate Renewal Group AIR 5	BBCH ≥ 20 60 5 5		Doo	e ID: 110	0054-MCP10_GRG_Rev	/ 1_Jul_2020

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Tier 1 mammalian scenarios Table 10.1.2-11:

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Table 10.1.2- 11:	Tier 1 mammalian scenarios		10, Co 10, Co 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	4	
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species Small herbivorous mammal "vole" Common vole (Microtus arvalis) Small omnivorous mammal "monse" Wood mouse (Apodemus sybatteus)	SV90	SV _m	Risk assessment presented under
No. 6	Bulbs & onion like crops BBCH ≥ 40	Small herbivorous mammal "voles of the common vole (Microtus arvalis)	81.9	43.4	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 13	Bulbs & onion like crops BBCH 10 – 39	Small omnivorous mammab "monse" Wood mouse (<i>Apodemus sybatteus</i>)	17.2	7.8	MCP 10.1.2 (Worst case scenario)
No. 14	Bulbs & onion like crops BBCH ≥ 40	Small omnivorous manmal "mouse" Wood mouse (Apodemus sylvaticus)	10.3	4.7	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 15	Bush & cane fruit BBCH 10 – 19	Small insectivorous manimal "shrew" Common shrew (Sores araneus)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 16	Bush & cane fruit BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 17	Bush & cane fruit BBCH 10 – 19	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	81.9	43.4	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 18	Bush & cane fruit BBCH 20 – 39	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	68.2	36.1	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 19	Bush & cane fruit BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	40.9	21.7	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 29	Bush & cane fruitBBCH \geq 40Bush & cane fruitBBCH 10 - 19	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	10.3	4.7	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 30	Bush & cane fruit	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	8.6	3.9	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 31	Bush & cane fruit So A	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	5.2	2.3	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 32	Cereals	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 33	Cereals δ^{6} δ^{6} BBCH ≥ 20 δ^{6} δ^{6}	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
Glyphosate Renewal Group AI	BBCH ≥ 40 BBCH ≥ 40 Cereals BBCH 10 – 19 Cereals BBCH ≥ 20 $^{(1)}$ $^{(2)}$		Do	c ID: 110	0054-MCP10_GRG_Rev 1_Jul_2020

Tier 1 mammalian scenarios Table 10.1.2-11:

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Table 10.1.2- 11:	Tier 1 mammalian scenarios		10, 0 10, 00, 0000000000	<u>e</u>	
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	SV90	SVm	Risk assessment presented under
No. 34	Cereals $BBCH \ge 40$	Small herbivorous mammal "voles" 55 Common vole (Microtus arvalis) 55	40.9	21.7	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 35	Cereals Early (shoots)	Large herbivorous mammal "tagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	42.1	22.3	MCP 10.1.2 (Worst case scenario)
No. 44	Cereals BBCH 10 – 29	Small omnivorous marinal "mouse" Wood mouse (Apodemus sylvaticus)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 45	Cereals BBCH 30 – 39	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	8.6	3.9	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 46	Cereals BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	5.2	2.3	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 60	Fruiting vegetables BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 61	Fruiting vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 62	Fruiting vegetables BBCH 10 – 49	Small herbivorous mammal "vole"	136.4	72.3	MCP 10.1.2 (Worst case scenario)
No. 63	Fruiting vegetables $BBCH \ge 50$	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	40.9	21.7	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 70	Fruiting vegetables BBCH 10 – 49 6^{10} 10^{10} Fruiting vegetables BBCH ≥ 50 6^{10} 10^{10} Fruiting vegetables BBCH 10 – 49 6^{10} 10^{10} Fruiting vegetables BBCH ≥ 50 6^{10} 10^{10} Fruiting vegetables BBCH ≥ 50 6^{10} 10^{10}	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
No.71		Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	5.2	2.3	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 72	Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	32.6	17.3	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 73	Grassland	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
Glyphosate Renewal Group AI	BBCH ≥ 50 BBCH ≥ 50 Grassland All season Grassland Late R 5 - July 2020 Grassland for the formation of the format		Do	c ID: 110	0054-MCP10_GRG_Rev 1_Jul_2020

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Tier 1 mammalian scenarios Table 10.1.2-11:

Annex to Regulation 284/2013		MON 52276	Non.	1. 0 1. 0 1. 0	M-CP, Section Page 101 of 5:
Table 10.1.2- 11:	Tier 1 mammalian scenarios		10, CO	<u>, </u>	
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	> SV90	SV _m	Risk assessment presented under
No. 74	Grassland All season	Small herbivorous mammal "voles" (Common vole (<i>Microtus arvalis</i>)	136.4	72.3	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 75	Grassland Late season (seed heads)	Small omnivorous mammal mouse" Wood mouse (Apodemus sylvaticus)	14.4	6.6	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 77	Нор ВВСН 10 – 19	Small insectivorous manufal "shrew" Common shrew (Sover argueus)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 78	Hop BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sores araneus)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 79	Hop BBCH≥40	Small herbivorous mammal "vole" Common vole (Microtus arvalis)	40.9	21.7	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 88	Нор ВВСН 10 – 19	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 89	Нор BBCH 20 – 39	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	8.6	3.9	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 90	Hop BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	5.2	2.3	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 91	$BBCH \ge 40$ $Leafy vegetables$ $BBCH 10 - 19$	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 92	Leafy vegetables ぞうかぎ BBCH > 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 93	Leaty vegetables	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	136.4	72.3	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 94	Leafy vegetables A South BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	40.9	21.7	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 95	BBCH 40 - 49 \bigcirc \bigcirc \bigcirc Leafy vegetables \bigcirc \bigcirc \bigcirc BBCH ≥ 50 \bigcirc \bigcirc \bigcirc Leafy vegetables \bigcirc \bigcirc \bigcirc All season \bigcirc \bigcirc \bigcirc \bigcirc	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	35.1	14.3	Annex M-CP 10-03 (Covered by scenario no. 35)
Glyphosate Renewal Group AI			Doo	e ID: 110)054-MCP10_GRG_Rev 1_Jul_2020

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Tier 1 mammalian scenarios Table 10.1.2-11:

Annex to Regulation 284/2013		MON 52276	Server and	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	M-CP, Section Page 102 of 5:
Table 10.1.2- 11:	Tier 1 mammalian scenarios			<u>.</u>	
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	SV90	SV _m	Risk assessment presented under
No. 102	Leafy vegetables BBCH 10 – 49	Small omnivorous mammal "mouse"	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 103	Leafy vegetables BBCH ≥ 50	Small omnivorous mammal smouse Wood mouse (Apodemus Straticus)	5.2	2.3	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 104	Legume forage BBCH 10 – 19	Small insectivorous manufal "shrew" Common shrew (Sorex argneus)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 105	Legume forage BBCH ≥ 20	Small insectivorous manimal "shrew" Common shrew (Sores araneus)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 106	Legume forage BBCH 40 – 49	Small herbivorous mammal "vole" Common vole (Microtus arvalis)	136.4	72.3	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 107	Legume forage BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (Microtus arvalis)	40.9	21.7	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 108	Legume forage Leaf development BBCH 21 – 49	Large herbivorous mammal "lagomorph" Radbut (Oryctolagus cuniculus)	35.1	14.3	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 115	Legume forage BBCH 10 – 49	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 116	Legume forageBBCH 10 - 49Legume forageBBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	5.2	2.3	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 117	Maize Solution BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 118	Maize BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 119	Maize CARA BBCH 10 -29	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	136.4	72.3	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 120	Maize 6 5 BBCH 30 – 39 5	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	68.2	36.1	Annex M-CP 10-03 (Covered by scenario no. 62)
Glyphosate Renewal Group AI	$BBCH \ge 20$ $BBCH \ge 20$ $Maize$ $BBCH 10 -29$ $Maize$ $BBCH 30 - 39$		Doo	e ID: 110)054-MCP10_GRG_Rev 1_Jul_2020

Tier 1 mammalian scenarios Table 10.1.2-11:

Annex to Regulation 284/2013		MON 52276	and	1. 0 1. 0 1. 0	M-CP, Section I Page 103 of 55
Table 10.1.2- 11: Tier 1 mammalian scenarios					
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	SV90	SVm	Risk assessment presented under
No. 121	Maize BBCH≥40	Small herbivorous mammal "voles" 5 5 Common vole (<i>Microtus arvalis</i>) 5 6	34.1	18.1	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 130	Maize BBCH 10 – 29	Small omnivorous mammal mouse? Wood mouse (Apodemus Studieus)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 131	Maize BBCH 30 – 39	Small omnivorous manimal "mouse" Wood mouse (Apodemus sylvaticus)	8.6	3.9	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 132	Maize BBCH ≥ 40	Small omnivorous manipal "mouse" Wood mouse (Apodemus sylvaticus)	4.3	1.9	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 133	Oilseed rape BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 134	Oilseed rape BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 135	Oilseed rape BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	34.1	18.1	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 136	Oilseed rape All season	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	35.1	14.3	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 145	Oilseed rape BBCH 10 – 29	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 146	Oilseed rape Oilseed rape All season Oilseed rape BBCH 10 - 29 Oilseed rape BBCH 30 - 39 Oilseed rape Oilseed rape Oilseed rape BBCH 30 - 39 Oilseed rape	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	5.2	2.3	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 147	BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	4.3	1.9	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 148	Orchards Application crop directed BBCH < 10 or not	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
Glyphosate Renewal Group AI	$R 5 - July 2020 e^{-i \frac{1}{10} e^{$		Do	c ID: 110)054-MCP10_GRG_Rev 1_Jul_2020

Tier 1 mammalian scenarios Table 10.1.2-11:

Annex to Regulation 284/2013		MON 52276	Ner.	1. 0 1. 0 1. 0	M-CP, Section 1 Page 104 of 55
Table 10.1.2- 11:	Tier 1 mammalian scenarios			<u>, </u>	
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	SV90	SV _m	Risk assessment presented under
No. 149	Orchards Application crop directed BBCH < 10 or not crop directed	Small herbivorous mammal "voles" 55 Common vole (<i>Microtus arvalis</i>) 55 State	136.4	72.3	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 154	Orchards Application crop directed BBCH < 10 or not crop directed	Large herbivorous mammaf "Jagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	35.1	14.3	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 170	Orchards Application crop directed BBCH < 10 or not crop directed	Small omnivorous maninal "mouse" Wood mouse (Apodemus sylvaticus)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 175	Ornamentals/nursery BBCH 40 – 49	Small herbivorous mammal "vole" Common vole (Microtus arvalis)	136.4	72.3	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 176	Ornamentals/nursery BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	68.2	36.1	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 185	Potatoes BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 186	Potatoes BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 187	BBCH ≥ 20 \circ F Potatoes \circ O BBCH ≥ 40 \circ O Potatoes \circ O BBCH 10 - 40 \circ O Potatoes \circ O BBCH ≥ 40 \circ O Potatoes \circ O BBCH ≥ 40 \circ O Potatoes \circ O Potatoes \circ O BBCH ≥ 40 \circ O Potatoes \circ O Potatoes \circ O Potatoes \circ O	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	40.9	21.7	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 188	Potatoes BBCH 10 – 40	Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus)	35.1	14.3	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 189	Potatoes	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	10.5	4.3	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 196	BBCH 10 – 39	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 197	Potatoes 600	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	5.2	2.3	Annex M-CP 10-03 (Covered by scenario no. 13)
Glyphosate Renewal Group AI	2000 1000 1000 1000 1000 1000 1000 1000		Doo	e ID: 110)054-MCP10_GRG_Rev 1_Jul_2020

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Tier 1 mammalian scenarios Table 10.1.2-11:

Annex to Regulation 284/2013		MON 52276	Nov.	1. 0 1. 0 1. 0 1. 0	M-CP, Section Page 105 of 5:
Table 10.1.2- 11:	Tier 1 mammalian scenarios			2	
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	SV90	SV _m	Risk assessment presented under
No. 198	Pulses BBCH 10 – 19	Small insectivorous mammal "shrew"	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 199	Pulses BBCH ≥ 20	Small insectivorous mammats" shrew" Common shrew (Sorex arguneus)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 200	Pulses BBCH 40 – 49	Small herbivorous maramat "vole" Common vole (Micronus arvalis)	136.4	72.3	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 201	Pulses BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (Micronus arvalis)	40.9	21.7	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 202	Pulses BBCH 10 – 49	Large herbivorous mammal "lagomorph" Rabbit (Qiyetolagus cuniculus)	35.1	14.3	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 203	Pulses BBCH ≥ 50	Large Replyorous mammal "lagomorph" Rabbit (Orsctolagus cuniculus)	10.5	4.3	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 211	Pulses BBCH 10 – 49	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 212	Pulses BBCH≥50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	5.2	2.3	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 213	Root & stem vegetables BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 214	PulsesBBCH ≥ 50 Root & stem vegetablesBBCH 10 - 19Root & stem vegetablesBBCH ≥ 20 Root & stem vegetablesBBCH ≥ 20 Root & stem vegetablesBBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 215	Root & stem vegetables 5 € 5 BBCH≥40	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	40.9	21.7	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 222	Root & stem vegetables	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 223	Root & stem vegetables	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	5.2	2.3	Annex M-CP 10-03 (Covered by scenario no. 13)
Glyphosate Renewal Group AI	BBCH ≥ 40 6^{10} 5^{10} 6^{10}		Do	e ID: 110)054-MCP10_GRG_Rev 1_Jul_2020

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Tier 1 mammalian scenarios Table 10.1.2-11:

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Table 10.1.2- 11:	Tier 1 mammalian scenarios				
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	SV90	SV _m	Risk assessment presented under
No. 224	Strawberries BBCH 10 – 19	Small insectivorous mammal "shrew? Common shrew (Sorex araneus)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 225	Strawberries BBCH ≥ 20	Small insectivorous mammad "shrew" Common shrew (Sorex argung)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 226	Strawberries BBCH ≥ 40	Small herbivorous marimal "vole Common vole (<i>Microry arvalis</i>)	54.6	28.9	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 227	Strawberries BBCH 10 – 39	Large herbivorous nammal "lagomorph" Rabbit (Oryctologus cuniculus)	35.1	14.3	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 228	Strawberries BBCH ≥ 40	Large herbivorous mammal "lagomorph" Rabbit (<i>Qiyesolagus cuniculus</i>)	14.0	5.7	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 235	Strawberries BBCH 10 – 39	Small omnyorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 236	Strawberries BBCH ≥ 40	Small omnivorous mammal "mouse" Wooc mouse (Apodemus sylvaticus)	6.9	3.1	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 237	Sugar beet BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 238	Sugar beet BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 239	Sugar beet BBCH 10 - 19 Sugar beet BBCH ≥ 20 Sugar beet BBCH ≥ 40 Sugar beet Sugar beet BBCH ≥ 40	Small herbivorous mammal "vole Common vole (<i>Microtus arvalis</i>)	34.1	18.1	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 240		Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	35.1	14.3	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 241	Sugar beet $(\overset{\circ}{},$	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	8.8	3.6	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 248	Sugar beet 6 5 BBCH 10 – 39 5	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
Glyphosate Renewal Group AI	BBCH 10 – 39 BBCH 2 40 Sugar beet BBCH 2 40 Sugar beet BBCH 10 – 39 Sugar beet BBCH 2 40 Sugar beet BBCH 10 – 39 Sugar beet BBCH 2 40 Sugar beet BBCH 2 40 Sugar beet BBCH 2 40 Sugar beet BBCH 2 40 Sugar beet Sugar beet BBCH 10 – 39 Sugar beet BBCH 2 40 Sugar beet BBCH 2 40 Sugar beet BBCH 10 – 39 Sugar beet BBCH 2 40 Sugar beet BBCH 10 – 39 Sugar beet Sugar beet BBCH 10 – 39 Sugar beet Sugar beet		Do	c ID: 11(0054-MCP10_GRG_Rev 1_Jul_2020

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Tier 1 mammalian scenarios Table 10.1.2-11:

Annex to Regulation 284/2013		MON 52276	No.	1. 0 1. 0 1. 0	M-CP, Section Page 107 of 5:
Table 10.1.2- 11:	Tier 1 mammalian scenarios			.	
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species	SV90	SV _m	Risk assessment presented under
No. 249	Sugar beet BBCH≥40	Small omnivorous mammal "mouse"	4.3	1.9	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 250	Sunflower BBCH 10 – 19	Small insectivorous mammab "strew" Common shrew (Sorex argneys)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 251	Sunflower BBCH ≥ 20	Small insectivorous manufal "Shrew" Common shrew (Sorex araneus)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 252	Sunflower BBCH≥40	Small herbivorous nammal "vole" Common vole (Microus arvalis)	34.1	18.1	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 253	Sunflower BBCH 10 – 19	Large herbivorous mammal "lagomorph" Rabbit (<i>Grycolagus cuniculus</i>)	35.1	14.3	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 254	Sunflower BBCH 20 – 39	Large herbivorous mammal "lagomorph" Rabbit (Orfectolagus cuniculus)	17.6	7.2	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 255	Sunflower BBCH≥40	Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus)	8.8	3.6	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 264	Sunflower BBCH 10 – 19	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)
No.265	BBCH 10 – 19 5 Sunflower 5 BBCH 20 – 39 5	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	8.6	3.9	Annex M-CP 10-03 (Covered by scenario no. 13)
No.266	Sunflower $\mathcal{K} \land \mathcal{K}$ BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	4.3	1.9	Annex M-CP 10-03 (Covered by scenario no. 13)
No. 267	Application ground directed	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	27.2	11.1	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 268	Vineyard C S S BBCH 10 – 19	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	16.3	6.7	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 269	Vineyard	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	13.6	5.5	Annex M-CP 10-03 (Covered by scenario no. 35)
Glyphosate Renewal Group AI			Do	c ID: 110	0054-MCP10_GRG_Rev 1_Jul_2020

Table 10.1.2-11: **Tier 1 mammalian scenarios**

Table 10.1.2- 11:	Tier 1 mammalian scenarios				
EFSA Appendix A Scenario	Tier 1 scenario given by glyphosate RAR	Generic focal species		SV _m	Risk assessment presented under
No. 270	Vineyard $BBCH \ge 40$	Large herbivorous mammal "lagonorph" Brown hare (<i>Lepus europaeus</i>)	8.1	3.3	Annex M-CP 10-03 (Covered by scenario no. 35)
No. 271	Vineyard BBCH 10 – 19	Small insectivorous mammad "shrew" Common shrew (Sorex arguages)	7.6	4.2	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 272	Vineyard BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex graneus)	5.4	1.9	Annex M-CP 10-03 (Covered by scenario no. 4)
No. 273	Vineyard Application ground directed	Small herbivorous mammal "vole" Common vole (Microtus arvalis)	136.4	72.3	Annex M-CP 10-03 (Covered by scenario no. 62)
No. 287	Vineyard Application ground directed	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	17.2	7.8	Annex M-CP 10-03 (Covered by scenario no. 13)

The Tier 1 risk assessment is presented in the following tables for the relevant uses in field crops, orchards, vineyards, for the uses on railroad tracks and for the uses on trailroad tracks and for the uses on trailroad tracks and for the table above. The Tier 1 risk assessment is presented in the following tables for the relevant uses in field crops, orchards, vineyards, for the uses on railroad tracks and for the

<u>Field crops</u> Table 10.1.2	- 12: Tier 1	assessment of	the long-term/reproductive risk f	for ma	ummals	due to th	e use	
			crops (Pre-sowing, pre-planting,			ce): Uses		
Active substar Reprod. toxic (mg/kg bw/d)		Glyphosate 50	Blyphosate					
TER criterion	1	5				S. No		
GAP crop	Application rate (g a.s./ha)	Crop scenario		SV _m	×TWA	(mg/kg b		
Field crops (Pre-sowing, pre-planting, pre-	1 × 1440	Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	17.3	\$1.0 [%] 0.53	13.2	3.79	
emergence)		Grassland Late	Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Small herbivorous mammal" vole" Common vole (Microtus argalis)	\$` 1.9	1.0 × 0.53	1.45	34.5	
		Grassland All season		72.3		55.2	0.91	
		Grassland Late season (seed heads)	Small omnivorous mammal "mouse" Wood mouse (Apodemius sylvaticus)	6.6	1.0 × 0.53	5.04	9.93	
		Leafy vegetables BBCH 10 – 19	Small insectivorous mammal "shrew", Social Common Shrew (Sorex araneus)	4.2	1.0 × 0.53	3.21	15.6	
		Leafy vegetables $BBCH \ge 20$	Small insectivorous mammal Shrew? Common shrew (<i>Sorex araneus</i>)	1.9	1.0 × 0.53	1.45	34.5	
		Leafy vegetables BBCH 40 49	Small insectivorous mammal Shrew Common shrew (Sorex araneus) Small herbivorous mammal "vole" Common vole (Microtus arvalis) Small herbivorous mammal "vole" Common vole (Microtus arvalis)	72.3	1.0 × 0.53	55.2	0.91	
	Joc ⁵	Leafy vegetables $BBCH \ge 50$		21.7	1.0 × 0.53	16.6	3.02	
	20 20 20 20 20 20 20 20 20 20 20 20 20 2	Leafy vegetables All season	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	14.3	1.0 × 0.53	10.9	4.58	
Ś		Leafy vegetables BBCH 10 – 49	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	7.8	1.0 × 0.53	5.95	8.40	
international and a second second		Leafy vegetables BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	2.3	1.0 × 0.53	1.76	28.5	
Glyphosate Renew	1 × 1080	Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	17.3	1.0 × 0.53	9.90	5.05	

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in the second second Table 10.1.2-12: Tier 1 assessment of the long-term/reproductive risk for mammals due to the use of glyphosate in field crops (Pre-sowing, pre-planting, pre-emergence); Uses 1 ac

Active substar Reprod. toxic (mg/kg bw/d)		Glyphosate 50				d'h'	Lis Out
TER criterion		5				100	5
GAP crop	Application rate (g a.s./ha)	Crop scenario	Generic focal species	SVm	MAF _m × TWA	DDD (mg/kg b _w/d)	TE t
	(g a.s. na)	Grassland Late	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	1.9	120,80 20,533 20,533 5,0 5,0 5,0 5,0 5,0 5,0 5,0 5,0	5 1.09	46.
		Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)		9.0 × 0.53	41.4	1.2
		Grassland Late season (seed heads)	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvatic)	6.6	1.0 × 0.53	3.78	13.
		Leafy vegetables BBCH 10 – 19	Small insectivorous maninal "shrew" Common shrew (Sorex aganeus)	4.2	1.0 × 0.53	2.40	20.8
		Leafy	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53	1.09	46.0
			Small herbivorous mammal "vole" Commos vole (<i>Microtus arvalis</i>)	72.3	1.0 × 0.53	41.4	1.21
		Leafy vegetables BBCH $\geq 50^{\circ}$	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	21.7	1.0 × 0.53	12.4	4.03
		Leafy Contractions of the season of the seas	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	14.3	1.0 × 0.53	8.19	6.11
	No of the second	Dealy vegetables BBCH 10 – 49	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	7.8	1.0 × 0.53	4.47	11.2
		Leafy vegetables BBCH≥50	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	2.3	1.0 × 0.53	1.32	38.0
6 10 10	12× 720	Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	17.3	1.0 × 0.53	6.60	7.57
80.00 80	7	All season Leafy vegetables BBCH 10 – 49 Leafy vegetables BBCH ≥ 50 Grassland All season Grassland Late Grassland All season	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	1.9	1.0 × 0.53	0.73	69.0
Contraction of the second		Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.0 × 0.53	27.6	1.8

is shiping to be a state of the Table 10.1.2-12: Tier 1 assessment of the long-term/reproductive risk for mammals due to the use of glyphosate in field crops (Pre-sowing, pre-planting, pre-emergence); Uses 1 a-410) 10) с

Active substa	nce	Glyphosate					30%
Reprod. toxic	·	50				2.	000
(mg/kg bw/d)						<i>v</i>	je je
TER criterior		5		-		Still S)
GAP crop	Application rate (g a.s./ha)	Crop scenario	Generic focal species	SVm	MAF _m × TWA	DØDm (mg/kg b _w/d)	TER t
		Grassland Late season (seed heads)	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	6.6		5 ⁶ 2.52	19.9
		Leafy vegetables BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	4.20 4.20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9.0× 0.53	1.60	31.2
		Leafy vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Small herbivorous mammal "xole"	<u>\$</u> 1.9	1.0 × 0.53	0.73	69.0
		Leafy vegetables BBCH 40 – 49	Small herbivorous mammad "vole" Common vole (<i>Microfus arsalis</i>)	72.3	1.0 × 0.53	27.6	1.81
		Leafy vegetables BBCH≥50	Small herbivorous mammal "vole" Common vole (Microtus arvalis)	21.7	1.0 × 0.53	8.28	6.04
		Leafy vegetables All season	Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus)	14.3	1.0 × 0.53	5.46	9.16
		Leafy vegetables BBCH 10 7 49%	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	7.8	1.0 × 0.53	2.98	16.8
		Leafy States of BBCH 250	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	2.3	1.0 × 0.53	0.88	57.0

SV: shortcut value; MAF: multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER: toxicity to exposure ratio. TER values shown in bold fall below the relevant trigger.

The Tier 1 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long term risk to mammals is acceptable following the proposed use patterns in field crops (Pre-sowing, pre-planting, pre-emergence, Uses 1 a-c) except for the following scenarios where a refined

	2-13: Tier of gly 3 a-b	1 assessment of phosate in field , 10 a-c	the long-term/reproductive risk l crops (Post-harvest, pre-sowing	for m , pre-	ammals planting	due to t (): Use 2	Section 10 112 of 553 the use $a - c_{a} = c_{b} = c_{b}$
Active substa	nce	Glyphosate					.0
Reprod. toxi	city	50					2000
(mg/kg bw/d) TER criterio		5				0 <u>;</u> %	<u>)</u>
-	II Application	Crop scenario	Generic focal species	SVm	MAFm	DØD _m	TER _{lt}
Field crops (Post- harvest, pre-	rate (g a.s./ha) 1 × 1440		Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	' 1.9 ⁴	× F WA 150 × 0.53	¢mg/kg bw/d) 1.45	34.5
sowing, pre- planting)		Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>) Small herbivorous mammal" volg"	8173 8 8	1.0 × 0.53	13.2	3.8
		Grassland All season	Small herbivorous mammal ²⁴ vole ³³ Common vole (<i>Microtus argalis</i>)	72.3	1.0 × 0.53	55.2	0.90
		Grassland Late season (seed heads)	Small omnivorous mammal "mouse" Wood mouse (Apodemits sylvaticus)	6.6	1.0 × 0.53	5.04	9.90
	2 × 1080 (28 d)	Bulbs and onion like crops BBCH ≥ 20	Small insective of smammal "shrew" Common shrew (Sorex araneus)	" 1.9	1.1 × 0.53	1.20	41.8
		Grassland All season	Large herbivorous mammal		1.1 × 0.53	10.9	4.60
		Grassland	Small omnivorous mammal "mouse" Small omnivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.1 × 0.53	45.5	1.10
	Ś	Grassland Late season (seed heads)	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	6.6	1.1 × 0.53	4.16	12.0
	1 × 540	Butos and onion like crops BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	" 1.9	1.0 × 0.53	0.544	91.9
	000 4) 01 4) 01 10 10 10 10 10 10 10 10 10 10 10 10 1	Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	17.3	1.0 × 0.53	4.95	10.1
New Color	Olley	Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.0 × 0.53	20.7	2.40
CONDER S		(seed heads) Butbs and onion BRCH ≥ 20 Grassland All season Grassland All season Grassland Late season (seed heads)	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	6.6	1.0 × 0.53	1.89	26.5



to the state of th Table 10.1.2-13: Tier 1 assessment of the long-term/reproductive risk for mammals due to the use of glyphosate in field crops (Post-harvest, pre-sowing, pre-planting): Use 2 a-c, 3 a-b, 10 a-c

Active subst Reprod. tox	icity	Glyphosate 50					2000 C
(mg/kg bw/d TER criterie		5				J.	0
GAP crop		Crop scenario	Generic focal species	SVm			TER
	1 × 720	Bulbs and onion like crops BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	1.9	1.0×0 0.5350	0.725	69.0
		Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	87.30 (1.0 × 0.53	6.60	7.60
		Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtus arvatis</i>) Small omnivorous mammal "mouse"	72.3	1.0 × 0.53	27.6	1.80
		Grassland Late season (seed heads)	Small omnivorous maninal ⁹ "mouse" Wood mouse (<i>Apodemus systaticus</i>)	6.6	1.0 × 0.53	2.52	19.9
	2 × 720 (28 d)	Bulbs and onion like crops BBCH ≥ 20	Small insectiverous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.1 × 0.53	0.798	62.7
		Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	17.3	1.1 × 0.53	7.26	6.90
		Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)		1.1 × 0.53	30.4	1.60
		Grassland Late season (seed heads)	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	6.6	1.1 × 0.53	2.77	18.0
	1 × 1080	Bulbs and onion like crops BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	1.9	1.0 × 0.53	1.09	46.0
		Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)		1.0 × 0.53	9.90	5.00
1		Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)		1.0 × 0.53	41.4	1.20
se se ji en ji en en e	, (o)	Ballbs and onion Fike crops BBCH ≥ 20 Grassland All season Grassland All season Grassland Late season (seed heads) Bulbs and onion like crops BBCH ≥ 20 = 3000000000000000000000000000000000000	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	6.6	1.0 × 0.53	3.78	13.2
CUL SI CUL	3 × 720 (28 d)	Bulbs and onion like crops BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)		1.2 × 0.53	0.870	57.5

Table 10.1.2-13: Tier 1 assessment of the long-term/reproductive risk for mammals due to the use of glyphosate in field crops (Post-harvest, pre-sowing, pre-planting): Use 2 a-c, 3110 3 a-b, 10 a-c

Active subs	tance	Glyphosate					300				
Reprod. tox (mg/kg bw/		50					C SI SI				
TER criteri	ion	5									
GAP crop	Application rate (g a.s./ha)	Crop scenario	Generic focal species	SVm		DDØn (mg/kg bw/d)	TER _{lt}				
		Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	17.3	1.2×°	ð.92	6.30				
		Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.30 72.40 00 00 00 00 00 00 00 00 00 00 00 00 0	12 × 0.53	33.1	1.50				
		Grassland Late season (seed heads)	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvariaus)	6.6	1.2 × 0.53	3.02	16.5				

SV: shortcut value; MAF: multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER: toxicity to exposure ratio. TER values shown in bold fall below the relevant trigger. Not 1

The Tier 1 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-term risk to mammals is acceptable following the proposed use patterns in field crops (Post-harvest, pre-sowing, pre-planting, Use 2 a-c, 3 a-b, 10 a-c) except for the following scenarios where a refined risk assessment is required for some or all intended application rates:

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- Grassland; the large herbivorous mammal "lagomorph" brown hare (1 × 1440 g a.s./ha, 2 × 1080 g a.s./ha). •
- Grassland; the small herbivorous manifold "vole" common vole (1×1440 g a.s./ha, 2×1080 g non the second and the • a.s./ha, 1 × 540 g a.s./ha, 1 × 720 g a.s./ha, 2 × 720 g a.s./ha, 1 × 1080 g a.s./ha, 3 × 720 g a.s./ha).

Active substa	ance	Glyphosate					. 3		
Reprod. toxi		50					30		
(mg/kg bw/d							203		
TER criterio	n	5					N. S.		
GAP crop	Application rate (g a.s./ha)	Crop scenario	Generic focal species			(mg/kg bw/d)	^e TER		
Field crops (Shielded ground inter- row	1 × 1080	Bulbs & onion like crops BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	4.2		2.40	20.8		
application)		Bulbs & onion like crops BBCH 10 – 39	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)		9.0 & 0.33	4.46	11.2		
		Fruiting vegetables BBCH 10 – 49	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	7977	1.0 × 0.53	41.4	1.21		
		Leafy vegetables All season	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus gruculus</i>) Small insectivorous mammal "shrew"	14.5	1.0 × 0.53	8.19	6.11		
	1 × 720	Bulbs & onion like crops BBCH 10 – 19	Small insectivorous manimal "shrew" Common shrew (Sprey Graneus)	4.2	1.0 × 0.53	1.60	31.2		
		Bulbs & onion like crops BBCH 10 – 39	Small omn vorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	7.8	1.0 × 0.53	2.98	16.8		
		Fruiting vegetables BBCH 10 – 49	Small hebivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)		1.0 × 0.53	27.6	1.81		
		All season	Barge herbivorous mammal ^{Ar} lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	14.3	1.0 × 0.53	5.46	9.16		

Table 10.1.2- 14: Tier 1 assessment of the long-term/reproductive risk for mammals due to the use of glyphosate in field crops (Shielded ground directed inter-row application): Use 6 a-b

SV: shortcut value; MAF: multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER: toxicity to exposure ratio. TER values shown in bold fall below the relevant trigger. The Tier 1 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5,

The Tier 1 TER_{it} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-term risk to mammals is acceptable following the proposed use patterns in field crops (Shielded ground directed inter-row application, uses 6 a-b) except for the following scenario where a refined risk assessment is required for all intended application rates:

Fruiting vegetables; the small herbivorous mammal "vole" common vole (1 × 1080 g a.s./ha, 1 × 720 g a.s./ha).
 Orchards

Orchards of Orcha

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Active subst	ance	Glyphosate					. P						
Acute toxici	ty	> 2000					JOhn						
(mg/kg bw)	-		a construction of the second s										
TER criterie	on	10				、 、	d'E						
GAP crop	Application rate (g a.s./ha)	Crop scenario	Generic focal species		MAF90	(mg/kg	_© TER _a						
Orchard Post- emergence of weeds	2 × 1440 (28 d)	Orchards Application crop directed BBCH < 10 or not crop directed	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	5.4		8.55	234						
		Orchards Application crop directed BBCH < 10 or not crop directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)		9.1	216	9.26						
		Orchards Application crop directed BBCH < 10 or not crop directed	Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus) Small omnivorous mammal	35.1	1.1	55.6	36.0						
		Orchards Application crop directed BBCH < 10 or not crop directed	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	17.2	1.1	27.2	73.4						

Table 10.1.2-15: Tier 1 assessment of the acute risk for mammals due to the use of glyphosate in orchards: Uses 4 a-c

SV: shortcut value; MAF: multiple application factor; JW&: time-weighted average factor; DDD: daily dietary dose; TER: toxicity to exposure ratio. TER values shown in bold fall below the relevant trigger.

The Tier 1 TER_a values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 10, indicating that acute risk to mammals is acceptable following the proposed use patterns in orchards (Uses 4 a -c) except for the following scenario where a refined risk assessment is required for one intended tion rate: Orchards; the small herbivorous mammal "vole" common vole $(2 \times 1440 \text{ g a.s./ha})$. application rate:

		• 1 assessment of t ards: Use 4 a-c	he long-term/reproductive risl	k for	mamn		4
Active subs Reprod. to (mg/kg bw/	xicity	Glyphosate 50					Noulling on Street
TER criter		5					5.5
GAP crop	Application rate	Crop scenario	Generic focal species		×	DDDm (mg/kg bw/d	TER
V	(g a.s./ha)	O with a set to		1.0	TWA	1.005	21.2
Vineyard Post- emergence of weeds	2 × 1440 (28 d)	Orchards Application crop directed BBCH < 10 or not crop directed	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	1.9	0.53		31.3
		Orchards Application crop directed BBCH < 10 or not crop directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	1200 20 20 20 20 20 20 20 20 20 20 20 20	0.53 0.53	60.7	0.82
		Orchards Application crop directed BBCH < 10 or not crop directed	Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cunicalus) Small omnivorous mammal "mouse"	\$14.3	1.1 × 0.53	12.0	4.16
		Orchards Application crop directed BBCH < 10 or not crop directed	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> sylvaticus) Smalkinsectivorous mammal	7.8	1.1 × 0.53	6.55	7.64
	1 × 720	Application crop	"shrew"	1.9	1.0 × 0.53	0.725	69.0
	-	Orchards Application from directed BBCH < 10 or not from directed	Common shrew (Sorex araneus) Small herbivorous mammal Vole" Common vole (Microtus arvalis)		1.0 × 0.53	27.6	1.81
	La.	Application crop directed BBCH <10 or not crop	Rabbit (<i>Oryctolagus cuniculus</i>)		1.0 × 0.53	5.46	9.16
		Orchards Application crop directed BBCH < 10 or not crop directed	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	7.8	1.0 × 0.53	2.98	16.8
A as in the local and a construction of the local and a constr	newal Group All	Orchards Application crop directed BBCH < 10 or not crop directed	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	1.9	1.0 × 0.53	1.09	46.0
Contraction of the contraction o		Orchards Application crop directed BBCH < 10 or not crop	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.0 × 0.53	41.4	1.21

		1 assessment of t ards: Use 4 a-c	he long-term/reproductive ris	k for	mamn		Ś
Active substa Reprod. toxi (mg/kg bw/d	city	Glyphosate 50					Pulling Street
TER criterio		5				9	\$ <u>.</u> \$
GAP crop	Application ate	Crop scenario	Generic focal species			DDDm (mg/kg bw/d)	TER
(g a.s./ha)				TWA	S S S	
		directed				à C e	
		Orchards Application crop directed BBCH < 10 or not crop directed	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	14.3		(mg/kg bw/d) 8.49 3.5 4.47 1.90	6.11
		Orchards Application crop directed BBCH	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i>	78	1.0× 0.53	4.47	11.2
		< 10 or not crop	sylvaticus)				
	2 × 720 28 d)	Orchards Application crop directed BBCH < 10 or not crop	Common shrew (Sores arateus)		1.1 × 0.53	1.90	62.7
		directed					
		Orchards Application crop directed BBCH < 10 or not crop directed	Small herbivorous mammal "vole" Common Sole (<i>Microtus arvalis</i>) Large herbivorous mammal	72.3	1.1 × 0.53	72.3	1.65
		Application crop	Large herbivorous mammal "Jagemerph" Rabbit (Oryctolagus cuniculus)	14.3	1.1 × 0.53	14.3	8.33
		Orchards Application crop directed BBCH < 10 or not crop directed	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	7.8	1.1 × 0.53	7.80	15.3
(3 × 720 28 d)	Orchards Application crop	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	1.9	1.2 × 0.53	0.87	57.5
		Orchards Application crop directed BBCH < 10 or not crop directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.2 × 0.53	33.1	1.51
Glyphosate Rene	S. S	Orchards Application crop directed BBCH < 10 or not crop directed	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	14.3	1.2 × 0.53	6.55	7.64
		Orchards Application crop directed BBCH	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i>	7.8	1.2 × 0.53	3.57	14.0

Reprod. toxicity	Glyphosate 50					No Colorest
(mg/kg bw/d)						7 9 3 Y
TER criterion	5	Comoria facal graning	GV	МАБ		TER _{it}
GAP crop Applicati rate (g a.s./ha)	on Crop scenario	Generic focal species	3 V m	WIAF _m × TWA	(mg/kg bw/d)	[∋] 1 E.Kk
	< 10 or not crop	sylvaticus)			1. 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0	
1 × 1440	directed Orchards	Small insectivorous mammal	1.0	10	\$` \$`	34.5
1 ^ 1440	Application crop directed BBCH < 10 or not crop directed	"shrew" Common shrew (<i>Sorex araneus</i>)	1.9	1.0 × 0.53 9 00 00 00 00 00 00 00 00 00 00 00 00 00		54.5
	Orchards Application crop directed BBCH < 10 or not crop directed	8 0 0		₿ .0 × 0.53	55.2	0.91
	Orchards Application crop directed BBCH < 10 or not crop directed	Large herbivorous maninal "lagomorph" Rabbit (Oryctolagus cuniculus)		1.0 × 0.53	10.9	4.58
	Orchards Application crop directed BBCH < 10 or not crop directed	Small omnivoroùs mammal "mouse" Wood mouse (<i>Apodemus</i> sylvatieus)	7.8	1.0 × 0.53	5.95	8.40
2 × 1080 (28 d)	directed BBCH @ < 10 or not crop	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.1 × 0.53	1.20	41.8
	Orchards Application crop directed BBCH < 10 or not crop directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.1 × 0.53	45.5	1.10
× 200	Orchards Application crop directed BBCH \$10 or not crop directed	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)		1.1 × 0.53	9.00	5.55
01,000 01,000 01,000 01,000 01,000 01,000 01,000 0,000	 Orchards Application crop directed BBCH < 10 or not crop directed 	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>) or; TWA: time-weighted average facto Id fall below the relevant trigger.	7.8	1.1 × 0.53	4.91	10.2

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Contraction of the second seco The Tier 1 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-term risk to mammals is acceptable following the proposed use patterns in orchards (Uses 4 a-c) except for the following scenario where a refined risk assessment is required for some or alls) intended application rates:

- Orchards; the small herbivorous mammal "vole" common vole (2×1440 g a.s./ha, 1×720 g a.s./ha, 1×1080 g a.s./ha, 2×720 g a.s./ha, 3×720 g a.s./ha, 1×1440 g a.s./ha, 2×1080 g a.s./ha, 2×1080 •
- Orchards: the large herbivorous mammal "lagomorph" rabbit (2 × 1440 g a.s./ha, 1 × 1440 g a.s./ha).

Vineyards

410/4/0 1/0 / Table 10.1.2- 17: Tier 1 assessment of the acute risk for mammals due to the use of glyphosate in vineyards: Use 5 a-c Active substance Glyphosate

Active substa	ance	Glyphosate	×	S 5	S.		
Acute toxicit	у	> 2000	and the second se	200			
(mg/kg bw)	•		ر م				
TER criterio	n	10		5			
GAP crop	Application rate (g a.s./ha)	Crop scenario	Generic focal species	SV90	MAF90	DDD ₉₀ (mg/kg bw/d)	TERa
Vineyard Post- emergence of weeds	2 × 1440 (28 d)	Vineyard Application ground directed	Large herbivorous mamma "lagomorph" Brown hare (<i>Lepuzeuropaeus</i>)	27.2	1.1		46.4
or weeds		Vineyard BBCH 10 – 19	Large herbivorousmammal "lagomorph" Brown hate (Lepus europaeus)	16.3	1.1	25.8	77.5
		Vineyard BBCH 20 – 39	Large herbivorous mammal "lagomorph" Brown have (Lepus europaeus)	13.6	1.1	21.5	92.8
		Vineyard BBCH≥40	Brown nare (Lepus europueus)	8.1	1.1	12.8	156
		Vineyard BBCH NO 19	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	7.6	1.1	12.0	166
	Ś	$BBCH \ge 20$	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	5.4	1.1	8.55	234
		Vineyard Application ground directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	136. 4	1.1	216	9.26
	Taki Osen and and and and of this Units	Vineyard Application ground directed	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	17.2	1.1	27.2	73.4

Hrado on the state of the state SV: shortsut value; MAF: multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER: toxicity to exposure ratio. TER values shown in bold fall below the relevant trigger.

ioninio, solo and a second The Tier 1 TER_a values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 10, indicating that acute risk to mammals is acceptable following the proposed use patterns in vineyards (Uses 5 a-c) except for the following scenario where a refined risk assessment is required for one application rate;

Table 10.1.2- 18: Tier 1 assessment of the long-term/reproductive risk for mammals due to the use of glyphosate in vineyards: Use 5 a-c

Active substa	ance	Glyphosate			<u>~</u>		
Reprod. toxi		50			2010 1000 1000 1000 1000 1000	10/9	
(mg/kg bw/d		-			<u> 10° 63° 67</u>	9	
TER criterio		5			S S C	DDD	TED
GAP crop	Application rate (g a.s./ha)	Crop scenario	Generic focal species		MAF _m * TWA	DDD _m (mg/kg bw/d)	TER
Vineyard Post- emergence	2 × 1440 (28 d)	Vineyard Application ground directed	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>) Large herbivorous mammal "lagomorph"	91491 5	1.1 × 0.53	9.32	5.37
of weeds		Vineyard BBCH 10 – 19	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	6.7	1.1 × 0.53	5.62	8.89
		Vineyard BBCH 20 – 39	Large herbivorous maninal "lagomorph" Brown hare (Lenus europaeus)	5.5	1.1 × 0.53	4.62	10.8
		Vineyard BBCH ≥ 40	Large herbivorous mammal "lagomorph" Brown have (Lepus europaeus)	3.3	1.1 × 0.53	2.77	18.0
		P	Common shrew (Sorex araneus)	4.2	1.1 × 0.53	3.53	14.2
		Vineyard A BBCH ≥ 20 A Vineyard A	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	1.9	1.1 × 0.53	1.60	31.3
		Vineyard Application ground directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.1 × 0.53	60.7	0.82
		Vineyard Application ground directed	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	7.8	1.1 × 0.53	6.55	7.64
	1 × 720 5	Vineyard Application ground directed	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	11.1	1.0 × 0.53	4.24	11.8
in the second se	June of the second seco	Vineyard BBCH 10 – 19	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	6.7	1.0 × 0.53	2.56	19.6
		Vineyard BBCH 20 – 39	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	5.5	1.0 × 0.53	2.10	23.8



	ance	Glyphosate 50					the Delay
Reprod. toxi (mg/kg bw/d		50					200
TER criterio		5					N. S.
GAP crop	Application rate (g a.s./ha)		Generic focal species	SVm	MAF _m × TWA	DDDm (mg/kg bw/d)	
	(g a.s. na)	Vineyard BBCH≥40	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	3.3		1,26	39.7
		Vineyard BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)		× TWA 1.0 × 10 053 (°) 053	1.60	31.2
		Vineyard BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	12.9	1.0 × 0.53	0.725	69.0
		Vineyard Application ground directed	Small herbivorous mammal (vole" Common vole (<i>Microtus grvalis</i>)		1.0 × 0.53	27.6	1.81
		Vineyard Application ground directed	Small omnivorous manimal "mouse" Wood mouse (Apodemus sylvaticus)	7.8	1.0 × 0.53	2.98	16.8
	1 × 1080	Vineyard Application ground directed	Large herbivorous mammal "lagonforph" Brown hare (<i>Lepus europaeus</i>)	11.1	1.0 × 0.53	6.35	7.90
		Vineyard BBCH 10 – 19	Karge herbivorous mammal "fagomorph" Brown hare (<i>Lepus europaeus</i>)	6.7	1.0 × 0.53	3.84	13.0
		Vineyard	Carge herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	5.5	1.0 × 0.53	3.15	15.9
	80	Vinevard BBCH 240	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	3.3	1.0 × 0.53	1.89	26.5
	2000 12 12 12 12 12 12 12 12 12 12 12 12 12	Vineyard BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	4.2	1.0 × 0.53	2.40	20.8
		Vineyard BBCH≥20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	1.9	1.0 × 0.53	1.09	46.0
S Intelled		Vineyard BBCH 240 Vineyard BBCH 10 – 19 Vineyard BBCH ≥ 20 Vineyard Application ground directed Vineyard Application ground directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.0 × 0.53	41.4	1.21
A COLORISE		Vineyard Application ground directed	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	7.8	1.0 × 0.53	4.47	11.2



Active subst		Glyphosate					Section 10 123 of 553 he use
Reprod. toxi (mg/kg bw/d		50					Contraction of the second seco
TER criterio GAP crop	on Application	5 Crop scenario	Generic focal species	SVm	MAFm	te	TER
	rate (g a.s./ha)		-			(mg/kg bw/d)	
	2 × 720 (28 d)	Vineyard Application ground directed	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	11.1		0	10.7
		Vineyard BBCH 10 – 19	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)			2.81	17.8
		Vineyard BBCH 20 – 39	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>) S	5.5	1.1 × 0.53	2.31	21.7
		Vineyard BBCH≥40	Large herbivorous mammals "lagomorph" Brown hare (<i>Lepus enropaeus</i>) Small insectivorous mammal "shrew"	3.3	1.1 × 0.53	1.39	36.1
		Vineyard BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	4.2	1.1 × 0.53	1.76	28.4
		Vineyard BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.1 × 0.53	0.798	62.7
		Vineyard Application ground directed	Small herbivorous mammal "vole"	72.3	1.1 × 0.53	30.4	1.65
		Vineyard Application ground directed	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	7.8	1.1 × 0.53	3.27	15.3
	3 × 720 (28 d)	Vineyard Application ground directed	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	11.1	1.2 × 0.53	5.08	9.84
	2000 13 2000 13 136 136	Vineyard BBCH 10 – 19	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	6.7	1.2 × 0.53	3.07	16.3
	0,000 0,000 0,00 0,00 0,00 0,00 0,00 0	Vineyard BBCH 20 – 39	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	5.5	1.2 × 0.53	2.52	19.9
S In College	ewal Group AIR 5	Vineyard BBCH≥40	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	3.3	1.2 × 0.53	1.51	33.1
Sull Sull Sull Sull Sull Sull Sull Sull		Vineyard BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	4.2	1.2 × 0.53	1.92	26.0

Active subst Reprod. toxi		Glyphosate 50					ill.
(mg/kg bw/d							100 St. S.
TER criterio		5				E.	0
GAP crop	Application rate (g a.s./ha)	Crop scenario	Generic focal species	SVm		(mg/kg bw/d)	
		Vineyard BBCH≥20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	1.9		0.87	57.5
		Vineyard Application ground directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)		NOV	33.1	1.51
		Vineyard Application ground directed	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvancus) Large herbivorous mammal	\mathcal{P}_{8}	1.2 × 0.53	3.57	14.0
	1 × 1440	Vineyard Application ground directed	Large herbivorous mammale "lagomorph" Brown hare (<i>Lepus enropaeus</i>)	11.1	1.0 × 0.53	8.47	5.90
		Vineyard BBCH 10 – 19	Large herbivorous manimal "lagomorph" (5) (6) Brown hare (Lepus europaeus)	6.7	1.0 × 0.53	5.11	9.78
		Vineyard BBCH 20 – 39	Large hetbivorous mammal "lagonorph" Brown hare (<i>Lepus europaeus</i>)	5.5	1.0 × 0.53	4.20	11.9
		Vineyard BBCH≥40	Large herbivorous mammal "fagomorph" Brown hare (<i>Lepus europaeus</i>)	3.3	1.0 × 0.53	2.52	19.9
		Vineyard	8	4.2	1.0 × 0.53	3.21	15.6
			Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	1.9	1.0 × 0.53	1.45	34.5
		Vineyard BBCH 20 Vineyard Application ground directed Vineyard Application ground directed Vineyard Application ground directed Vineyard BBCH 10 – 19	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.0 × 0.53	55.2	0.91
	10000000000000000000000000000000000000	Vineyard Application ground directed	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	7.8	1.0 × 0.53	5.95	8.40
Glyphosate Rene	2 × 1080 (28 d)	Vineyard Application ground directed	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	11.1	1.1 × 0.53	6.99	7.15
app St. C.		Vineyard BBCH 10 – 19	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	6.7	1.1 × 0.53	4.22	11.9

Active subst	ance	Glyphosate					il ^o
Reprod. toxi	city	50					- J. 1
(mg/kg bw/d)					,	200
TER criterio	n	5				1	0
GAP crop	Application	Crop scenario	Generic focal species	SVm		DDD _m	
	rate				× TWA	(mg/kg	
	(g a.s./ha)					Sbw/d)	
		Vineyard	Large herbivorous mammal	5.5	1.1	3,46	14.4
		BBCH 20 – 39	"lagomorph"		0,03,50	0.	
			Brown hare (Lepus europaeus)	-	6.0% 0%		
		Vineyard	Large herbivorous mammal	3800	×¥, K	2.08	24.1
		$BBCH \ge 40$	"lagomorph"	280,00 00,00 00,00	0.53		
			Brown hare (Lepus europaeus)	N 0.			
		Vineyard	Small insectivorous mammal "shrew"	₽ .2	1.1 ×	2.64	18.9
		BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)		0.53		
		Vineyard	Small insectivorous mammal "shrew"	1.9	1.1 ×	1.20	41.8
		$BBCH \ge 20$	Common shrew (Sores arenews)		0.53		
		Vineyard	Small herbivorous mammal "vole"	72.3	1.1 ×	45.5	1.10
		Application ground directed	Common vole Marrie arvalis)		0.53		
		Vineyard	Small omnivorous mammal "mouse"	7.8	1.1 ×	4.91	10.2
		Application ground directed	Wood mouse (Apodemus sylvaticus)		0.53		

SV: shortcut value; MAF: multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER: toxicity to exposure ratio. TER values shown in bold fall below the relevant trigger.

The Tier 1 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-term risk to maximals is acceptable following the proposed use patterns in vineyards (Uses 5 a-c) except for the following scenario where a refined risk assessment is required for all intended application rates:
Vineyards; the small herbivorous mammal "vole" common vole (2 × 1440 g a.s./ha, 1 × 720 g a.s./ha,

Hrando substance of the second state of the second second state of the second secon 1 × 1080 g a.s./ha, 2 × 720 g a.s./ha, 3 × 720 g a.s./ha, 1 × 1440 g a.s./ha, 2 × 1080 g a.s./ha). 200⁰¹¹

Active substa	ance	Glyphosate					Section 10 127 of 553 te on
Acute toxicit (mg/kg bw) TER criterion	у	> 2000					is out of
GAP crop	Application rate (g a.s./ha)	Crop scenario	Generic focal species	SV90	MAF9 0	DDD% (mg/kg bwtd)	TER
Railroad tracks – application	(g a.s./ha) 2 × 1800 (90 d)	Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	32.6		587 0	34.1
by spray train. Post emergence of weeds (90d apart).		Grassland Late	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)		9 <u>1</u> .0	9.72	206
		Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvatis</i>) Small omnivorous mammal "mouse"	136.4	1.0	246	8.15
		Grassland Late season (seed heads)	Small omnivorous mammal "mouse" Wood mouse (Apodemus servaticus)	14.4	1.0	25.9	77.2
		Leafy vegetables BBCH 10 – 19	Small insectivorous mammal "shrew" Commnon shrew (Sorex araneus)	7.6	1.0	13.7	146
			Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	5.4	1.0	9.72	206
		BBCH 40 – 49	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	136.4	1.0	246	8.15
		Leafy vegetables BBCH≥50	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	40.9	1.0	73.6	27.2
		Leafy vegetables	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	35.1	1.0	63.2	31.7
	11°, 3	Leafy vegetables	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	17.2	1.0	31.0	64.6
	SU 100 100 100 100 100 100 100 100 100 10	Leafy vegetables BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	5.2	1.0	9.36	214
Glyphosate Rene	∲× 1800	Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	32.6	1.0	58.7	34.1
S C C C C C C C C C C C C C C C C C C C		Grassland Late	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	5.4	1.0	9.72	206

Table 10.1.2- 19: Tier 1 assessment of the acute risk for mammals due to the use of glyphosate on railroad tracks: Use 7 a-b

nex to Regulation 284/2013		MON 52276			,	Section 10 128 of 553	in the second se
	Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	136.4	1.0	246	8.15	in the second se
	Grassland Late season (seed heads)	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	14.4	1.0	25.9	77.2:10	
	Leafy vegetables BBCH 10 – 19	Small insectivorous mammal "shrew" Commnon shrew (<i>Sorex araneus</i>)		1.0	13.7 200 000 41 9672	1946	
		Small insectivorous mammal "shrew" Commnon shrew (<i>Sorex araneus</i>)	,5	Sold Color	9872	206	
	BBCH 40 – 49	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	50 Dr.	90 140	246	8.15	
	Leafy vegetables BBCH ≥ 50	Small herbivorous mammal "vole" (Common vole (<i>Microtulus arvalis</i>)	¥0.9	1.0	73.6	27.2	
	Leafy vegetables All season	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cumculus</i>)	35.1	1.0	63.2	31.7	
	Leafy vegetables BBCH 10 – 49	Small omnivorous manimal "mouse" Wood mouse (Apodemus sylvaticus)	17.2	1.0	31.0	64.6	
	Leafy vegetables BBCH ≥ 50	Small onnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	5.2	1.0	9.36	214	

SV: shortcut value; MAF: multiple application factor; SWA: time-weighted average factor; DDD: daily dietary dose; TER:

toxicity to exposure ratio. TER values shown in fold fall below the relevant trigger. The Tier 1 TER_a values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 10, indicating that acute risk to mammals is acceptable following the proposed use patterns on railroad tracks (Uses 7a-b) except for the following scenarios where a refined risk assessment is required for all intended Mon 13. Sol application rates:

- Grassland; the small herbivorous mammal "vole" common vole (2×1800 g a.s./ha, 1×1800 g • a.s./ha).
- Leafy vegetables, the small herbivorous mammal "vole" common vole (2 × 1800 g a.s./ha, 1 × 1800 •

Active subst	ance	Glyphosate					Section 10 129 of 553 he use
Reprod. toxi (mg/kg bw/d)	50					1000 1000 1000 1000 1000 1000 1000 100
TER criterio GAP crop	Application rate	Crop scenario	Generic focal species	SVm	MAF _m × TWA	DDDm (mg/kg	TER
Railroad tracks – application	(g a.s./ha) 2 × 1800 (90 d)	Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	17.3		(bwtd)	3.03
by spray train. Post emergence of weeds		Grassland Late	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)		P.0 & 0.33	1.81	27.6
of weeds (90d apart).		Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvetis</i>)		1.0 × 0.53	69.0	0.720
		Grassland Late season (seed heads)	Small omnivorous mammal "mouse" Wood mouse (Apodemus selvaticus)	6.6	1.0 × 0.53	6.30	7.94
		Leafy vegetables BBCH 10 – 19	Small insectivorous mammal "shrew" Commnon shrew (Sorex araneus)	4.2	1.0 × 0.53	4.01	12.5
		Leafy vegetables	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53	1.81	27.6
		Leafy vegetables	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	72.3	1.0 × 0.53	69.0	0.720
		Leafy vegetables	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	21.7	1.0 × 0.53	20.7	2.42
	ć	Leafy regetables All season	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	14.3	1.0 × 0.53	13.6	3.67
	20 11 15 12 15 13 16 13 16 10 10 10 10 10 10 10 10 10 10 10 10 10	Leafy vegetables BBCH 10 – 49	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	7.8	1.0 × 0.53	7.44	6.72
	wal Group AIR 5	Leafy vegetables BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	2.3	1.0 × 0.53	2.19	22.8
intellection at encourted	∲× 1800	Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	17.3	1.0 × 0.53	16.5	3.03
S C C C C C C C C C C C C C C C C C C C		Grassland Late	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	1.9	1.0 × 0.53	1.81	27.6

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	Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)		1.0 × 0.53	69.0	0.720	ion initia
	Grassland Late season (seed heads)	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus sylvaticus</i>)	6.6	1.0 × 0.53	6.30	7.94.11 °°°	
	Leafy vegetables BBCH 10 – 19	Small insectivorous mammal "shrew" Commnon shrew (<i>Sorex araneus</i>)	4.2	1.0 × 0.53	4.01 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	12.5	
	BBCH≥20	Small insectivorous mammal "shrew" Commnon shrew (<i>Sorex araneus</i>)	1.9	1.0× ····································	1.81	27.6	
	BBCH 40 – 49	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	e e	1.0 × 0.53	69.0	0.720	
	Leafy vegetables BBCH ≥ 50	Small herbivorous mammal "vole" (Common vole (<i>Microtulus arvalis</i>)	§1.7	1.0 × 0.53	20.7	2.42	
	Leafy vegetables All season	Large herbivorous mammals "lagomorph" Rabbit (<i>Oryctolagus cumculus</i>)	14.3	1.0 × 0.53	13.6	3.67	
	Leafy vegetables BBCH 10 – 49	Small omnivorous manimal "mouse" Wood mouse (Apodemus sylvaticus)	7.8	1.0 × 0.53	7.44	6.72	
	Leafy vegetables BBCH ≥ 50	Small of invorous mammal "mouse" Wood meuse (Apodemus sylvaticus)	2.3	1.0 × 0.53	2.19	22.8	

SV: shortcut value; MAF: multiple application factor; SWA: time-weighted average factor; DDD: daily dietary dose; TER: toxicity to exposure ratio. TER values shown in **bold** fall below the relevant trigger. 411.0

The Tier 1 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-term risk to manimals is acceptable following the proposed use patterns on railroad tracks (Uses 7 a-b) except for the following scenarios where a refined risk assessment is required for all . Month intended application rates: .9 S)

• Grassland; the large herbivorous mammal "lagomorph" brown hare (2 × 1800 g a.s./ha, 1 × 1800 g a.s./ha)

ð

- Grassland; the small herbivorous mammal "vole" common vole (2×1800 g a.s./ha, 1×1800 g a.s./ha).
- Leafy vegetables; the small herbivorous mammal "vole" common vole (2 × 1800 g a.s./ha, 1 × 1800 g a.s./ha).
- • Leafy vegetables: the large herbivorous mammal "lagomorph" rabbit (2 × 1800 g a.s./ha, 1×1800 g a.s./ha).

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Control of invasive species

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Control of in	nvasive speci	es						
			the acute risk for mammals due to n-agricultural areas: Uses 8, 9	the us	se of g	lyphosa	te on	
Active subst	ance	Glyphosate					224	
Acute toxici (mg/kg bw)	•	> 2000				J.	OF H	
TER criterion		10				200		
GAP crop	Application rate (g a.s./ha)	Crop scenario	Generic focal species	SV90	0 8.0	DDD ₃₀ (mg/kg bw/d)	TER _a	
Invasive species in agricultural	1 × 1800	Bulbs & onion like crops BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (<i>Sorex araneus</i>)	7.6		No	146	
and non- agricultural areas. Post emergence of invasive species.	Bulbs & onion like crops BBCH 10 – 39	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)		1.0	31.0	64.6		
	Cereals Early (shoots)	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>) Small herbivorous matemail (Vole"	42.1	1.0	75.8	26.4		
		Fruiting vegetables BBCH 10 – 49	Small herbivorous mathemail Fole" Common vole (Microtus avalis)	136.4	1.0	246	8.15	

SV: shortcut value; MAF: multiple application factor; DDD: daily dictary dose; TER: toxicity to exposure ratio. TER values shown in bold fall below the relevant trigger. The Tier 1 TER_a values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 10,

indicating that acute risk to mammals is acceptable following the proposed use patterns on invasive species g st small free burners of the second of the (Uses 8 and 9) except for the following scenariowhere a refined risk assessment is required for the intended Fruiting vegetables; the small herbivorous mammal "vole" common vole (1 × 1800 g a.s./ha). application rates:

Active subs	tance	Glyphosate					5 ³⁷ 5
Reprod. tox	icity	50					20
(mg/kg bw/	d)					. 2	
TER criteri		5				S. S.	Ś
GAP crop	Application	Crop scenario	Generic focal species	SVm	MAFm	DDD [®] D ^{®®}	TER _{lt}
-	rate		1		× TWA	(mg/kg	
	(g a.s./ha)				D.C	bw/d)	
Invasive	1 × 1800	Bulbs & onion	Small insectivorous mammal "shrew"	4.2	1.0 ×	4.01	12.5
species in		like crops	Common shrew (Sorex araneus)		0.58		
agricultural and non-		BBCH 10 – 19	``````````````````````````````````````	310	50		
agricultural		Bulbs & onion	Small omnivorous mammal "mouse"	J.&~	<u>4.0 ×</u>	7.44	6.70
areas. Post		like crops	Wood mouse (Apodemus sylvaticus)	200	0.53		
emergence		BBCH 10 – 39	4 A	8°.0°			
of invasive		Cereals	Large herbivorous mammal	22.3	$1.0 \times$	21.3	2.40
species.		Early (shoots)	"lagomorph"		0.53		
			Rabbit (Oryctolagus cuniculus)				
		Fruiting	Small herbivorous mammal "vole"	72.3	$1.0 \times$	69.0	0.725
		vegetables	Common vole (Microtus arvalis)		0.53		
		BBCH 10 – 49	Le A B				

Table 10.1.2- 22: Tier 1 assessment of the long-term/reproductive risk for mammals due to the use of glyphosate on invasive species in agricultural and non-agricultural areas: Uses 8, 9

SV: shortcut value; MAF: multiple application factor; TWA: time; weighted average factor; DDD: daily dietary dose; TER: toxicity to exposure ratio. TER values shown in bold fall below the relevant trigger.

The Tier 1 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-term risk to mammals is acceptable following the proposed use patterns on invasive species (Uses 8 and 9) except for the following scenarios where a refined risk assessment is required for 143 the intended application rate:

8 2

- Ò Cereals; the large herbivorous mammal, "lagomorph" rabbit (1 × 1800 g a.s./ha).
- Fruiting vegetables; the small herbivorous mammal "vole" common vole (1×1800 g a.s./ha).

Higher tier assessment (Tier 2)

Acute and long-term Tier 2 exposure was calculated for those intended uses, for which the Tier 1 risk assessment indicates the need for a refined acute or long-term risk assessment. As indicated in the tables above further refinements are needed for herbivorous mammals, i.e. the small herbivorous mammal "vole" and the large herbivorous mammal "lagomorph" (hare, rabbit).

Refinement of TWA and MAF based on glyphosate residue decline on grass

In Tier 2, TWA and MAF values for glyphosate can be refined based on measured residues on grass foliage.

The methodology used to calculate the TWA for glyphosate on grass foliage for the long-term risk assessment follows the procedure described in the Guidance Document on Terrestrial Ecotoxicology (2002) According to the approach outlined in the Guidance Document on Terrestrial Ecotoxicology, the M. Contraction of the second s dissipation of glyphosate in grass was estimated using the standard first-order dissipation model:

 $Ct = Ci \times e^{-kt}$

k	=	first order rate constant
Ci	=	initial residue concentration
Ct	=	residue concentration at time t

 $c_1 = residue concentration at time t$ The decline of glyphosate residue on grass was characterized using data from 22 residue trials each of which had a day 0 value. Paced or this data the land a day 0 value. had a day 0 value. Based on this data, the k value for grass foliage was calculated to be 0.2456 days⁻¹ (Renewal Assessment Report for glyphosate, 29 January 2015, Volume 3, Annex B.9, B⁽⁹⁾ (3). For convenience these calculations are reproduced without change, in Annex M-CP 10-02 to this document. oologiese and a state of the st

Residue half-life times (DT_{50}) in days were calculated with following equation:

$$DT_{50} = \frac{-\ln 0.5}{k}$$

The average DT_{50} for grass foliage was **2.8 days**.

Done of the state The 21-day time weighted average (TWA) for glyphosate on grass to liage has been calculated according to the following formula:

$$TWA = \frac{(1 - e^{-kt})}{kt}$$

The 21-day TWA is calculated to be 0.19 for the active substance glyphosate acid and grass. For the refined risk assessment this value is applied for the small herbivorous mammal "vole" Common vole (Microtus arvalis), the large herbivorous mammal "lagomorph" Brown hare (Lepus europaeus) and the large herbivorous mammal "lagomorph" Rabbit (Orvetolague cuniculus). Although the calculated 21-day TWA of 0.19 is based on residue decline on "grass" it is considered to be valid for "non-grass herbs" as well. This assumption can be supported by Ebeling & Wang (2018)¹³, who evaluated the residue dissipation of 30 active substances (including glyphosate) on grasses / cereals (177 trials) and non-grass herbs (101 trials). No significant difference between residue dissignation on grasses / cereals and non-grass herbs was found. In addition also in the EFSA Conclusion for gyphosate (2015)¹⁴ (EFSA Journal 2015;13(11):4302) the 21day TWA of 0.19 was applied to refine the risk for the large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus) feeding on "Non-grass herbs" (Diet according to Appendix A of ani. EFSA/2009/1438).

In addition, MAF₉₀ and MAF₆₀ values for the application intervals of 28 and 90 days and based on the measured foliar half-life were calculated using the formula in Appendix H of EFSA/2009/1438. Resulting MAF values for two and three applications are presented in the following table.

Table 10.1.2-23: MAF₉₀, MAF_m and MAF_m × TWA values based on a measured foliar DT₅₀ of 2.8 days

Numb applica	X	Application Interval (d)	Measured foliar DT ₅₀ (d)	MAF90	MAF _m	MAF _m × TWA
2	5.5	28	2.8	1.00	1.00	0.19
3		28	2.8	1.00	1.00	0.19
2		90	2.8	1.00	1.00	0.19

Ebeling, M., Wang, M. Dissipation of Plant Protection Products from Foliage. Environmental Toxicology and Chemistry (2018). Wiley Online Library.

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Conclusion on the peer review of the pesticide risk assessment of the active substance glyphosate (2015). European Food Safety Authority (EFSA), Parma, Italy.

Refined endpoints

ion to the second second At Tier 2, a refined endpoint of 3694.1 mg/kg bw is used for the acute risk assessment and a refined endpoint of 100 mg/kg bw/d for the chronic risk assessment. Detailed justifications for the acute and chronic Tier 2 endpoints are presented in Annex M-CA 8.02 of the document M-CA Section 8. The way

Field crops

Table 10.1.2- 24: Tier 2 assessment of the long-term/reproductive risk for mammals due to the use o llo of glyphosate in field crops (Pre-sowing, pre-planting, pre-emergence): Use 1 a-c

Active substa	nco	Glyphosate			(<u>, 0</u> , 0	
Reprod. toxi		100			je j	<u>8 2 .0</u>	
		100			Nº 4	Co la	
(mg/kg bw/d		5			No.	0	
TER criterio				CT C		DDD	TED
GAP crop	Application		Generic focal species	SVm	NHABm	DDD_m	TER _{lt}
	rate (g a.s./ha)	scenario		S X	MAE X TWA	(mg/kg bw/d)	
Field crops	1×1440	Grassland	Large herbivorous mammal		1.0 ×	4.73	21.1
(Pre-sowing,	1 ~ 1440	All season	"lagomorph"	15.30	0.19	т.75	21.1
pre-planting,		7 m season	Brown have (Lanus aurongaus)	5	0.17		
pre-planting,			Brown nare (Lepus europaeus)	r.			
emergence)		Grassland	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>) Small herbivorous mammal "wole"	72.3	$1.0 \times$	19.8	5.06
emergence)		All season	Common vole (Microtus arvalis)		0.19		
		Leafy	Small herbivorous mammal vole"	72.3	$1.0 \times$	19.8	5.06
		vegetables	Common vole (Microtus arvalis)		0.19		
		BBCH 40 – 49					
		Leafy	Small herbivorous mammal "vole"	21.7	$1.0 \times$	5.94	16.8
		vegetables	Common xole (Macrotus arvalis)		0.19		
		$BBCH \ge 50$	NO O O				
		Leafy	Large herbivorous mammal	14.3	$1.0 \times$	3.91	25.6
		vegetables	"lagomorph"		0.19		
		All season	Rabbit (Oryctolagus cuniculus)				
	1 × 1080	Grassland 🔬	Small herbivorous mammal "vole"	72.3	1.0 ×	14.8	6.74
		Grassland All season	Common vole (Microtus arvalis)		0.19	-	-
		Leafy & S	Small herbivorous mammal "vole"	72.3	$1.0 \times$	14.8	6.74
		Leafy vegetables BBCH 40 –	Common vole (<i>Microtus arvalis</i>)		0.19		
		BBCH 40 -	, , , , , , , , , , , , , , , , , , ,				
		49.2 5					
	80	Leafy	Small herbivorous mammal "vole"	21.7	$1.0 \times$	4.45	22.5
		vegetables	Common vole (Microtus arvalis)		0.19		
		$BBCH \ge 50$					
	1×72002	Grassland	Small herbivorous mammal "vole"	72.3	1.0 ×	9.89	10.1
	00	All season	Common vole (<i>Microtus arvalis</i>)		0.19		
	1 × 7200 4 1 × 72						
	8 . F	Leafy	Small herbivorous mammal "vole"	72.3	1.0 ×	9.89	10.1
(d)	ille in the second s	vegetables	Common vole (<i>Microtus arvalis</i>)		0.19		
	5	BBCH 40 –					
		49					

The Tier 2 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, midicating that long-term risk to mammals is acceptable following the proposed use patterns in field crops of (Pre-sowing, pre-planting, pre-emergence, Uses 1 a-c).

Active subs	tance	Glyphosate					39.0				
Reprod. tox	icity	100					N.S.				
(mg/kg bw/o											
TER criterio		5	5								
GAP crop	Application rate (g a.s./ha)	Crop scenario	Generic focal species	SVm	MAF _m × TWA	DDDm ((mg/kg bŵ/d)	TER				
Field crops (Post- harvest, pre-sowing, pre- planting)	1 × 1440	Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	17.3	1.0 × ¢ 0.19¢		21.1				
		Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3 72.4 72.3 72.3 72.3 72.3 72.3 72.3 72.3 72.3	1,0×× 0.19 °	19.8	5.06				
	2 × 1080 (28 d)	Grassland All season	Brown nare (Lepus europueus)	97,9	1.0 × 0.19	3.55	28.2				
		Grassland All season	Small herbivorous mammal (Vole) Common vole (Microtus asvalts)	72.3	1.0 × 0.19	14.8	6.74				
	1 × 540	Grassland All season	Small herbivorous mammal "vole" Common vole (Microtus arvalis)		1.0 × 0.19	7.42	13.5				
	1 × 720	Grassland All season	Small herbivorous mammal "vole" Common vole (Microtus arvalis)		1.0 × 0.19	9.89	10.1				
	2 × 720 (28 d)	Grassland All season	Small herbivorous mammal "vole" Common vole (Microtus arvalis)		1.0 × 0.19	9.89	10.1				
	1 × 1080	Grassland	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.0 × 0.19	14.8	6.74				
	(28 d)	Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)		1.0 × 0.19	9.89	10.1				

Table 10.1.2- 25: Tier 2 assessment of the long-term/reproductive risk for mammals due to the use of glyphosate in field crops (Post-harvest, pre-sowing, pre-planting): Use 2 a-c, 3 a-b, 10 a-c

SV: shortcut value; MAF: multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER: toxicity to exposure ratio

The Tier 2 TER_k values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, the invest of the short of the indicating that long-term risk to mammals is acceptable following the proposed use patterns in field crops (Post-harvest, pre-sowing, pre-planting, Uses 2 a-c, 3 a-b and 10 a-c).

Table 10.1.2- 26: Tier 2 assessment of the long-term/reproductive risk for mammals due to the use of glyphosate in field crops (Shielded ground directed inter-row application): Use 6 a-b

Active subs	tance	Glyphosate					. S			
Reprod. tox	icity	100					37			
(mg/kg bw/e	d)					,	200			
TER criteri	on	5	5							
GAP crop	Application	Crop scenario	Generic focal species	SVm	MAF _m	DDDm	TER			
_	rate	-	_		×	(mg/kg bw/d)				
	(g a.s./ha)				TWA	220				
Field crops	1 × 1080	Fruiting	Small herbivorous mammal "vole"	72.3	$1.0 \times$.8°,°°,	6.74			
(Shielded		vegetables	Common vole (Microtus arvalis)		0.19 <i>"</i> ć	2 0. N				
ground		BBCH 10 – 49			Je je	000				
inter-row					22	Je la				
application)	1×720	Fruiting	Small herbivorous mammal "vole"	72.3	100×0.	9.89	10.1			
11			Common vole (Microtus arvalis)	000	0,49,%					
		BBCH 10 – 49		R	2° 20					
				52						

SV: shortcut value; MAF: multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER: in the second

toxicity to exposure ratio. The Tier 2 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-term risk to mammals is acceptable following the proposed use patterns in field crops (Uses 6 a-b); shielded ground directed inter-row application. 10 90°04

Orchards Table 10.1.2- 27: Tier 2 assessment of the acute risk for mammals due to the use of glyphosate in orchards: Uses: 4 a.c. 20, 0 2, 21, 2 orchards: Uses: 4 a-c

			10°0°5						
Active subs	stance	Glyphosate	S. S. S						
Acute toxic	ity	3694.1	J.S.S.S.						
(mg/kg bw))		A St. R						
TER criteri									
GAP crop	Application	Crop scenario	Generic focal species	SV90	MAF90	DDD90	TER _a		
-	rate		L. L			(mg/kg bw/d)			
	(g a.s./ha)		\$						
Orchard	2×1440	Orchards	Small herbivorous mammal	136.4	1.0	196	18.8		
Post-	(28 d)	Application	"vole"						
emergence		crop directed	Common vole (<i>Microtus arvalis</i>)						
of weeds	,	BBCH < 10 or							
		not grop							

SV: shortcut value; MAF: multiple application factor; DDD: daily dietary dose; TER: toxicity to exposure ratio.

0% ER nat acute nat acute how of the solution of The Tier 2 TER, value is greater than the Commission Regulation (EU) No. 546/2011 trigger of 10, indicating that acute risk to mammals is acceptable following the proposed use patterns in orchards.

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Table 10.1.2-	28: Tier 2 as	ssessment of the lo	ng-term/reproductive risk fo	r mai	mmals o	lue to t	he use
of glyphosate							
Active substan		Glyphosate					
Reprod. toxicit		100					2
(mg/kg bw/d)	0						
TER criterion		5					10 22
GAP crop	Application rate	Crop scenario	Generic focal species	SVm	MAF _m ×	(mg/kg	50
	(g a.s./ha)				TWA	bw/@)	í.
Orchard	2×1440	Orchards	Small herbivorous mammal	72.3	$1.0 \times$	19.80`	5.06
Post-emergence of weeds	(28 d)	Application crop directed BBCH < 10 or not crop directed	"vole" Common vole (<i>Microtus arvalis</i>)	- Li	2 0 K	19.88 19.88 19.91 19.91 19.91 19.91	
		Orchards Application crop directed BBCH < 10 or not crop directed	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	14.30, V 14.30, V 14.30, V V V V V V V V V V V V V V V V V V V	1.0°× 0.19	3.91	25.6
	1 × 720	Orchards Application crop directed BBCH < 10 or not crop directed	"vole" کې کې کې Common vole (<i>Microtus aralis</i>)	72.3	1.0 × 0.19	9.89	10.1
	1 × 1080	Orchards Application crop directed BBCH < 10 or not crop directed	Small herbivorous mammal "vole" Common vole (Microtus arvalis)	72.3	1.0 × 0.19	14.8	6.74
	2 × 720 (28 d)	Application crop directed BBCH < 10 or not crop	Small Serbivorous mammal	72.3	1.0 × 0.19	9.89	10.1
	3 × 720 (28 d)	Orchards Application crop directed BBCH < 10 or not crop directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.0 × 0.19	9.89	10.1
	1 × 1440	Orchards Application crop directed BBCH <10 or not crop	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)		1.0 × 0.19	19.8	5.06
6	19 00 00 00 00 00 00 00 00 00 00 00 00 00	Application crop directed BBCH < 10 or not crop directed	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)		1.0 × 0.19	3.91	25.6
	(28 d)	Orchards Application crop directed BBCH < 10 or not crop directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.0 × 0.19	14.8	6.74
SVC shortcut value toxicity to exposu	:; MAF: multipl re ratio. I Group AIR 5 – J	e application factor; TV	VA: time-weighted average factor; DE		ily dietary		

Table 10.1.2- 28: Tier 2 assessment of the long-term/reproductive risk for mammals due to the use ato in falrah - **h** / d ΤT 4

in the second second The Tier 2 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-term risk to mammals is acceptable following the proposed use patterns in orchards In Country of Country (Uses 4 a-c).

Vineyards

Table 10.1.2- 29: Tier 2 assessment of the acute risk for mammals due to the use of glyphosate in vineyards: Uses 5 a-c

Active subst	ance	Glyphosate				5° 70°		
Acute toxicit	ty	3694.1			N.C.	36		
(mg/kg bw)						<u>`</u> 0`		
TER criterior	1	10						
GAP crop	Application	Crop scenario	Generic focal species	SV90	MAF 90	DDD90	TER _a	
_	rate	_		St w		(mg/kg		
	(g a.s./ha)		4		6	bw/d)		
Vineyard	2×1440	Vineyard	Small herbivorous mammal "vole"	1364	1.0	196	18.8	
Post-	(28 d)	Application	Common vole (Microtus arvalis)					
emergence		ground directed						
of weeds								

SV: shortcut value; MAF: multiple application factor; DDD: daily dietary dose; FER: toxicity to exposure ratio.

ray dos. sion Regular following the followin The Tier 2 TER_a value is greater than the Commission Regulation (EU) No. 546/2011 trigger of 10, indicating that acute risk to mammals is acceptable following the proposed use patterns in vineyards.

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		assessment of t rds: Use 5 a-c	he long-term/reproductive risk fo	or mai	mmals	due to tl	he use
Active subst	ance	Glyphosate					. J
Reprod. tox (mg/kg bw/c	l)	100					NW CONTRACT
TER criterio		5	1				
GAP crop	Application rate (g a.s./ha)	Crop scenario	Generic focal species		MAF _m × TWA	DDDm (mg/kg) bw/d)	_© TER _{it}
Vineyard Post- emergence of weeds	2 × 1440 (28 d)	Vineyard Application ground directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3		19.8 19.8	5.06
	1 × 720	Vineyard Application ground directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)		10 × 0.19	9.89	10.1
	1 × 1080	Vineyard Application ground directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	[©] 72.3	1.0 × 0.19	14.8	6.74
	2 × 720 (28 d)	Vineyard Application ground directed	Small herbivorous manual Vole" Common vole (Microtits avalis)	72.3	1.0 × 0.19	9.89	10.1
	3 × 720 (28 d)	Vineyard Application ground directed	Small herbivorous mammal "vole" Common Sole (Microtus arvalis)	72.3	1.0 × 0.19	9.89	5.06
	1 × 1440	Vineyard Application ground directed	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.0 × 0.19	19.8	5.06
	2 × 1080 (28 d)	Vineyard Application	Small herbivorous mammal "vole" Common vole (<i>Microtus arvalis</i>)	72.3	1.0 × 0.19	14.8	6.74

SV: shortcut value; MAF: multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER: Social

toxicity to exposure ratio. The Tier 2 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, trade contract and and a strate of the second of the secon indicating that long-term risk to mammals is acceptable following the proposed use patterns in vineyards

Railroad tracks - application by spray train

Table 10.1.2-31: Tier 2 assessment of the acute risk for mammals due to the use of glyphosate	e on
railroad tracks: Use 7 a-b	

	Active subst	ance	Glyphosate					20 Miles
	Acute toxicit		3694.1				ŝ	10
	(mg/kg bw)	-					, Mi	ð
	TER criterio		10		077			mpp
	GAP crop	Application rate (g a.s./ha)	Crop scenario	Generic focal species	SV90	MAF90	DDD (mg/kg bw/d)	TERa
	Railroad tracks –	2×1800 (90 d)	Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	136.4	10 10 10 10 10 10 10 10 10 10 10 10 10 1	246	15.0
	application by spray train. Post							
	emergence of weeds (90d apart).		Leafy vegetables BBCH 40 – 49	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	31,36. 4 5 5 5 5 5 5 5 5 5 5 5 5 5	1.0	246	15.0
		1 × 1800	Grassland All season	Small herbivorous mammal ²⁴ vole ²⁷⁵ Common vole (<i>Microtulus asvalis</i>)	136.4	1.0	246	15.0
			Leaty vegetables	Small herbivorous manipal "vole" Common vole (<i>Mierotalus arvalis</i>)	136.4	1.0	246	15.0
				and a second sec				
	SV: shortcut va	alue; MAF: mul	tiple application fact	or: DDD Sail detary dose TER toxicit	y to expo	sure ratio.		
įč			are greater than to mammals is a					
A DA	Glyphosate Rene	ewal Group AIR 5	– July 2020	Doc ID	: 110054-1	MCP10_GF	RG_Rev 1_	Jul_2020

Annex to Regula	tion 284/2013		MON 52276				Section 10 141 of 553
		assessment of t nd tracks: Use 7	he long-term/reproductive risk fo a-b	or ma	mmals o	lue to t	he use
Active substa	ance	Glyphosate					. 3
Reprod. toxi	city	100					301 2
(mg/kg bw/d	•						A DOWN
TER criterio		5					N. S.
GAP crop	Application rate	Crop scenario	Generic focal species	SVm	MAF _m × TWA	DDDm (mg/kg	TER
	(g a.s./ha)					bwtd)	
Railroad tracks – application	2 × 1800 (90 d)	Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	17.3		5.92	16.9
by spray train. Post emergence of weeds		Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)		9.08 9.08 09.9 09.9	24.7	4.04
(90d apart).		Leafy vegetables BBCH 40 – 49	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)		1.0 × 0.19	24.7	4.04
		Leafy vegetables BBCH ≥ 50	Small herbivorous mammal "Vole" Common vole (Microtulus arralis)	21.7	1.0 × 0.19	7.42	13.5
		Leafy vegetables All season	Large herbivorous manufal "lagomorph" Rabbit (<i>Orycyologys cuniculus</i>)	14.3	1.0 × 0.19	4.89	20.5
	1 × 1800	Grassland All season	Large herbivorous mammal "lagomorph" Brown hare (<i>Lepus europaeus</i>)	17.3	1.0 × 0.19	5.92	16.9
		Grassland All season	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	72.3	1.0 × 0.19	24.7	4.04
		Leafy vegetables BBCH 40 49 3	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	72.3	1.0 × 0.19	24.7	4.04
		Leafy vegetables BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (<i>Microtulus arvalis</i>)	21.7	1.0 × 0.19	7.42	13.5
	200 200 200 200 200 200 200 200 200 200	(a	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus cuniculus</i>)	14.3	1.0 × 0.19	4.89	20.5

Table 10.1.2- 32: Tier 2 assessment of the long-term/reproductive risk for mammals due to the use of glyphosate on railroad tracks: Use 7 a-b

SV: shortcut value; MAR multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER: toxicity to exposure ratio. TER values shown in bold fall below the relevant trigger. 0,00 10,00

The Tier 2 TER_{lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-term risk to mammals is acceptable following the proposed use patterns on railroad HICOLOGIA tracks (uses 7a-b) except for the following scenarios where a refined risk assessment is required for all intended application rates:

Grassland; the small herbivorous mammal "vole" common vole (2 × 1800 g a.s./ha, 1 × 1800 g a.s./ha).

• Leafy vegetables; the small herbivorous mammal "vole" common vole (2×1800 g a.s./ha, 1×1800 g a.s./ha).

Table 10.1.2- 33: Tier 2 assessment of the acute risk for mammals due to the use of glyphosate of invasive species in agricultural and non-agricultural areas: Uses 8 and 9

						0.5				
Active substa	ance	Glyphosate				S. S.				
Acute toxicit	y	3694.1			<i></i> (
(mg/kg bw)	•				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	8				
TER criterion	1	10								
GAP crop	Application	Crop scenario	Generic focal species	SV90	MAF90	DDD90	TER _a			
	rate	-	-	9. 0. 0.	MAF90	(mg/kg				
	(g a.s./ha)			~ · · ·	× ·	bw/d)				
Invasive	1×1800	Fruiting	Small herbivorous mammal "vole"	136.40	1.0	246	15.0			
species in		vegetables	Common volo (Migrotus amalis) -							
agricultural		BBCH 10 – 49								
and non-				5						
agricultural			\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$							
areas. Post			Star Barris							
emergence										
of invasive										
species.										
•										

SV: shortcut value; MAF: multiple application factor; DDD: daily detay dose; TER: toxicity to exposure ratio. TER values

shown in bold fall below the relevant trigger. The Tier 2 TER_a value is greater than the Commission Regulation (EU) No. 546/2011 trigger of 10, indicating that acute risk to mammals is acceptable following the proposed use patterns on invasive species.

Table 10.1.2-34: Tier 2 assessment of the long-term/reproductive risk for mammals due to the use of glyphosate on invasive species in agricultural and non-agricultural areas: Uses 8 and 9

871		٠ رە ي					
Active substance		Glyphosate					
Reprod. toxicity		100 0 5 5					
(mg/kg bw/d)							
TER criterion		5 . 5 . 5 . 5					
GAP crop	Application	Grop scenario	Generic focal species	SVm	MAFm	DDD_m	TER
	rate	S. C. S			× TWA	(mg/kg	
	(g a.s./ha)					bw/d)	
Invasive	1 × 1800 %	Cereals	Large herbivorous mammal	22.3	1.0 ×	7.63	13.1
species in	~(0)	Early (shoots)	"lagomorph"		0.19		
agricultural	R	-	Rabbit (Oryctolagus cuniculus)				
and non-	200		~ 111 11 1.4		1.0		
agricultural	× 8	Fruiting	Small herbivorous mammal "vole"	72.3	1.0 ×	24.7	4.04
areas. Post	E. S	vegetables	Common vole (Microtus arvalis)		0.19		
emergence	8. 8	BBCH 10 – 49					
of invasive	AC DOST DIA COLOR						
species.							

SV: shortout value; MAF: multiple application factor; TWA: time-weighted average factor; DDD: daily dietary dose; TER:

The the Tier 2 TER_{Lt} values are greater than the Commission Regulation (EU) No. 546/2011 trigger of 5, indicating that long-term risk to mammals is acceptable following the proposed use patterns on invasive of the trigger of trigger of the trigger of the trigger of trigger

species (Uses 8 and 9) except for the following scenarios where a refined risk assessment is required for the intended application rate:

• Fruiting vegetables; the small herbivorous mammal "vole" common vole (1×1800 g a.s./ha).

Higher tier – Long-term mammalian refined (Tier 3) assessment

As indicated in the tables above, further refinements of the long-term mammal risk assessment are required for the small herbivorous mammal "vole" considering two exposure scenarios, namely the 'Grassland – all season' scenario and the leafy vegetable (BBCH 40 – 49) scenario for applications to control invasive and noxious weeds and for application to railroad tracks at 1800 g/sta

In addition to the refined TWA and MAF values applied for the Tier 2 assessment, use specific considerations and a further refined chronic mammalian endpoint is considered for risk assessment. Annex M-CA 8.02 of the document M-CA Section 8, presents further information to support a further refinement of the chronic mammalian endpoint. In the toxicology section of the dossier submission (M-CA Section 5), a weight of evidence position is presented concerning the relevance of the rabbit developmental toxicology study for use in risk assessment. The toxicology section presents a weight of evidence to support the conclusion that the observed maternal effects in this study type are not due to systemic exposure to glyphosate, but are due to GI-tract irritation resulting from the dosing route. An additional endpoint is presented in Annex M-CA 8-02 of the dogument M-CA Section 8, based on the results of seven rat developmental toxicity studies, where an endpoint of 300 mg/kg bw/day is Ø concluded.

Applying this endpoint to the chronic mammal risk assessment considering single and multiple applications at 1800 g/ha to control invasive species or for application on railroad tracks with a daily dietary dose value of 24.7 mg/kg diet (

and Table 10.1.2-34) for the two exposure scenarios as described above, results in TER values of 12.1 for both scenarios, which exceeds the trigger value of 5. Thus, indicating that an acceptable exposure risk to small herbivorous mammals can be achieved for application of MON 52276 to control invasive and noxious weeds and for application on railroad tracks.

The results of multi-generational studies in rats are also discussed in Annex M-CA 8-02 of the document M-CA Section 8. The 700 mg/kg bw/day NOAEL achieved for this study type demonstrate the expected reduction in the risk, where animals are exposed via the diet, which would be the route of exposure in the field.

Further considerations are presented in the following to support an acceptable chronic exposure risk to mammals for all proposed GAP table uses of MON 52276.

Railroad tracks

Nor XX

The application of the product on railroad tracks is done by spray trains. These trains are equipped with high resolution cameras and are able to identify weeds on the tracks. The product is applied very targeted to the weeds and only on those sections were weeds are present. Thus this application method is not comparable to a standard broadcast application where application takes place on the whole area. In general railroad tracks are placed on aggregate, i.e. small rocks, providing an environment for plants which are adapted to dryer conditions. Due to management and rather dry and hostile conditions that a railroad track provides, It is not expected that dense and long grass vegetation would be present, thus creating an uninviting habitat for small mammals to exist, feed and burrow.

According to Le Louarn & Quere (2003)¹⁵ the common vole is a grassland species and inhabit meadows, set-aside land, flower strips as primary habitats. It lives in shallow burrows rarely more than about 30 cm

A COLORING Le Louarn, H., Quéré, J. P. Les Rongeurs de France. Faunistique et biologie. INRA Editions, Paris, France, pp. 1-256 (2003)

deep (Stein, 1958)¹⁶. These primary habitats provide food and shelter from predators so that monthly survival of voles in primary habitats like set-aside grasslands is about 0.5 - 0.6, while being close to zero in arable fields (Jacob & Halle 2001)¹⁷. According to Stein (1958)⁴ secondary habitats for voles are croppeds areas such as grain cereals, oilseed rape, peas, beans, carrots and occasionally sugar beet and potato fields. Jacob *et al.* $(2014)^{18}$ conclude that those secondary habitats may be invaded by voles when the carrying capacity (critical population density) of primary habitats is exceeded. According to Frank (1957)¹⁹ and Briner et al $(2005)^{20}$ common voles of both sexes tend to be highly territorial, when population densities are low.

Railroad tracks might be occasionally visited by voles when population densities are high in primary habitats but it can be assumed that they don't spend much time in such hostile environments. Due to disturbance, rather dry conditions and the risk from predators, typical primary or secondary habitats provide better environmental conditions for voles than railroad tracks. Therefore the small herbivorous mammal "vole" should not be regarded as a relevant focal species on railroad tracks. Therefore, to provide a conservative approach for the application on railroad tracks 50 % of the application rate could be taken into account for an alternative refined chronic risk assessment.

By virtue of the very high residues per unit dose (RUD) value for common voles feeding on 100 % grasses as stated in the EFSA /2009/1438 guidance document, the vole is considered the worst-case exposure model / focal species. An acceptable risk assessment for the common vole sconsidered protective of all focal mammal species in the EFSA guidance. It is highly probable that other mammal species may frequent the habitats associated with railroad tracks. However, the Tier I level of the risk assessment - for both the small omnivorous (e.g., woodmouse) and large herbivorous mammals (e.g. rabbits and hares) was considered 20 acceptable across all proposed GAP table uses. 0

An additional point is that across the EU, different vole species exist and for some EU member states, different small mammal species are considered more relevant to the risk assessment, based on the local situation or due to the level of protection for this particular being considered differently in different member 1 1 2 0 states. (²¹Jacobs *et al.*, 2014). ð

A full risk assessment covering all focal mammal species is presented in the Annex M-CP 10-03 to this dossier section that covers all mammal focal species feeding guilds. Worst case representative focal species from each of the feeding guilds across all manimal species in the EFSA guidance are considered in the presented assessment above. ð

Control of invasive species

For the use on invasive species on agricultural and non-agricultural areas (Uses 8-9) the product MON 52276 is intended to be applied on the two invasive species; Giant hogweed (Heracleum montegazzianum) and Japanese knotweed (Reynoutrica japonica). Both species are easily recognisable, are usually well known by operators and can reach impressive sizes (more than 2 m height).



¹⁶ Stein, G.H.W. Die Feldmaus. Franckh'sche Verlagshandlung, Stuttgart, Germany (1958).

- ¹⁷ Jacob, J., Halles, The importance of land management for population parameters and spatial behaviour in common voles (Microtus arvalis). Advances in Vertebrate Pest Management II. Filander Verlag, Fürth, Germany, pp. 319-33@(2001)
- ¹⁸ Jacob, J. Manson, P., Barfknecht, R., Fredricks, T. Common vole (Microtus arvalis) ecology and management: implications for risk assessment of plant protection products. Published online in Wiley Online Library (15th
- ¹⁹ Frank, F. The causality of microtine cycles in Germany. The Journal of Wildlife Management 21(2): 113-121
- Briner, T., Nentwig, W, Airolid, J.P. Habitat quality of wildflower strips for common voles (Microtus arvalis) and
- Briner, T., Nentwig, W, Airolid, J.P. Habitat quality of wildflower strips for common vole Stis relevance for agriculture. Agriculture, Ecosystems & Environment 105:173-179 (2005) Jacob, J., Manson, P., Barfknecht, R., Fredricks, T. (2014) Common vole (Microtus arvalic management: implications for risk assessment of plant protection product Jacob, J., Manson, P., Barfknecht, R., Fredricks, T. (2014) Common vole (Microtus arvalis) ecology and management: implications for risk assessment of plant protection products. Pest Management Science 70:869-878

Control of invasive plant species that pose a risk to man and society, may be achieved by direct targeted overspray of the plant or by first cutting back the plants and applying directly to fresh regrowth. In both cases, the aim is to achieve exposure of the plant systemically, targeting all growing areas of the plant. They type of plant to be controlled and the density of plants in the target area, will dictate the management approach that is ultimately used. In all cases, the spray applications made, will be directed and targeted to a specific plant or stand of plants. This approach contrasts with a boom spray application where the entire area under the boom is exposed, whether there is a target plant present or not. It is therefore appropriate when considering applications made to control invasive species, that the total applied area considered in the risk calculation, is reduced compared to a boom spray application, given the very directed and targeted application method used, which includes use of shielded sprayers that further reduces the risk to non-target plants.

When spraying invasive species, different plant density scenarios are applicable A small reduction in the application rate (10 - 30% reduction) would reflect a scenario where a high density of invasive species can be expected. Such a scenario is considered relevant in non-agricultural fields where higher densities of the invasive species Giant hogweed or Japanese knotweed may occur. Therefore, as a conservative worst case approach a reduction of the application rate to 90 % can be taken into account for an alternative chronic risk assessment in non-agricultural areas.

In agricultural areas farmers won't tolerate higher amounts of invasive species in their fields. Thus, the density in comparison to non-agricultural fields is much lower and plants are more dispersed as they are not allowed to spread over several years. In case the product is applied by hand-held equipment to invasive species at BBCH stages when the intended crop is present it can be expected that only few invasive species are present and that the operator avoids exposure of cultured crops. In conclusion, to address the lower plant density of invasive species in agricultural fields, a 40% reduction in the application rate based on the reduced total area can be applied in an alternative risk assessment. This is also considered appropriate to cover the chronic risk to mammals. 8 04

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Drinking water exposure

Only the puddle scenario is relevant for risk assessment for mammals through drinking water.

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Puddle scenario

Sollies. 100,00 The 'Puddle scenario' is relevant for mammals taking water from puddles formed on the soil surface of a field when a (heavy) rainfall event follows the application of a pesticide to a crop or bare soil. This is therefore relevant for all uses of MQN 52276 and should therefore be assessed.

Due to the characteristics of the exposure scenario in connection with the standard assumptions for water uptake by animals, no specific calculations of exposure and TER are necessary since the ratio of effective application rate (in gha) to acute and long-term endpoint (in mg/kg bw/d) does not exceed 50 (K_{OC} < 500 L/kg) or 3000 (Koc 500 L/kg), as specified in EFSA/2009/1438.

As pointed out in EESA/2009/1438, specific calculations of exposure and TER values are only necessary when the ratio of effective application rate (in g a.s./ha) to relevant endpoint (in mg a.s./kg bw/d) exceeds 50 in the case of less sorptive (K_{OC} < 500 L/kg) or 3000 in the case of more sorptive (K_{OC} \ge 500 L/kg) substances

For glyphosate, the ratio of highest application rate (1800 g a.s./ha) to lowest relevant endpoint (NOAEL = 100 mg \hat{a} s./kg bw/d) is 18. As the K_{f,OC} for glyphosate is 4245 mL/g (See M-CA Section 7) the risk can be considered acceptable without the need for further calculations.

Effects of secondary poisoning 00, cc 10, cc 10

According to the EFSA/2009/1438, substances with a log $P_{OW} \ge 3$ have potential for bioaccumulation and should be assessed for the risk of biomagnification in aquatic and terrestrial food chains.

Since the log Pow values of glyphosate is log $P_{OW} \le -3.2$ (pH 2 - 5, 20 °C), the active substance is deemed to have a negligible potential to bioaccumulate in animal tissues. No formal risk assessment from secondary poisoning is therefore required.

ð The primary metabolite of glyphosate is aminomethylphosphonic acid (AMPA). Most of the parent glyphosate is eliminated unchanged and only a small amount (less than 1 % of the applied dose) is transformed to aminomethylphosphonic acid (AMPA). The metabolite AMPA has been tested in several mammal toxicity studies which demonstrated that it is of lower toxicity than glyphosate acid (see Section CA 5.8). Furthermore, the log Pow for AMPA – estimated via EpiSuite Program and SMILES code (C(N)P(=O)(O)O) – is -2.47 and does not indicate a potential for bioaccumulation (EFSA Journal 2015;13(11): 4302).

Indirect Effects Via Trophic Interaction A large regulatory dataset exists with acute and long-term studies to inform the wild mammal risk assessments, with the results of the wild mammal risk assessments (MCP 40.1.2) that demonstrate that under the intended uses of glyphosate there is negligible risk of direct effects.

An assessment of indirect effects is in part covered by the current EFSA Birds and Mammals assessment guidance through an evaluation of the potential for secondary poisoning (e.g., consumption of earthworms, fish, drinking water). However, methodology for assessing indirect effects through trophic interaction resulting from in-crop weed control was not addressed. Throughout the development of the EFSA (2009) guidance document, it was raised that indirect effects through trophic interactions should be eventually be addressed, and it was decided when the guidance was finalized that this topic would need to be addressed in revised guidance. However, many experts in the Member States who reviewed the birds and mammals guidance document commented that this is an area that requires further research and that it may be preferable to manage indirect effects to birds and mammals through mechanisms other than pesticide approvals (e.g., farmland management and/or conservation policies).

The following assessment approach considers both direct effects and the potential for indirect effects via trophic interactions, based on the proposed Specific Protection Goals drawn from the existing EU guidance and working documents, and the 2016 EESA Guidance on developing protection goals for ecological risk assessments (ERA) for pesticides, The SPGs based on direct effects assessment considering representative sensitive populations across the tested trophic levels. The biodiversity assessment, aimed to develop a flexible framework that informs the development of risk mitigation options to achieve the specific protection goals, that includes considering indirect effects via trophic interaction. For example, reduced application rates relative to previous Annex I renewals, a reduced overall application volume of product on the land, and inclusion of the spray buffer zones as a standard mitigation measure to protect edge of field surface waters. When defining SPGs for mammals, it is the responsibility of the risk assessors in the Member States to acknowledge existing protection goals and regulatory data requirements, to propose possible SPG options, and describe the possible environmental consequences of each option. The risk assessors within the Member States will need to propose realistic SPGs and exposure assessment goals and the interrelationships between them in a clear and transparent manner. 0000

Biodiversity Assessment.

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The assessment approach – as previously defined aims to assess the potential indirect effects via trophic interactions and the impact on biodiversity, by developing a flexible framework that informs the development of risk mitigation options to achieve the specific protection goals. In the following table, the specific protection goals relevant to mammals are presented with the relationship between the SPGs, the direct effects study types, assessment and measurement endpoints. The assessment endpoint is an explicit expression of an environmental entity and the specific property of that entity to be protected. Measurement endpoints relates directly to the effects study endpoints.

A conclusion that a given data requirement has been satisfied, requires that an acceptable level of risk has on of the second been achieved (i.e. there is a protective margin of exposure or through a weight of evidence).

Based on the measurement endpoints from the study types, and the direct effects assessment presented above in this section, direct effects from glyphosate on aquatic organisms are not anticipated.

The impact on mammalian species will be additionally supported by the required in-field no spray buffer area for the NTTPs, which will protect mammals occurring in field margins.

The following table assessment illustrates that ecological function of wild mammals in off-target areas/ edge of field, will be sufficiently maintained to achieve the SPG for wild manmals according to the protection goals as defined in the EFSA guidance that sustains habitat and food resources for other 949 0919 organisms.

Table 10.1.2-35: Protection Goals and Associated Assessment and Measurement Endpoints for Wild Mammals. × 3 6

Specific Protection Goals ¹	Assessment Endpoints	Measurement Endpoints	Glyphosate Study Types
No visible mortality and long-term impacts on abundance and diversity	No reduction in survival, growth, development, reproduction of avian populations.	Survival erowite development and reproduction	Acute oral avian and rat Avian reproduction Rabbit teratology Rat 2-generation

Wild Mammal Biodiversity Assessment

Based on the current direct effects risk assessment for glyphosate, there is acceptable acute and long-term risk assessments based on current guidance and the intended use patterns for glyphosate. However, if additional risk mitigation measures are determined to be required based on local conditions, to mitigate indirect effects resulting from in-crop weed control on mammatian populations, options to be considered by risk assessors and risk managers within Member States are presented in Table 10.1.2- 36.

When protection goals are defined more precised by risk managers or legislators to address indirect effect, then the protection goals and assessment procedures should be revised.

Scientific literature that informs the wild mammal indirect effects assessment

The residue left over on the soil surface from practicing conservation tillage increases cover and benefits to wildlife. The general rule is that the greater the amount of crop residue a tillage practice leaves on the surface, particularly standing residue, the better the practice is for small mammals, acting as a refuge from predation but also providing a habitat in which food items will occur. The studies on the benefits of conservation tillage have shown that fields using conservation tillage, where there may be an increase in crop residue, tend to merease the diversity of small mammals in crop fields. In addition, crop residues also harbor insects and other arthropods that are an important food source for wild mammals.

For mammals, studies on indirect effects through trophic interactions at the population level are generally lacking. Howevers a number of studies have investigated the potential for indirect effects of on birds and mammals in managed forest systems. Studies on small mammals (i.e., rodents, shrews, voles, chipmunks) have shown that some short-term changes after forestry applications of glyphosate were observed at the species (Anthony and Morrison, 2985; D'Anieri et al. 1987; Gagné et al. 1999) and functional feeding group devels (Santillo et al., 1989a), which the authors attributed to the reduction in invertebrates, plant cover, and food. At the population level, glyphosate did not appear to have significant or long-lasting effects Glyphoest P decline in bird densities was correlated with the decline in habitat complexity. These changes were assessed against untreated control sites to differentiate the effects of glyphosate from other background environmental factors such as the recovery trajectory following tree harvest and showed similar responses to other herbicides commonly used in managed forests (Guvnn et al., 2004).

Sullivan and Sullivan (2003) published a comprehensive glyphosate assessment addressing vegetation management and ecosystem disturbance focusing on plant and animal biodiversity that consider direct and indirect effects. Their analysis was based on 60 published studies of terrestrial plants and animals in temperate forests and agroecosystems. Species richness of plants was either unaffected or increased in the case of herbaceous species in those receiving glyphosate treatments. Species richness and diversity of songbirds, in open habitats representative of agricultural lands, did not appear to be negatively impacted in glyphosate use areas. In fact, conservation tillage, which is enabled by glyphosate promoted greater abundance of songbirds and other fowl compared with ploughed fields (McLaughlin and Mineau, 1995; Cunningham et al., 2005). Similarly, in studies on small mammal communities, there was no long-term negative impact on species richness and diversity. When there were declines in some species of small mammals, they were transient and other species of small mammals in those systems increased likely because they were better generalists in these systems. Larger mammalian flerbivores (e.g., rabbit, deer) were not negatively affected by glyphosate treatments. However, assessment of a wide range of terrestrial invertebrate taxa showed variable responses in abundance and their diversity is largely a function of the degree of vegetation control. Overall, the magnitude of changes in species richness and diversity of plants, birds, small mammals in the studies reviewed by Sullivan and Sullivan were within the mean range of . 20 10 10 10 10 10 10 natural fluctuations and considered direct and indirect effects.

Conclusion:

ner. Based on the current direct effects risk assessment for gyphosate, there is acceptable acute and long-term risk based on current guidance and the intended use patterns for glyphosate. Currently, the EFSA birds and mammals guidance does not include assessment methodology for indirect effects through trophic interactions. Addressing potential indirect effects to birds and mammals by limiting in-crop weed control or compensating for its effects may be better handled though policies and programs outside the PPP framework. However, if additional risk mitigation measures are concluded to be required, to mitigate indirect effects resulting from in-crop weed control on avian populations, options to be considered by risk assessors and risk managers within Member States are presented in Table 10.1.2-36. These mitigation options will bring the greatest ecological senefit when implemented in simplified landscapes or in intensified production areas, where the refuge areas for insects, birds and mammals are limited. It is anticipated that this measure will not bring a high ecological benefit in complex landscapes where enough refuges are available off-field.

Risk mitigation options to address direct and indirect effects to ecological species

Environmental risk mitigation measures are a key component in defining the conditions of use of pesticides in crop protection in Europe (EC) No 1107/2009) and (EU) No 547/2011). These risk mitigation measures are derived directly from the evaluation of pesticide products and the risk assessment conducted for each use and are specific of the type of risk they are intended to mitigate. They therefore range from the adjustment of the conditions of use, to minimizing transfers to surface and groundwater, to the setting of buffer zones at the edge of the crop, and to requiring compensatory measures (e.g., field margins).

Risk mitigation measures can be divided into "standard" mitigation measures where an impact can be calculated in the frame of environmental risk assessment and "non-standard" mitigation measures where the impact on biodiversity cannot be directly expressed in numerical values. It needs to be noted that biodiversity related mitigation measures need to be adapted to the local Member State level, to the local environmental circumstances (e.g. landscape), to the local biodiversity conservation status and to the

applied by risk managers. Currently, the most up-to-date compilation of plant protection mitigation tools available across Europe was compiled during a series of workshops in 2013 under the auspices of the Glupheret P

. Contraction Society of Environmental Toxicology and Chemistry (SETAC) and the European Commission. The goal of the MAgPIE workshops was to develop a toolbox of mitigation measures from across the EU. The outcome of these workshops was a proceedings published in 2017 "Mitigating the Risks of Plant Protections" :00 Products in the Environment MAgPIE. Ś

The MAgPIE workshop proceedings and associated publications were inventories of the available risk mitigation options across the various Member States in the EU and included a toolbox of recommendations 10,10 in view of future implementation.

Examples of the standard mitigation measures considered applicable at the EU level (MAgPIE, 2017) are presented in the following table. Many of these have been considered in the current dossier submission.

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Table 10.1.2- 36: Types of standard risk mitigation measures described in MAgPLE across the	;
various Member States to mitigate effects on biodiversity and how they could be applied to	
glyphosate products.	

Type of Mitigation Measure	Risk Mitigation Measure	Benefits	Glyphosate renewal dossier (2020)
Restrictions or modifications of products' conditions of application	Application rate, Application frequency, application timing, and interval between applications	groundwater and surface water; Reduces exposure of organisms in-crop and off-crop.	 Significant reductions (50 % in volume) in revely proposed application rates compared with the representative use presented in the 2012 renewal dossier. See ²² Appendix 2 of the biodiversity report that accompanies this submission. Treated area restriction for the representative use GAPs: applying to only 50 % of the total area in orchard/vineyard area. maximum of 50 % of the total area for broad acre vegetable inter-row Invasive species control e.g., couch grass – maximum of 20 % of the cropland + extended application intervals. Limited frequency and timing of application: 28-day interval between
Application equipment with Spray Drift Reduction Technology (SDRT)	shields	(precision treatment) and	8 1
5		D. I.	vineyards and broad-acre vegetable inter- row application.
Buffer zones	Non-sprayed zone at the edge of a crop	organisms and off-crop	Establishment of buffer zones: Buffer zones of varying size (depending on the type of SDRT) are required as protection for off-crop NTTP communities from spray drift.
5.5	current dossier; (2020) Gl	yphosate: Indirect effects via	trophic interaction - A Practical Approach to
For example in the			Doc ID: 110054-MCP10_GRG_Rev 1_Jul_2020

- Reductions in maximum annual application rates of up to 50 % are considered in this dossier compared to the maximum rates applied for in the 2012 Annex I renewal dossier.
 - In 2012, the maximum annual application rate was 4.32 kg/ha. 0
 - In the current dossier submission, the maximum annual application rate is 2.16 kg/ha 0
- Reducing the total area being applied on a per hectare basis for certain uses, will reduce the total volume of product being applied to the landscape.
 - For example, controlling actively growing weeds in vineyards, orchards where a reduced area, up to a maximum of 50 % of the total application area is proposed e.g. using strip or band applications. Applications target weeds around the base of trees within tree rows, leaving the area between tree rows unsprayed, which is typically managed using mechanical methods.
- The use of shielded or hooded sprayers, hand-held sprayers and drift reducing technologies, e.g. 75% drift reducing nozzles are recommended for all applications made for the control of actively growing weeds when applied to control invasive species. These measures will further reduce the off-target exposure risk. For weed control on railroad tracks, recommendations are made in the GAP table to use precision
- application equipment on spray trains, that detects and targets spray directly onto unwanted plants, thereby reducing the amount of product being applied, what maintaining an acceptable level of safety on the railroad tracks.
- No spray buffer areas in-field, are necessary to meet the specific protection goals for avoiding direct effects on non-target plants in off-target areas. This measure will in turn support non-target arthropod communities in off-field areas and reduces further, the potential for indirect effects on bees through trophic interaction. 8

In addition to the standard mitigation measures, mon-standard mitigation measures' could also be considered where a local and specific mitigation need is identified. For example, in simplified landscapes or landscapes that are intensively managed, where typically there are limited refuge areas for insects, birds and mammals. Non-standard mitigation measures options could include for example, creation of off-target habitats, utilizing edge of field habitats and semi-field habitats that assist biodiversity by improving wildlife connectivity. However, these measures will bring the greatest ecological benefit when implemented in simplified landscapes or in intensified production areas, where the refuge areas for insects, birds and mammals are limited. It is anticipated that this measure will not bring a high ecological benefit in complex landscapes where enough refuges are available off-field.

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For further information on national measures pleased refer to the supplementary information document²³titled 'Glyphosate: Indirect Effects via Trophic Interaction – A Practical Approach to Biodiversity Assessment.' that accompanies this dossier submission.

CP 10.1.2.1 Higher tier data on mammals

Additional studies are not considered to be required, since sufficient information is available from studies performed with the active substance and the representative product. Furthermore, the risk assessment for mammals indicates an acceptable ecotoxicological risk for mammals in consideration of each potential route of exposure from the proposed uses in the GAP; in field crops, orchards, vineyards, railroad tracks and non-agricultural areas.

See MCA Section 5 for detailed summary of the acute study conducted with MON 52276.

(2020) Glyphosate: Indirect effects via trophic interaction - A Practical Approach to Biodiversity Assessment (TRR0000305).

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CP 10.1.3 Effects on other terrestrial vertebrate wildlife (reptiles and amphibians)

A consideration of the potential effects of glyphosate and glyphosate products on amphibians was part of the previous Annex I renewal of glyphosate in the EU (Glyphosate RAR 11 Vol. 3 CA-CP B9, 2015)

The RAR (2015) produced by the UBA for the last Annex I submission for the renewal glyphosate in the EU contained an extensive review of the available public domain literature on amphibians and the potential for effects on amphibians. Since the last Annex I renewal guidance on how to conduct environmental risk assessment on amphibians – specifically terrestrial phase amphibians has not been for the oming. The assessment for both, the aquatic and terrestrial life phases, is still considered to be covered by the risk assessments on aquatic organisms (covering the aquatic life phases) and the terrestrial vertebrates covering 116. 1016 0 the terrestrial life phases.

In the previous Annex I renewal RAR (2015), a review was presented that considered acute and chronic amphibian toxicity studies in the public domain literature, conducted with hyphosate and / or commercial glyphosate-based formulations. The RMS (UBA) considered acute effects based on studies with 96 hours or less duration. Chronic studies were evaluated that focused mostly on lethality effects, with some studies considering effects of glyphosate formulations on body weights and or performance at metamorphosis. There were very few studies considering effects on terrestrial stages of emphibians.

In the current literature review to support the 2020 submission for Asnex I renewal in the EU, the available ²⁴guidance have been used to distinguish which public domain literature are relevant and reliable for inclusion into the ecotoxicological risk assessment. , , J ð

The second process of There were a number of acute toxicity endpoints presented in the RAR (2015) for amphibians exposed to Connecta exponent and the exponent of the expo glyphosate and its salts range from >17.9 to >466 mg a s? L (see table below), which were summarised in

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Species	Substance	Study duration	LC50 (mg a.s./L)	Reference
<i>Crinia insignifera</i> tadpoles	Glyphosate acid	96 h	103.2	Reference
<i>Crinia insignifera</i> adult	Glyphosate acid	96 h	75.0	Bidwell & Gorrie 1995 8 glyphnosubm_023
<i>Litoria moorei</i> tadpoles	Glyphosate acid	48 h	81.2	Mann & Bidwell 1999 glyphnosubm 024
<i>Litoria moorei</i> tadpoles	Glyphosate acid	48 h	121.0	Mann & Bidwell 1999 glyphnosubm_024
<i>Crinia insignifera</i> adult	Glyphosate acid	48 h	83.6	Mann & Bidwell 1999 gtyphnosuom_024
Rana clamitans	Glyphosate IPA	96 h	> 17.91	Howe et al., 2004 gryphecotox_025
<i>Lymnodynastes dorsalis</i> tadpoles	Glyphosate IPA	48 h	> 400.0 6 6	Vlann & Bidwell 1999 glyphnosubm_024
<i>Litoria moorei</i> tadpoles	Glyphosate IPA		il ⁵ 5 5 > 343.05 6 2 3 6 2 5 2 5 2 5 5 7 5 7 5 7 5 7 5 7 5 7 5 7 5 7 5 7 5	Mann & Bidwell 1999 glyphnosubm_024
<i>Crinia insignifera</i> tadpoles	Glyphosate IPA	2°C	≥466.0	Mann & Bidwell 1999 glyphnosubm_024
<i>Heleioporus eyrei</i> tadpoles	Glyphosate IPA	48 h	\$ 373.0	Mann & Bidwell 1999 glyphnosubm_024

Table 10.1.3-1: Effect values reported in peer reviewed literature for amphibians of glyphosate
acid and salts of glyphosate

Of note in the previous Annex I evaluation was the influence of surfactants on the toxicity of glyphosatebased herbicides containing specific surfactant classes, to amphibians, being far lower than for glyphosate acid or its salts. The surfactants displaying a high toxicity in glyphosate-based formulations belonged typically to the classes of poly-oxychoxylated alkylamines (POEA; e.g. ethoxylated tallow- and cocoamines) - or are e.g. fatty nitrogen derivate etheramines. The representative formulation (MON 52276) does not contain surfactants belonging to these classes of compounds. Across 26 different studies that were considered in the RAR (2015) considering glyphosate-based products that contained POEA based surfactants or surfactants considered to be very similar, the acute LC_{50} values ranged between 1.1 and 17.9 mg a.e./L. The products considered were IPA salt-based formulations containing a similar loading of glyphosate compared to the representative formulation.

Based on the aquatic toxicity profile of MON 52276, it is evident that the formulated product is less sensitive to a range of aquatic organisms compared to the technical material.

Further information on the effects of surfactants such as POEA and the implications of exposure to these types of surfactants by amphibians are described in detail in the previous literature review presented in the RAR (2015), Section B9.11.

Concerning terrestrial phase amphibians, the risk assessment for birds and mammals is considered protective of terrestrial phase amphibians in terrestrial environments.

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results indicate effects of ethoxylated surfactants on amphibians and that there were implications for registering glyphosate-based products containing these types of surface-active chemicals. The representative formulation does not contain POEA or ethoxylated surfactants known to be of toxic concerns to amphibians. In fact, the aquatic toxicity profile of MON 52276 is substantially protected by the ecotoxicological profile of the active substance.

Risk assessment / Weight of evidence

Of the current literature reviewed for the Annex I renewal, the following paper was considered to have been conducted according to an appropriate test guideline and is reviewed below.

Lethal toxicity of the herbicides acetochlor,	Glyphosate	D1 · ·	(V)
harbigidas agotophlar			The 96 h LC ₅₀ for
nerviciues acetociilor,	technical		glyphosate technical
ametryn, glyphosate	(99.2 %	S & S	exposure to two
and metribuzin to	purity)	5 4 6	tropical frog species;
tropical frog larvae.			Physalaemus cuvieri
			and Hypsiboas
	3		pardalis were
	in the second se		determined to be 115
	S. S	Jo.	and 106 mg
	O' A C	5	a.s./L,respectively.
	L'ES		
			The author concluded
	S. C. O		that these data were
ć			protective of tropical
no no			amphibians.
			1
a	ind metribuzin to	2000 100 100 100 100 100 100 100 100 100	nd metribuzin to ropical frog larvae.

Table 10.1.3-2: Literature on toxicity of representative formulation to	Amphibians

In Daam et al., (2019) despite some uncertainty over the analytical integrity of the studies i.e., analytical exposure could not be confirmed from the paper, effects of a glyphosate-based herbicide on tadpoles of the tropical amphibian species using a recognised experimental approach, with tadpoles exposed for 96 hours after dispersion of the test substance into water. Data previously evaluated by the RMS (UBA) from the paper by Bidwell (1999) was also considered, where it was concluded that glyphosate based herbicides were much less toxic than technical symbosate. The achieved endpoints in Daam, are not considered in the risk assessment as the assessment for fish is considered protective.

From the reviewed papers that were part of the literature review, but that were not considered relevant to the assessment as they were not conducted on a formulation related to the representative formulation, terrestrial phase and aquatic phase amphibians were assessed. The findings from these studies are considered briefly in the following paragraphs to address the possible impacts of glyphosate-based herbicides on terrestrial phase amphibians.

In the relevant but supplemental studies by Edge et al., 2012, 2013 and 2014, larval and juvenile amphibians were exposed to glyphosate-based herbicides in extended field experiments. In Edge, (2012) a replicated field experiment in a wetland habitat, demonstrated that exposing amphibian larvae to a glyphosate-based herbicide under field conditions (Roundup Vision) at applications rates up to 2.88 kg a.e./ha had negligible impact on survival or growth of green frogs (Lithobates clamitans). In Edge, (2013) both laboratory and field experiments were conducted with exposure of two frog species to a glyphosate-based herbicide to Glyphort T assess the effects on survival, liver somatic index, body condition and the incidence of disease caused by

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conducted with the representative formulation, they demonstrates that under field conditions, those endpoints achieved under laboratory conditions are ameliorated when exposure occurs in the field.

Considering the direct effects risk assessment, there is an amphibian toxicity test that is submitted as part (2012) was a Glyphosate: Amphibian Metamorphosis assay for of the submission. The study by the detection of thyroid active substances. The study was conducted at water concentrations up to 90 mg a.e./L, and despite a slight increase in the wet weight of Xenopus laevis tadpoles at 90 mg a.e./L, there were no other effects observed in the study with no effects on growth and development, no mortality and no effects on the thyroid, following a 21 day exposure period.

Based on the available evidence from the current literature and the information presented in the previous RAR (2015), the risk to amphibians from exposure to the representative formulation, seconsidered to be within the toxicity profile of the active substance and as such, the risk assessments presented for aquatic organisms, specifically fish and also those for terrestrial vertebrates are considered to be protective.

For mammals, studies on indirect effects through trophic interactions at the population level are generally lacking. However, a number of studies have investigated the potential for indirect effects on birds and mammals in managed forest systems.

From a diversity and abundance perspective, studies on small maninals (i.e., rodents, shrews, voles, chipmunks) have shown that some short-term changes after to restry applications of glyphosate were observed at the species (Anthony and Morrison, 2985; D'Anieri et al. 1987; Gagné et al. 1999) and functional feeding group levels (Santillo et al., 1989a), which the authors attributed to the reduction in invertebrates, plant cover, and food. At the population level, glyphosate did not appear to have significant or long-lasting effects in the first few years after application (D'Anieri et al. 1987; Santillo et al., 1989a; Sullivan et al. 1987). Similar to small mammals, changes in bird community composition, and reductions in abundance, densities and species richness of bird populations often occurred in the first few years after glyphosate application (Guiseppe et al. 1986, Easton and Martin, 1998, Santillo et al. 1989b), and in Santillo et al. (1989b) the decline in bird densities was correlated with the decline in habitat complexity. These changes were assessed against untreated control sites to differentiate the effects of glyphosate from other background environmental factors such as the recovery trajectory following tree harvest and showed similar responses to other herbicides commonly used in managed forests (Guvnn et al., 2004).

Sullivan and Sullivan (2003) published a comprehensive glyphosate assessment addressing vegetation management and ecosystem disturbance focusing on plant and animal biodiversity that consider direct and indirect effects. Their analysis was based on 60 published studies of terrestrial plants and animals in temperate forests and agroecosystems. Species richness of plants was either unaffected or increased in the case of herbaceous species in those receiving glyphosate treatments. Species richness and diversity of songbirds, in open habitats representative of agricultural lands, did not appear to be negatively impacted in glyphosate use areas. Similarly, in studies on small mammal communities, there was no long-term negative impact on species richness and diversity. When there were declines in some species of small mammals, they were transient and other species of small mammals in those systems increased likely because they were better generalists in these systems. Larger mammalian herbivores (e.g., rabbit, deer) were not negatively affected by glyphosate treatments. However, assessment of a wide range of terrestrial invertebrate taxa showed variable responses in abundance and their diversity is largely a function of the degree of vegetation control. Overall, the magnitude of changes in species richness and diversity of plants, birds, small mammals in the studies reviewed by Sullivan and Sullivan were within the mean range of natural fluctuations and considered direct and indirect effects. ð

Indirect effects via Trophic Interactions

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of indirect effects on amphibians through loss of habitat and prey items in area surrounding the application areas.

Refer to the CP 10.1,1 10.1.2 and 10.2 for further information on the indirect effects assessment. In addition, please refer to the complete the com

Additional References relied upon in the Indirect Effects via Trophic Interactions Discussions

Anthony RG, Morrison ML, Influence of glyphosate herbicide on small-mammal populations in western Oregon. Northwest Sci. 1985, 59, 159–168.

D'Anieri P, Leslie D Jr, McCormack M. 1987. Small mammals in glyphosate-treated clearcuts in northern Maine. Can. Field-Nat. Ottawa ON, 101:547–550.

Edge CB, Gahl MK, Pauli BD, Thompson DG, Houlahan JE. 2011. Exposure of juvenile green frogs (Lithobates clamitans) in littoral enclosures to a glyphosate-based herbicide. Ecotoxicol Environ Saf. 74:1363-9.

Edge CB, Thompson DG, Hao C, Houlahan JE. 2012 A silviculture application of the glyphosate-based herbicide VisionMAX to wetlands has limited direct effects on amplibian larvae. Environ Toxicol Chem. 31:2375-83. doi: 10.1002/etc.1956. Epub 2012 Aug 16.

Edge CB, Gahl MK, Thompson DG, Houlahan JE. 2013. Kaboratory and field exposure of two species of juvenile amphibians to a glyphosate-based herbicide and *Batrachochytrium dendrobatidis*. Sci Total Environ. 444:145-52.

Edge C, Thompson D, Hao C, Houlahan J. 2014: The response of amphibian larvae to exposure to a glyphosate-based herbicide (Roundup Weather Max) and nutrient enrichment in an ecosystem experiment. Ecotoxicol Environ Saf. 109:124-32.

Edge CB, Baker LF, Lanctôt CM, Melvin SD, Gahl MK, Kurban M, Navarro-Martín L, Kidd KA, Trudeau VL, Thompson DG, Mudge JF, Houlanan JE. 2020. Compensatory indirect effects of an herbicide on wetland communities. Sci Total Environ 718:137254.

Gagné N, Bélanger L, J Huoi. 1999. Comparative responses of small mammals, vegetation, and food sources to natural regeneration and conifer release treatments in boreal balsam fir stands of Quebec. Can. J. For. Res. 29:1128–1140.

Guynn DC, Guynn ST, Wigley TB, DA Miller 2004. Herbicides and forest biodiversity-what do we know and where do we go from here? Wildl. Soc. Bull. 32:1085–1092.

Guiseppe KFL, Drummond FA, Stubbs C, Woods S. 2006. The Use of Glyphosate Herbicides in Managed Forest Ecosystems and their Effects on Non-Target Organisms with Particular Reference to Ants as Bioindicators. Maine Agricultural and Forest Experiment Station Technical Bulletin 192; Maine Agricultural and Forest Experiment Station, University of Maine: Orono, ME, USA, p. 51.

Santillo DF, Leslie DM, Brown PW. 1989a. Responses of small mammals and habitat to glyphosate application on clearcuts. J. Wildl. Manag. 53:164–172.

Santillo DJ, Brown PW, Leslie DM. 1989b. Response of songbirds to glyphosate-induced habitat changes on clearcuts. J. Wildl. Manag. 53:64–71.

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ion in the second second Sullivan DS, TP Sullivan. 2000. Non-target impacts of the herbicide glyphosate: A compendium of references and abstracts. 5th Edition. Applied Mammal Research Institute, Summerland, British Columbia, Canada.

Sullivan TP, Sullivan DS. 2003. Vegetation management and ecosystem disturbance: impact of glyphosate herbicides on plant and animal diversity in terrestrial systems. Env Rev 11:37-59. 0

McLaughlin A, Mineau P. 1995. The impact of agricultural practices on biodiversity. Agriculture, Aley Control of the second sec Ecosystems and Environment 55:201-212.

UN CONTRACTOR CP 10.2 Effects on Aquatic Organisms Relevant and reliable studies for the risk assessment of aquatic organisms from the active substance glyphosate and the relevant metabolites (AMPA and HMPA) are summarised in the tables below, presenting the most sensitive endpoints for each organism group. Details of these studies are summarised in the document M-CA, Section 8, point 8.2 and relevant endpoints for the risk assessment are provided in noros the tables below.

he tables below. **Table 10.2-1:** Endpoints and effect values of glyphosate relevant for the risk assessment for 1**V**00111 +(())+ NOST OF aquatic organisms

	Reference Test item Species Test design Endpoint LC/EC ₅₀ NOEC						
Reference	Test item	Species	Test design		LC/EC50 (mg a.e./L)	NOEC (mg a.e./L)	
			S.S.	oaseu on	(ing a.e./L)	(ing a.e./L)	
Fish		1	Acute, 96 h, static Chronic, 85 d (60 days post-	<u> </u>	1		
	Glyphosate	Lepomis	Acute, 96 h,	nom	47	32	
1995	acid	macrochirus	static				
CA 8.2.1/009			0.00.0				
2010	Glyphosate	Oncorhynchus	Chronic, 85 d	gm	-	≥ 9.63	
CA 8.2.2.1/001	acid	mykiss	(60 days post-				
		mykiss	hatch) ELS, flow-through				
Aquatic inverte	brate	Crassostrea Ligas					
	Glyphosate .	Çrassostrea	48h static	nom	40	32	
1996	acid	gigas					
CA 8.2.4.2/003	6.8	0					
8.2.4.2/003			01.1			10.5	
	acid	Daphnia magna	21 d Reproduction	nom	-	12.5	
1999	S.M.	magna	semi-static				
CA 8.2.5.1/001	Glyphosate						
Algae	,	I	I	I		I	
	Glyphosate	Skeletonema	72h static	nom	$E_r C_{50} = 13.5$	-	
1996	acid	costatum			$E_y C_{50} = 9.0$		
Algae							
SU ST		•	1	•	•	•	
e al							
>							
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Table 10.2-1:	Endpoints and effect values of glyphosate relevant for the risk assessment for
aquatic organi	sms

Annex to Regulation	284/2013		MON 52276			M-CP, Section 10 Page 157 of 553	0
Table 10.2-1: aquatic orgai		and effect value	es of glyphosa	te relevant for	the risk assess	ment for	
Reference	Test item	Species	Test design	Endpoint based on	LC/EC50 (mg a.e./L)	NOEC (mg a.e./L)	, • •
Aquatic macro	ophytes	·				1. S.	
2012 CA 8.2.7/010	Glyphosate acid	Myriophyllum aquaticum	14 d static	nom	Relative increase: TSL: 78.7 FW: 12.3 DW: 25.2 RL: 18:0 Growth rate: TSL: 276 FW: 23.4 DW: 30.2 RL: > 500	Relative increase: TSL: 5.0 FW: < 5.0 DW: 50.0 RL: < 5.0 Growth rate: TSL: 5.0 FW: < 5.0 DW: 50.0 RL: < 5.0	

a.e.: acid equivalents; nom: nominal; gm: geometric mean measured, GR: growth rate; S. Mele, TSL: total shoot length; FW: fresh weight; DW: dry weight; RL: root length. Endpoints in **bold** are used for risk assessment

Table 10.2-2:	Endpoints and effect value	ues of AMPA and HMPA	relevant for the risk assessment
for aquatic org	ganisms.		
		El Contra	

	Reference	Test item	Species	Test design	Endpoint based on	LC/EC50 (mg/L)	NOEC (mg/L)
	Fish			2			
	1991 CA 8.2.1/019	AMPA	Species	Acute, 96 h, static	nom	520	-
	2011 CA 8.2.2.1/003		prometas	Chronic, 33 d (7 days post- hatch) ELS, flow-through	nom	-	≥ 12
	Aquatic invertebrat	tes of the					
	1991 CA 8.2.4.1/014		Daphnia magna	48h static	nom	690	-
	CA 8.2.4.1/01	SHMPA	Daphnia magna	48h static	nom	> 100	-
	2011 5 5 CA 8.2:5 7/007	AMPA	Daphnia magna	21 d Reproduction semi-static	nom	-	15
	Algae						•
CC ¹ O	CA 8.2.6.1/016	AMPA	Pseudokirchneriella subcapitata (Raphidocelis subcapitata)	72 h static	nom	$E_rC_{50} = 191$ $E_yC_{50} = 110$	-
00 00 01 00 00 00 00 00 00 00 00 00 00 0	Algae Algaee	p AIR 5 – July	2020		Doc ID: 1	10054-MCP10_GR	G_Rev 1_Ju

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Reference	Test item	Species	Test design	Endpoint based on	LC/EC ₅₀ (mg/L)	NOEC (mg/L)
CA 8.2.6.1/019	HMPA	Pseudokirchneriella subcapitata (Raphidocelis subcapitata)	72h static	nom	$E_rC_{50} > 120$ $E_yC_{50} > 120$	- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10
Aquatic macrophy	tes					10, 10,
2012 CA 8.2.7/011	AMPA	Myriophyllum aquaticum			TSE: 103.3 FW: 70.8	Relative increase: TSL: 14.3 FW: 14.3 DW: 37.1 RL: 5.4 Growth rate: TSL: 14.3 FW: 14.3 DW: 37.1 RL: 5.4
CA 8.2.7/012	HMPA	Lemna gibba		am	Fronds: GR:> 123 Y:> 123 Biomass: GR: > 123 Y: > 123	≥ 123

Table 10.2-2:	Endpoints and effect values of AMPA and HMPA relevant for the risk assessment
for aquatic or	ganisms.

a.e.: acid equivalents; nom: nominal; gm: geometric mean measured; am: arithmetic mean measured; GR: growth rate; Y: yield; TSL: total shoot length; FW: fresh weight; DW: dry weight; RO: root length.

Endpoints in **bold** are used for risk assessment Studies on effects of the representative formulation MON 52276 on aquatic organisms to fulfil the data requirements according to EU Regulation No 284/2013 are presented in the following. Studies previously evaluated in either the monograph 2001 or the RAR 2015 were also included in this assessment. Studies considering the effects of MONS2276 on aquatic organisms were assessed for their validity to current and relevant guidelines and are presented in the following tables.

Table 10.2-3: Studies on the toxicity of MON 52276 to aquatic organisms

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	Annex point	Study S	Study type	Test species	Substance(s)	Status	Remark
	CP 10.2.1/001	Study 5 5	Acute, static	Oncorhynchus mykiss	MON 52276	Valid	
	CP 10.2.1/002	1992	Acute, static	Cyprinus carpio	MON 52276	Valid	
	CP 10.2.1/003	1992	Acute, flow- through	Daphnia magna	MON 52276	Valid	
	CP 10.2.1/004	1992	Acute, static	Selenastrum capricornutum (Raphidocelis subcapitata)	MON 52276	Supportive ¹	No analytical verification of test concentrations
	CP 10.2.1/005	, 2002	Acute, semi-static	Lemna gibba	MON 52276	Supportive ²	Bacterial contamination
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Table 10.2-3: Studies on the toxicity of MON 52276 to aquatic organisms

Annex point	Study	Study type	Test species	Substance(s)	Status	Remark
CP 10.2.1/006	, 2012	Acute,	Myriophyllum	MON 52276	Valid	
		static	aquaticum			Children and Child

¹ The product study on algae (1992) was performed according to the valid test guideline at the time of conduct. In the last Annex I renewal, this study was evaluated and considered acceptable for use in risk assessment. See study summary for more details (CP 10.2.1/004).

² Concerning the product study performed on *Lemna gibba* (2002), the study was conducted according to the traft OECD 221 test guideline from October 2000. The currently adopted test guideline is largely unchanged from the draft guideline. In the last Annex I renewal, this study was evaluated and considered acceptable for use in risk assessment. See study summary for more details (CP 10.2.1/005).

Literature articles and peer-reviewed published data considered to be relevant and reliable or reliable with restrictions with regards to the impact of glyphosate on aquatic organisms are summarised in the table below. Full literature evaluation is provided in document M-CA Section 9. A summary of previously evaluated peer reviewed literature from the RAR 2015 is also available in Annex M-CA 8-01 of the document M-CA Section 8. Each literature article summary is presented below according to the respective annex point. For discussions of literature regarding toxicity to aquatic organisms, please see below.

Table 10.2-4: Literature on toxicity of glyphosate, metabolites and MON 52276 to aquatic organisms Solution Solution Solution Solution

Annex point	Study	Study type	Substance(s)	Status	Remark
CP 10.2.1/007	Gabriel, 2010.	Acute study	Roundup	Relevant and	The effects of
	Toxicity of roundup (a	on African	containing	reliable with	Roundup were tested
	glyphosate product) to		360 g/l	restrictions	in an acute test with C.
	fingerlings of Clarias		glyphosate		gariepinus fingerlings.
	gariepinus.	10 C S	0.01		The 96 hour-LC90 was
	0 1	S. S. S.			determined to be 19.91
		JUJ ST			mg prod./L.

In the last Annex I submission (RAR, 2015), 30 peer reviewed papers were submitted for the algal group, approximately 42 papers submitted on aquatic invertebrates and 60 papers submitted on aquatic vertebrates, with the majority of papers cited being conducted on formulated products and not with the active substance. The formulated product was not the representative formulation and therefore could not be directly related to the risk assessment to EU renewal. The conclusion by the RMS (UBA) was that there were no critical data that could directly be included in the environmental risk assessment for the active substance. The review from the previous literature Annex Ι renewal is included in Annex M-CA 8-01 of the document M-CA Section 8.

Concerning the recent literature review for the 2020 submission:

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The document McCA Sections 8.2.1 to 8.2.7 and Table 10.2-4 above, present relevant and reliable articles in the area of aquatic ecotoxicology, considered relevant to include in this section. The papers are considered relevant and reliable according to the EFSA guidance on submitting peer-reviewed open (EFSA (2011) Interature review guidance.

In Antennes A. M. *et al.* (2017), KCA 8.2.1/021: Gender-specific histopathological responses in guppies *Poecilia reticulata* exposed to glyphosate or its metabolite aminomethylphosphonic acid, were assessed. This study was considered relevant and reliable with restrictions, due mainly to the lack of analytical dose verification. The study determined the acute exposure effects of glyphosate and AMPA to guppies after a 96 h exposure period. The test was conducted according to USEPA acute toxicity testing methods, and 96 h

acute LC_{50} values for male and female guppies of 68.78 and 70.87 mg/L, and for AMPA of 80 and 164.32 mg/L, respectively were determined. Histopathological examination of tissues was also performed in the study, but it is not possible to relate the histopathological information presented in the paper, to a risk assessment for Annex I renewal from an ecotox perspective. The achieved endpoints do not affect the acute fish endpoints selected for the risk assessment and the outcome is unchanged.

Gholami *et al.*, (2013) KCA 8.2.1/022; Toxicity of roundup (a glyphosate product) to fingerlings of *Cyprinus carpio*. The acute toxicity of glyphosate was tested in an acute fish toxicity test with *C carpio* fingerlings, where a 96 h-LC₅₀ of 6.753 mg/L was achieved. The study is not however considered relevant to the EU Annex I renewal risk assessment, as the identity of the test substance cannot be confirmed and the fact there was no study validity criteria presented and test item exposure was not confirmed. Based on the available regulatory study toxicity data for glyphosate acid (96 hr LC₅₀ > 100 mg a.e./L) and the representative formulation – MON 52276 (96 hr LC₅₀ > 277 mg a.e./L), that are considered relevant and reliable, the achieved endpoint in this study should be treated with a high degree of caution. It is not therefore considered reliable for use in risk assessment.

In Daam M.A *et al.*,(2019), KCA 8.2.8/001: Lethal toxicity of the herbicides acetochlor, ametryn, glyphosate and metribuzin to tropical frog larvae, the acute exposure of glyphosate to *Phsalaemus cuvieri* and *Hypsiboas paradalis* amphibians, in 96 h acute toxicity tests according to ASTM and OECD methods were determined. For glyphosate the 96 hr LC_{50} values for *P. cuvieri* and *H. paradalis* were 115 and 106 mg/L, respectively. This study was conducted according to elements of OECD 241. However, validity criteria were not reported and it is unknown if the larvae were exposed to any other chemicals as no analysis of watershed water was provided. The source of the animals is also not reported. With no analytical verification of test concentrations reported in the article, exposure is difficult to confirm. Based on these uncertainties, this study is considered not to provide additional information to inform on the endpoint list and the risk assessment.

For Levine *et al.*, (2015) KCA 8.2.5.1/008; the data presented in the paper are relevant for use in risk assessment and the daphnia chronic and fish early life stage test endpoints are presented in the following risk assessment. Gabriel U. U., 2010. CP 10.2.1/007; Toxicity of roundup (a glyphosate product) to fingerlings of *Clarias*

Gabriel U. U., 2010. CP 10.2.1/007; Toxicity of roundup (a glyphosate product) to fingerlings of *Clarias gariepinus*. The effects of Roundup were tested in an acute fish toxicity test with *C. gariepinus* fingerlings. The 96 h-LC₅₀ was determined to be 15.88 mg prod./L. There is however insufficient information presented in the article to confirm the identity of the test substance used, therefore these data should be considered relevant but with restrictions over the uncertainty over the identity of the formulated product used. Based on the year the study was conducted and considering the Roundup products registered in the country at that time the study was conducted and considering the tat the formulation used contained a surfactant that is not used in the EU and is not relevant to the EU representative formulation. In the previous Annex I RAR (2015), the RMS (UBA) presented an extensive overview of acute fish toxicity endpoints achieved in study is within the range of endpoints achieved for POEA containing formulations. The results of the study would not affect the outcome of the presented fish acute risk assessment, with the PEC/RAC value still being < 1.0 based on the test item identity, this endpoint should be considered with a degree of caution.

Rodrigues L. B. *et al.*, (2019) KCA 8.2.2.1/005; assessed the impact of the glyphosate-based commercial herbicide, its components and its metabolite AMPA on non-target aquatic organisms. The formulation tested contained POEA, which is not relevant to the EU renewal of glyphosate as the representative formulation does not contain POEA. Only technical data are considered in the following. An acute $LC_{50} > 100$ mg/L was determined. The FET data indicated some genotoxic damage from glyphosate at exposure concentrations beyond 10 mg/L. No other effects relevant to glyphosate were discussed. In this study, the acute toxicity of technical glyphosate, its metabolite aminomethylphosphonic acid (AMPA) and of a glyphosate based formulation (Antor 48) to zebrafish embryos was investigated. Glyphosate and AMPA

caused no acute toxic effect (LC₅₀-96 h > 100 mg/L), while Antor 48 induced significant lethal effect in zebrafish embryo (LC₅₀ 96 h = 76.50 mg/L). The study was stated to have been conducted according to OECD guideline 236, but there is no information on hatching rates in the treatment and control groups, so exposure of the embryo without a potential barrier function of the chorion cannot be confirmed. Concerning the validity of the study, four of the six validity criteria from the test guideline are mentioned in the paper (fertilization rate of embryo batches used was > 90 %, survival in the negative control group was $\gg 90^{\circ}$, temperature was maintained at 26 ± 1 °C and dissolved oxygen was at an acceptable level 8ppm). There is no information presented on the performance of the positive control group (3, 4-dichloroaniline) and no information provided on the hatching rates in the negative control group at 96 hours, which for the control group should exceed 80 %. As this information is not presented and the fact that there was no analytical verification of test concentrations reported, the reliability of the test and the achieved endpoints is considered questionable. Therefore, this study should be supportive information only.

The paper by Schweizer M. et al., (2019) KCA 8.2.2.1/006; deals with how glyphosate and its associated acidity affect early development in zebrafish (Danio rerio). For Zebrafish (Danio zerio) embryos acutely exposed to glyphosate at concentrations between 1.69 and 1690.7 mg glyphosate/£ (10 μM to 10 mM) for 96 h post fertilization (hpf) the LC₁₀ and LC₅₀ values (96 hpf) were calculated to be 65.1 mg a.s./L (385 μ M) and 98.4 mg a.s./L (582 μ M), respectively (in unbuffered glyphosate medium). Regarding heart rates the EC₁₀ was 7.27 mg a.s./L (43 μM). Concerning hatching rate, 96 hpc-EC₁₀ and EC₅₀ values were 26.2 mg a.s./L (155 μ M) and 37.9 (224 μ M), respectively. For developmental delays at 24 hpf the EC₁₀ was 21.3 mg a.s./L (126 µM). The test was conducted according to OECD 236 test guideline. Concerning the validity criteria in the OECD 236, despite the stated > 80% mortality in the positive control (>30% required) there are no details presented to confirm the level of mortality. The Ferdilisation rate of the batch of eggs used was not reported. Finally, acute endpoints based on developmental delay and heart rate are not relevant to an EU level risk assessment for Annex I renewal purposes. The test design is adequately described, however, there was no analytical verification of test concentrations reported in the study, thus the endpoints should be considered with some caution. Therefore, the study should be considered reliable with restrictions. S.

Then, of those papers considered relevant and reliable, Tian et al ., (2015) KCA 8.2.7/013, concerned the aquatic macrophyte 'Growth inhibition of two herbicides on Spirodela polyrrhiza, The effects of glyphosate to the aquatic macrophyte Spirodela polythiza was tested in a semi-static exposure of 7 days at concentrations between 8.4 and 20.902 mg/L. The 7 day-EC₅₀ value was determined to be 12.817 mg/L. This species is closely related to Lemma spectrum but does not present information that could influence the endpoint list used for the Annex 1 renewal This study was conducted to guideline but not to GLP. The test concentrations were not analytically verified and thus the exact exposure concentrations of the aquatic macrophyte are unknown. Therefore the derived endpoint is questionable and the study should be considered acceptable as supportive information only.

Endpoints of studies considered valid with the representative product MON 52276 are shown in the table below. In order to make a direct comparison of toxicity between studies conducted with MON 52276 and those conducted with BA salt, glyphosate technical and glyphosate acid, the endpoints from all these studies have been converted to acid equivalents (a.e.). This conversion has been made by the acid equivalent or optimic and a stand optimic purity of the test item stated in the reports.

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Reference	Test item	Species	Test design	Endpoint based on	LC/EC ₅₀ (mg a.e./L)
1992 CP 10.2.1/001	MON 52276	Oncorhynchus mykiss	Acute, 96 h, static	am	> 306
, 1992 CP 10.2.1/002	MON 52276	Cyprinus carpio	Acute, 96 h, static	am	> 277
1992 CP 10.2.1/003	MON 52276	Daphnia magna	Acute, 48 h flow- through	am	$209_{4}^{36} \odot 5^{6}$
2012 CP 10.2.1/006	MON 52276	Myriophyllum aquaticum	14 d static	mine and the second sec	$s_{L} = 13.44$ FW = 4.44 L DW = not determined RL = 5.84 growth rate: SL = 42.79 FW = 10.33 DW = 143.34

Table 10.2-5: Endpoints and effect values of MON 52276 relevant for the risk assessment for aquatic organisms

a.e.: acid equivalents; nom: nominal; gm: geometric mean measured; am: arithmetic mean measured. GR: growth rate; Y: yield; TSL: total shoot length; FW: fresh weight; DW; dry weight; RL: root length. 07. f.

Endpoints in **bold** are used for risk assessment The toxicity to aquatic plants from MON 52276 (E.C., 10.33 mg a.e./L, fresh weight) is slightly higher compared to the toxicity shown by the active substance, $(E_rC_{50} = 23.4 \text{ mg a.e./L}, \text{ fresh weight})$ but this is within a factor of 2.5 allowing for biological variability within the test systems and due to the impact of the additional components in the composition of the product that enhance the uptake of the active substance to the plant. Nevertheless the lower endpoint from the study with MON 52276 is used in the risk assessment o loo 43 as a worst case.

Risk assessment for aquatic organisms

The evaluation of the risk for aquatic organisms was performed in accordance with the recommendations of the Guidance document on tiered task assessment for plant protection products for aquatic organisms in edge-of-field surface waters in the context of Regulation (EC) No 1107/2009 (EF-SA Journal 2013; 11(7):3290); hereafter referred to as EFSA/2013/3290.

The table below summarises how the risk assessment for aquatic organisms considers all the proposed uses and the application rates presented in the GAP. The grey shaded cells indicate that a worst-case risk assessment for aquatic organisms for the proposed uses is provided below. The 'X' in the table indicates where PEC_{sw} values have been calculated and the risk assessment has been conducted. For completeness, all risk assessment is shown in Annex M-CP 10-04 to this document. PEC_{sw} values have been generated for glyphosate and the relevant metabolites; AMPA and HMPA. Where appropriate applications in spring and autumn have been considered and the maximum PEC_{sw} values from either application timing for each scenario has been used in risk assessment. Full details are provided in the environmental fate document Level of the state M-CA Section 7.

GAP number	Maximum application rate, g/ha (28 day interval)								
and summary of use	1 × 540	1 × 720	1 × 1440	3 × 720	2 × 1080	2 × 1440	1 × 1800	1 × 3600	
Uses 1a-c: Applied to weeds; pre- sowing, pre-planting, pre emergence of field crops.		х	Х					10,	
Uses 2 a-c: Applied to weeds; post- harvest, pre-sowing, pre-planting of field crops.		X	Х	x	х	6, FL	0		
Use 3 a-b: Applied to cereal volunteers; post-harvest, pre-sowing, pre-planting of field crops.	x								
Use 4 a-c: Applied to weeds (post emergence) below trees in orchards.		Х	Х	Х	70 1/0 310 1/0 310 1/0	° X			
Use 5 a-c: Applied to weeds (post emergence) below vines in vineyards		X	Х	X	1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	Х			
Use 6 a-b: Applied to weeds (post emergence) in field crops BBCH < 20		X	X				· · · · · · · · · · · · · · · · · · ·		
Use 7 a-b: Applied to weeds (post emergence) around railroad tracks			Dorld Contract				X	х	
Use 8 and 9: Applied to invasive species; 'Giant hogweed and Japanese knotweed' (post emergence) in agricultural and non- agricultural areas		White The Shite	10 90 90 91 91 91 91 91 91 91 91 91 91 91 91 91				X		
Uses 10 a-c: Applied to couch grass; post-harvest, pre-sowing, pre- planting of field crops	00000000000000000000000000000000000000	arity R	x						

Table 10.2-6: Risk assessment strategy for aquatic organisms

X = this use is covered by the application rate indicated and PEC/RAC ratios are presented in Annex M-CP 10-04. Grey shaded cells: worst case application scenario, risk assessment provided below.

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N° In the following tables, the ratios between predicted environmental concentrations in surface water (PEC_{SW}) and regulatory acceptable concentrations (RAC) for aquatic organisms are given for the worst-case use for each crop group as indicated below and for each organism group (risk assessment for all uses is presented in Annex M-CP 10-040 5

- in field crops (govering GAP uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c); pre-sowing, pre-planting pre • emergence, post-harvest. Field crops considered; root vegetables, potatoes, bulb vegetables, fruiting vegetables, leafy vegetables, sugar beets.
- in orchards (covering GAP uses 4 a-c) applied to weeds post emergence exposure below trees. • Crops considered; pome/stone fruit, olives.
- in **vineyards** (covering GAP uses 5 a-c) applied to weeds post emergence exposure below vines. Crops considered; vines
- in railroad tracks (covering GAP uses 7 a-b). HardSPEC model used, non crop specific.
- Sin agricultural and non-agricultural areas to control invasive species (covering GAP uses 8 and 9) applied to weeds post emergence. Crops considered; Grass/alfalfa.

Hondo and a state of the relevant of the relev The relevant PECsw for risk assessments covering the proposed use pattern are taken from document M-CP

S S S S

M-CP, Section 10 Page 164 of 553 The derivation of RAC values for the risk assessment is presented in the following tables. The most definition of the sensitive endpoint between the active substance (glyphosate, glyphosate acid or glyphosate salt) and the representative formulation MON 52276 is used to provide the representative RAC for each organization of page and exposure (acute and chronic). representative formulation MON 52276 is used to provide the representative RAC for each organism group and exposure (acute and chronic). Table 10.2-7: Derivation of RAC values used in the risk assessment – glyphosate and relevant

Table 10.2-7: Derivation of RAC values used in the risk assessment – gly	phosate and relevant
metabolites	
	<i>3</i> , <i>3</i>

Species	Substance	Exposure	Results (µg/L)	Assessment . Safety factor.	RAC KAT
Glyphosate			(µg/L)	Survey Tuesday	(Heg/L)
Lepomis macrochirus	Glyphosate acid	96 h	$LC_{50} = 47000$	Assessment: Safety factor, 100, 5, 5 100, 5, 5 100, 5 10, 5	470
Oncorhynchus mykiss	Glyphosate acid	85 d	NOEC ≥ 9630	0 10 2 2 3 3	963
	Glyphosate acid			100	400
	Glyphosate acid	168 h	NOEC ₹ 12500	10	1250
	Glyphosate acid	72h static	E.C.50 = 13500 ErC50 = 10330	10	1350
Myriophyllum aquaticum	MON 52276	14 d static	$E_{r}C_{50} = 10330$	10	1033
AMPA		er,	de la companya de la		1
Oncorhynchus mykiss	AMPA	96 h static	$EC_{50} = 520000$	100	5200
Pimephales promelas	AMPA	33 d flowthrough	NOEC = 12000	10	1200
Daphnia magna	AMPA	48 h static	$EC_{50} = 690000$	100	6900
Daphnia magna	AMPA	21 d semi static	$EC_{50} = 15000$	10	1500
Pseudokirchneriella subcapitata	AMPA	32 h	NOEC = 191000	10	19100
Myriophyllum aquaticum	AMPA 55	1.4°d	$E_r C_{50} = 72000$	10	7200
НМРА		14 m	L		I
Daphnia magna	HMPA	48 h	$EC_{50} > 100000$	100	1000
Pseudokirchneriella subcapitata	HMPA S	72 h	$E_r C_{50} > 120000$	10	12000
Lemna gibba	<u>Jan zona</u> HMPA	14 d	$EC_{50} > 123000$	10	12300
Subcapitata Lemna gibba	2				
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In the following tables, the ratios between predicted environmental concentrations of glyphosate in surface water (RECsw) and regulatory acceptable concentrations (RAC) for aquatic organisms are given per intended use (as described in Table 10.2-6) for each FOCUS scenario and for each organism group.

Please note that the PEC/RAC ratios in the following tables are rounded to 3 decimal places. For endpoints and the corresponding RAC value which are presented as ">" or ">" the PEC/RAC ratios are presented without the symbol of '<'. This does not have any impact on the outcome of the risk assessment presented below.

Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 **Table 10.2-8:** calculations for the use of MON 52276 in root vegetables (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

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Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb prolonged	Algae	Aquatic macrophytes
Test species		Lepomis macrochirus	Oncorhynchus mykiss		Daphnia magna	Skeletonema costatum	Myriophyllum aquaticum
Endpoint		LC ₅₀	NOEC	EC ₅₀	NQÊC	E_rC_{50}	E_rC_{50}
(µg/L)		47000	≥ 9630	40000	12500	13500	10330
AF		100	10		10	10	10
RAC (µg/L)		470	≥ 963	400	1250	1350	1033
FOCUS	PEC _{sw,max}						
Scenario	(µg/L)						
Step 1				0 * 1			
	128.016	0.272	0.133	0.3205 5	0.102	0.095	0.124
Step 2							
N-Europe	39.622	0.084	0.041	0.099	0.032	0.029	0.038
S-Europe	32.382	0.069	0.034	0.081, ~	0.026	0.024	0.031
Step 3							
D3/ditch	6.756	0.014	0.007	0017	0.005	0.005	0.007
D6/ditch	6.774	0.014	0.007	0.017	0.005	0.005	0.007
R1/pond	0.542	0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001
R1/stream	4.453	0.009	0.005	0.011	0.004	0.003	0.004
R2/stream	5.977	0.013	0.006	0.015	0.005	0.004	0.006
R2/stream 2nd	5.977	0.013	0.006 5 8 8	0.015	0.005	0.004	0.006
R3/stream	6.287	0.013	0.008 5 5	0.016	0.005	0.005	0.006
R4/stream	4.396	0.009	0.005 5 5	0.011	0.004	0.003	0.004

Jucentration Incentration of the second of t AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in **bold**

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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 Table 10.2-9: calculations for the use of MON 52276 in potatoes (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes
Fest species		Lepomis	Oncorhynchus	Crassostrea gigas	Daphnia magna	Skeletonema costatum	Myriophyllum aquaticum
		macrochirus	mykiss			0	
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC Stort	ErC ₅₀	ErC ₅₀
μg/L)		47000	≥ 9630	40000	NOEC 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	13500	10330
4F		100	10	100	10 5 0 0	10	10
RAC (µg/L)		470	≥ 963	400		1350	1033
FOCUS	PEC _{sw,m}						
Scenario	ax						
	(µg/L)				L'AND S		
step 1			·	•	J. J	·	
	128.016	0.272	0.133		0102	0.095	0.124
Step 2				el.	8° du		
N-Europe	39.622	0.084	0.041	0 000	0.032	0.029	0.038
S-Europe	32.382	0.069	0.034	0.081 5	0.026	0.024	0.031
Step 3				0.081		·	
D3/ditch	5.567	0.012	0.006	0.014	0.004	0.004	0.005
D4/pond	0.252	< 0.001	< 0.001	< 0.0012 4 5 5	< 0.001	< 0.001	< 0.001
D4/stream	4.736	0.010	0.005	0.012 8 8	0.004	0.004	0.005
D6/ditch	5.605	0.012	0.006	0.0145 5	0.004	0.004	0.005
D6/ditch 2 nd	5.622	0.012	0.006	0.014	0.004	0.004	0.005
R1/pond	0.902	0.002	< 0.001	\$ 0.002	< 0.001	< 0.001	< 0.001
R1/stream	3.861	0.008	0.004	0.010	0.003	0.003	0.004
R2/stream	5.183	0.011	0.005	0.013	0.004	0.004	0.005
R3/stream	5.451	0.012	0.006	≈ 0.014	0.004	0.004	0.005
vF: Assessment	factor; PEC	2: Predicted enviror	umental concentration RA	C: Regulatory acceptable	concentration; PEC/RAC ra	0.004 tios above the relevant trigg Doc ID	er of 1 are shown in bold
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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 Table 10.2-10: calculations for the use of MON 52276 in bulb vegetables (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes
Test species			Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema costatum	Myriophyllum aquaticum
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC 5 5 5 125005 5 5 10 5 5 5	ErC ₅₀	E_rC_{50}
(µg/L)		47000	≥ 9630	40000	12500	13500	10330
AF		100	10	100	10 8 8 6	10	10
RAC (µg/L)		470	≥963	400	12500 0	1350	1033
FOCUS	PEC _{sw,max}			(
Scenario	(µg/L)			6			
Step 1				2 C 2			
	128.016	0.272	0.133	0.320	0.102	0.095	0.124
Step 2		·					
N-Europe	39.622		0.041	0.099 5 5	0.032	0.029	0.038
S-Europe	32.382	0.069	0.034	0.081	0.026	0.024	0.031
Step 3							
D3/ditch	6.732	0.014	0.007	0.0175	0.005	0.005	0.007
D4/pond	0.260	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
D4/stream	5.323	0.011	0.006	0.013	0.004	0.004	0.005
D6/ditch	6.803	0.014	0.007	0.0170	0.005	0.005	0.007
D6/ditch 2 nd	6.803	0.014	0.007	Ø:Q497	0.005	0.005	0.007
R1/pond	0.888	0.002	< 0.001	0.002	< 0.001	< 0.001	< 0.001
R1/stream	4.453	0.009	0.005	0.011	0.004	0.003	0.004
R2/stream	5.977	0.013	0.006	0.015	0.005	0.004	0.006
R3/stream	6.286	0.013	0.007 55	0.016	0.005	0.005	0.006
R4/stream	4.452	0.009	0.005	0.011	0.004	0.003	0.004
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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 Table 10.2-11: calculations for the use of MON 52276 in fruiting vegetables (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

(_ronn		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophy
Group Test species		Lepomis	Oncorhynchus	Crassostrea gigas	Daphniamanna	Skeletonema	Myriophyllum
rest species		macrochirus	mykiss	Crussostreu zizus	NOEC X K 125000 K 40 X	costatum	aquaticum
Endpoint		LC ₅₀	NOEC	EC50	NOEC	E_rC_{50}	E_rC_{50}
(μg/ĴL)		47000	≥ 9630	40000	12500 5	13500	10330
AF		100	10	100	10 N N	10	10
RAC (µg/L)		470	≥ 963	400	~ 12500	1350	1033
FOCUS	PEC _{sw,max}						
Scenario	(µg/L)			S. S.			
Step 1							·
•	128.016	0.272	0.133	0.320	0.102	0.095	0.124
Step 2							·
N-Europe	39.622	0.084	0.041	0.099	0.032	0.029	0.038
S-Europe	32.382	0.069	0.034	0.081 8 8	0.026	0.024	0.031
Step 3							
D6/ditch	6.789	0.014	0.007	0.Q € 7_©O	0.005	0.005	0.007
R2/stream	5.977	0.013	0.006	0.015	0.005	0.004	0.006
R3/stream	6.287	0.013	0.007	0.016	0.005	0.005	0.006
R4/stream	4.452	0.009	0.005	<u>~ 0.041</u>	0.004	0.003	0.004
			0.005 procentration; RAC: Regula procentration; RAC: Reg		0.005 0.004 n; PEC/RAC ratios above the		

Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 Table 10.2-12: calculations for the use of MON 52276 in leafy vegetables (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

	Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes
	Lepomis	Oncorhynchus	Crassostrea gigas	Daphnia magna 🔍 🔬	Skeletonema costatum	Myriophyllum aquaticum
	macrochirus	mykiss	00	G to a		
	LC ₅₀	NOEC	EC ₅₀	NOEC NOEC	ErC ₅₀	ErC ₅₀
	47000	≥9630	40000	12500 5 5	13500	10330
	100	10	100	10 8 8 5	10	10
	470	≥ 963	400	1250 0 0	1350	1033
PEC _{sw,max}						
(µg/L)			ć			
		·	l Solution Solution	2 20	•	
128.016	0.272	0.133	0.320	0102	0.095	0.124
			5 8 8			
39.622	0.084	0.041	0.099 555	0.032	0.029	0.038
32.382	0.069	0.034	0.081	0.026	0.024	0.031
6.755	0.014		0.017 8 8 8	0.005	0.005	0.007
6.750	0.014	0.007		0.005	0.005	0.007
0.260	< 0.001	< 0.001		< 0.001	< 0.001	< 0.001
5.430	0.012	0.006		0.004	0.004	0.005
						0.007
						< 0.001
1.201	0.003	0.001		< 0.001	< 0.001	0.001
4.451	0.009	0.005		0.004	0.003	0.004
		0.005			0.003	0.004
		0.006			0.004	0.006
		0.006			0.004	0.006
		0.007			0.005	0.006
6.287		0.007 6 60.0	0.016	0.005	0.005	0.006
4.452	0.009	0.005	0.011	0.004	0.003	0.004
4.452	0.009	0.005	0.011	0.004	0.003	0.004
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	(μg/L) 128.016 39.622 32.382 6.755 6.750 0.260 5.430 6.803 0.451 1.201 4.451 4.448 5.977 5.977 6.287 6.287 4.452	$\begin{tabular}{ c c c c c } \hline $Lepomis$ macrochirus$ \\ LC_{50} \\ 47000 \\ \hline 100 \\ \hline 100 \\ \hline 100 \\ \hline 470 \\ \hline $PEC_{sw,max}$ \\ $(\mu g/L)$ \\ \hline 128.016 \\ \hline 0.272 \\ \hline 128.016 \\ \hline 0.272 \\ \hline 39.622 \\ \hline 0.084 \\ \hline 32.382 \\ \hline 0.069 \\ \hline 6.755 \\ \hline 0.014 \\ \hline 6.755 \\ \hline 0.014 \\ \hline 0.260 \\ \hline <0.001 \\ \hline 5.430 \\ \hline 0.012 \\ \hline 6.803 \\ \hline 0.014 \\ \hline 0.260 \\ \hline <0.001 \\ \hline 5.430 \\ \hline 0.012 \\ \hline 6.803 \\ \hline 0.014 \\ \hline 0.451 \\ \hline <0.001 \\ \hline 1.201 \\ \hline 0.003 \\ \hline 4.451 \\ \hline 0.009 \\ \hline 5.977 \\ \hline 0.013 \\ \hline 6.287 \\ \hline 0.013 \\ \hline 6.287 \\ \hline 0.013 \\ \hline 4.452 \\ \hline 0.009 \\ \hline 4.452 \\ \hline 4.52 \\ \hline $4.$	Lepomis macrochirus Oncorhynchus mykiss LC_{50} NOEC 47000 \geq 9630 100 10 470 \geq 963 PECsw,max (µg/L) \geq 963 128.016 0.272 0.133 39.622 0.084 0.041 32.382 0.069 0.034 6.755 0.014 0.007 0.260 < 0.001	Lepomis macrochirus Oncorhynchus mykiss Crassostrea gigas LC_{50} NOEC EC_{50} 47000 ≥ 9630 40000 100 10 100 4700 ≥ 963 400 PECswmax (µg/L) ≥ 963 400 PECswmax (µg/L) $= 0.133$ 0.320 39.622 0.084 0.041 0.099 32.382 0.069 0.034 0.081 6.755 0.014 0.007 0.017 6.755 0.014 0.007 0.017 6.803 0.012 0.006 0.014 0.451 < 0.001 0.001 0.001 1.201 0.003 0.001 0.012 0.451 < 0.001 0.005 0.011 4.448 0.009 0.005 0.011 5.977 0.013 0.006 0.015 5.977 0.013 0.007 0.016 6.287	Fish acuteFish prolongedInverteb. acuteInverteb. prolongedLepomis macrochirusOncorhynchus mykissCrassostrea gigasDaphnia maga oLC50NOECEC50NOEC47000 ≥ 9630 40000125004700 ≥ 963 40012504700 ≥ 963 4001250PECswmax (µg/L)1010010128.0160.2720.1330.32039.6220.0840.0410.0990.03232.3820.0690.0340.0810.0266.7550.0140.0070.0170.0056.7550.0140.0070.0170.0056.7500.0140.0070.0170.0056.7500.0140.0070.0170.0056.7500.0140.0070.0170.0050.260< 0.001	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$

Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 Table 10.2-13: calculations for the use of MON 52276 in sugar beets (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema costatum	Myriophyllum aquaticum
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC & A &	ErC ₅₀	ErC ₅₀
(μg/L)		47000		40000	12500	13500	10330
AF		100	10	100	10 8 8 5	10	10
RAC (µg/L)		470	≥963	10.0	NOEC また 12500 なた 10 ダ み よ 1250 か か	1350	1033
FOCUS	PEC _{sw,max}						
Scenario	(µg/L)			Š			
Step 1							
•	128.016	0.272	0.133	0.320	0.102	0.095	0.124
Step 2	•						
N-Europe	39.622	0.084	0.041	0.099 8 5 5	0.032	0.029	0.038
S-Europe	32.382	0.069		0.081 5 8 2	0.026	0.024	0.031
Step 3	•						
D3/ditch	5.567	0.012	0.006	0.014 0	0.004	0.004	0.005
D4/pond	0.256	< 0.001	< 0.001	< 0.001 5	< 0.001	< 0.001	< 0.001
D4/stream	4.880	0.010	0.005	0.042	0.004	0.004	0.005
R1/pond	1.165	0.002		0.003	< 0.001	< 0.001	0.001
R1/stream	3.861	0.008	0.004	0,090	0.003	0.003	0.004
R3/stream	5.451	0.012	0.006	0.014	0.004	0.004	0.005
		۸ S	1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2,				
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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in normalistons for it (2) v 1440 and 10 minutes of MON 52276 in normalistons for the use of MON 52276 in normalistons Table 10.2-14: calculations for the use of MON 52276 in pome/stone fruit (2 × 1440 g a.s./ha, with application interval of 28 days). Uses 4 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes
-					prolonged S		
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna S. NOEC S. S. S. 12500 S. S. S.	Skeletonema costatum	Myriophyllum aquaticum
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC NOEC	E_rC_{50}	E_rC_{50}
(μg/L)		47000	\geq 9630	40000	12500 8 8	13500	10330
AF		100	10	100	10 8 2 2	10	10
RAC (µg/L)		470	≥ 963	400	1250 8 8	1350	1033
FOCUS	PEC _{sw,max}						
Scenario	$(\mu g/L)$						
Step 1				, and the second s		•	
•	170.688	0.363	0.177	0.427	0.137	0.126	0.165
Step 2	1	1		0.427	(0.042)	1	
N-Europe	52.829	0.112	0.055	0.132	0.042	0.039	0.051
S-Europe	43.176	0.092	0.045	0.108	0.035	0.032	0.042
Step 3	*	L	1	5 0 0		1 -	<u>р</u>
D3/ditch	3.814	0.008	0.004	0.010 5	0.003	0.003	0.004
D4/pond	0.278	< 0.001	< 0.001	0.010 K	< 0.001	< 0.001	< 0.001
D4/stream	3.372	0.007	0.004	0:008 5	0.003	0.002	0.003
D5/pond	0.283	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001
D5/stream	3.724	0.008	0.004	0.009	0.003	0.003	0.004
R1/pond	0.267	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001
R1/stream	2.635	0.006	0.003	0.007	0.002	0.002	0.003
R2/stream	3.538	0.008	0.004 5 5	0.009	0.003	0.003	0.003
R3/stream	3.721	0.008	0.001 0.003 0.004 0.004 0.004 0.002 0.002 0.002 0.002 0.002 0.002 0.002 0.002 0.002 0.002 0.003 0.003 0.003 0.003 0.003 0.003 0.004 0.003 0.004 0.004 0.003 0.004 0.004 0.003 0.004 0.	0.009	0.003	0.003	0.004
			0.003	0.008			
AF: Assessment	factor; PEC: Pred	icted environmental co	oncentration; RAC: Regu	latory acceptable conce	ntration; PEC/RAC ratios	s above the relevant trigger of	of 1 are shown in bold
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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 Table 10.2-15: calculations for the use of MON 52276 in olives (2 × 1440 g a.s./ha, with application interval of 28 days). Uses 4 a-c.

Group		Fish acute		Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes
Fest species			Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna 🔊 🚿	Skeletonema costatum	Myriophyllum aquaticun
Endpoint		LC_{50}		EC ₅₀	Daphnia magna 6 1 NOEC 12500 6 6 10 6 6 6 12502 7 6 6 10 6 6 6 12502 7 6 6	E_rC_{50}	E_rC_{50}
(µg/L)		47000	≥ 9630	40000	12500 88	13500	10330
AF		100	10	100	10 5 5 5	10	10
RAC (µg/L)		470	≥ 963	400	1250 \$ 50 50 5 5 5 5 5 5 5 5 10.137	1350	1033
FOCUS	PEC _{sw,max}						
Scenario	(µg/L)				J. S. C.		
Step 1			L			L	
	170.688	0.363	0.177			0.126	0.165
Step 2	-1	1	1	Le a		1	
N-Europe	52.829	0.112		0.132	0.042		0.051
S-Europe	43.176	0.092	0.045	0.132 5 5 5 0.108 2 5 5	0.035	0.032	0.042
Step 3	1	1	1	2 2 8	1	1	
D6/ditch	3.830	0.008	0.004	0.010 5 5 5	0.003	0.003	0.004
R4/stream	4.511	0.010	0.005	0.0115 8 5	0.004	0.003	0.004
		July 2020	0, 10, 11, 15, 00, 15, 00, 15, 00, 15, 00, 00, 00, 00, 00, 00, 00, 00, 00, 0				
		0,00 0,00 0,00					

Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 Table 10.2-16: calculations for the use of MON 52276 in vines (2 × 1440 g a.s./ha, with application interval of 28 days). Uses 5 a-c.

0		F . 1	E .1 1 1				
Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic macrophytes
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Dapinia magnas	Skeletonema costatum	Myriophyllum aquaticum
Endpoint		LC ₅₀	NOEC	EC50	NOEC 12500 0 0 0	E_rC_{50}	ErC ₅₀
(μg/L)		47000	\geq 9630	40000	12500 8 8 5	13500	10330
AF		100	10	100	10 8 0 2	10	10
RAC (µg/L)		470	≥ 963	400	1250 8 2	1350	1033
FOCUS	PEC _{sw,max}						
Scenario	(µg/L)						
Step 1		•		, in the second s	E.S.		
	170.688	0.363	0.177	0.427	0.137	0.126	0.165
Step 2				0.427	ళ		
N-Europe	52.829	0.112	0.055	0.132 5 8 4	0.042 0.035	0.039	0.051
S-Europe	43.176	0.092	0.045	0.108	0.035	0.032	0.042
Step 3		1. 22	1	5.0.5	1		
D6/ditch	3.830	0.008	0.004	0.010 5 5 5 < 0.000 5 0.007 5	0.003	0.003	0.004
R1/pond	0.267	< 0.001	< 0.001	< 0.004	< 0.001	< 0.001	< 0.001
R1/stream	2.635	0.006	0.003	0007	0.002	0.002	0.003
R2/stream	3.538	0.008	0.004	<u>, 0.009</u> °	0.003	0.003	0.003
R3/stream	3 721	0.008	0.004	660 G	0.003	0.003	0.004
R4/stream	4.363	0.009	0.005	0.011	0.003	0.003	0.004
			25 26 26 26 27 26 26 26 26 26 26 26 26 26 26	5			0.004 igger of 1 are shown in bold
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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on HardSPEC calculations Table 10.2-17: for the use of MON 52276 to railroad tracks, 1 x 3600 g a.s./ha. Uses 7 a-b.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes			
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas		Skeletonema costatum	Myriophyllum aquaticum			
Endpoint		LC ₅₀	NOEC	EC50	NOEC NOEC	E_rC_{50}	ErC ₅₀			
(µg/L)		47000	≥ 9630	40000	12500	13500	10330			
AF		100	10	100	NOEC 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	10	10			
RAC (µg/L)		470	≥ 963	400	1250 5 3	1350	1033			
HardSPEC	PEC sw,max									
Scenario	(µg/L)									
Railroad track	9.458	0.020	0.010	0.024	0.008	0.007	0.009			
ditch leaching				2	0.008 0.008 0.008 0.008 0.008 0.008					
Railroad track	9.458	0.020	0.010	0.024	0.008	0.007	0.009			
ditch runoff				e i						
					ontration; PEC/RAC ratios a					
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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 Table 10.2-18: calculations for the use of MON 52276 in grass/alfalfa, (1 × 1800 g a.s./ha). Uses 8 and 9.8

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes
Test species		Lepomis	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna 🛇 🔗	Skeletonema	Myriophyllum aquaticum
		macrochirus				costatum	
Endpoint		LC_{50}	NOEC	EC ₅₀	NOEC 5 5 5 12500 5 5 5 10 5 5 5	E_rC_{50}	E_rC_{50}
(µg/L)		47000	≥9630	40000	12500	13500	10330
AF		100	10	100	10 6 8 5	10	10
RAC (µg/L)		470	≥963	400	1250 0 0	1350	1033
FOCUS	PECsw,max						
Scenario	(µg/L)						
Step 1							
	106.680	0.227	0.111	0.267	0.085	0.079	0.103
Step 2				5 5			
N-Europe	44.120	0.094	0.046	0.110	0.035	0.033	0.043
S-Europe	35.993	0.077	0.037	0.090 5 8 3	0.029	0.027	0.035
Step 3							
D1/ditch	11.400	0.024	0.012	0.029 క్రింగ్ల	0.009	0.008	0.011
D1/stream	9.964	0.021	0.010	0.025 5	0.008	0.007	0.010
D2/ditch	11.410	0.024	0.012	0.029	0.009	0.008	0.011
D2/stream	10.150	0.022		0.025	0.008	0.008	0.010
D3/ditch	11.300	0.024	0.012	0.028	0.009	0.008	0.011
D4/pond	0.380	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
D4/stream	9.736	0.021	0.010	0.024	0.008	0.007	0.009
D5/pond	0.380	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
D5/stream	10.510	0.022	0.011 5 5 5	0.026	0.008	0.008	0.010
R2/stream	9.938	0.021	0.010	0.025	0.008	0.007	0.010
R3/stream	10.480	0.022	0.011	0.026	0.008	0.008	0.010

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in **bold** Calculated PEC/RAC ratios for glyphosate based on maximum PEC_{SW} values are below 1 indicating an acceptable risk following use of MON 52276 according to ards va. the proposed use patterns in field crops, orchards vineyards, railroad tracks and to control invasive species in agricultural and non-agricultural areas.

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In the following tables, the ratios between pred	licted environmental concentrations of AMPA in surfa	ce water (PEC) and regulatory acceptable concentrations

In the following tables, the ratios between predicted environmental concentrations of AMPA in surface water (PECsy) and regulatory acceptable concentrations (RAC) for aquatic organisms are given per intended use (as described in Table 10.2-6) for each FOCUS scenario and for each organism group.

Please note that the PEC/RAC ratios in the following tables are rounded to 3 decimal places. For endpoints and the corresponding RAC value which are presented as ">" or ">" the PEC/RAC ratios are presented without the symbol of '<'. This does not have any impact on the outcome of the risk assessment presented below.

Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 Table 10.2-19: calculations for the use of MON 52276 in field crops¹ (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c. \$ Q

Group		Fish acute	Fish prolonged	Inverteb. acute 🔗	Inverteb. prolonged	Algae	Aquatic macrophytes
Test species		Oncorhynchus mykiss	Pimephales promelas		Daphnia magna	Pseudokirchneriella	Myriophyllum
				OL LO		subcapitata	aquaticum
Endpoint		LC_{50}	NOEC	EC50 5 3	NOEC	E_rC_{50}	E_rC_{50}
(µg/L)		520000	≥ 12000	690000 5 2 2 8	15000	191000	72000
AF		100	10	100 5 5	10	10	10
RAC (µg/L)		5200	≥1200	6900 ලැදී ඊ	1500	19100	7200
FOCUS	PEC _{sw,max}						
Scenario	(µg/L)						
Step 1				S. S. S.			
	103.639	0.020	0.086	0.015	0.069	0.005	0.014
Step 2			L'III				
N-Europe	40.490	0.008	0.034	0:006	0.027	0.002	0.006
S-Europe	32.636	0.006	0.027	0.005	0.022	0.002	0.005

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in **bold** ¹ covering all corresponding uses in root vegetables, potatoes, bulb vegetables, fruiting vegetables, leafy vegetables and sugar beets

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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 Table 10.2-20: calculations for the use of MON 52276 in orchards¹ (2×1440 g a.s./ha, with application interval of 28 days). Uses 4 a-c. 4.5.0

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb prolonged	Algae	Aquatic macrophytes
Test species		Oncorhynchus mykiss	Pimephales promelas	Daphnia magna	Daphna magna	Pseudokirchneriella subcapitata	Myriophyllum aquaticum
Endpoint		LC ₅₀	NOEC	EC50	NOEC	ErC ₅₀	ErC50
(μg/Ĺ)		520000	≥ 12000	690000	43000.0	191000	72000
AF		100	10	100		10	10
RAC (µg/L)		5200	≥ 1200	6900	al 560	19100	7200
FOCUS	PEC _{sw,max}				24		
Scenario	(µg/L)			Coll Martin	0		
Step 1							
	138.185	0.027	0.115	0.020	0.092	0.007	0.019
Step 2	•	•	•	5 5 5		•	•
NLT.	53.986	0.010	0.045	0.0000	0.036	0.003	0.007
S-Europe	43.514	0.008	0.036	0.006000	0.029	0.002	0.006
		2020 ective of the formation of the form					
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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 Table 10.2-21: calculations for the use of MON 52276 in vines (2 × 1440 g a.s./ha, with application interval of 28 days). Uses 5 a-c. 4.88

Group			Fish prolonged	Inverteb. acute	Inverteb prolonged	Algae	Aquatic macrophytes	
Test species		Oncorhynchus mykiss	Pimephales promelas	Daphnia magna	Daphnia filagna NOÉC	Pseudokirchneriella	Myriophyllum	
						subcapitata	aquaticum	
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E_rC_{50}	ErC50	
(µg/L)			\geq 12000	690000	45000	191000	72000	
AF		100	10	100	10 5	10	10	
RAC (µg/L)		5200	≥ 1200	6900	1500	19100	7200	
FOCUS	PEC _{sw,max}							
Scenario	(µg/L)							
Step 1	1			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				
	138.185	0.027	0.115		0.092	0.007	0.019	
Step 2			I	S. S. S.	1			
N-Europe	53.986	0.010	0.045	0.008 5 5 5 0.006 5 5 entable concentration: PEC	0.036	0.003	0.007	
S-Europe	43.514	0.008	0.036	0.006 8 8	0.029	0.002	0.006	
		0.008 d environmental concentrat						
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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on HardSPEC calculations for Table 10.2-22: the use of MON 52276 to railroad tracks, 1 x 3600 g a.s./ha. Uses 7 a-b.

Group			Fish prolonged	Inverteb. acute	Inverteb: prolonged	Algae	Aquatic macrophytes
Test species		Oncorhynchus mykiss	Pimephales promelas	Daphnia magna	Daphña magna	Pseudokirchneriella subcapitata	Myriophyllum aquaticum
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E_rC_{50}	E_rC_{50}
(µg/L)		520000	≥ 12000	690000	\$30000°	191000	72000
AF		100	10	100 🖉	NOEC & 130000 19 X	10	10
RAC (µg/L)		5200	≥ 1200	6900	1500	19100	7200
HardSPEC	PEC _{sw,max}				<i>111</i>		
Scenario	(µg/L)			S M M			
Railroad track ditch	3.913	0.001	0.003	0.001	0.003	< 0.001	0.001
leaching							
Railroad track ditch	3.913	0.001	0.003	0.001 5 5 5	0.003	< 0.001	0.001
runoff				S J S			
		20 environmental concentrati		U			
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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 Table 10.2-23: calculations for the use of MON 52276 in grass/alfalfa, (1 × 1800 g a.s./ha). Uses 8 and 9.8

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb, prolonged	Algae	Aquatic macrophytes
Test species		Oncorhynchus mykiss	Pimephales promelas	Daphnia magna	Daphria magna	Pseudokirchneriella	Myriophyllum
					S S S	subcapitata	aquaticum
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E_rC_{50}	E_rC_{50}
$(\mu g/L)$		520000	\geq 12000	690000	43000	191000	72000
AF		100	10	100 🖉	1.0 5	10	10
RAC (µg/L)		5200	\geq 1200	6900	ol 500	19100	7200
FOCUS Scenario	PEC _{sw,max}			11 S			
	(µg/L)			S M S	9/		
Step 1						·	
	86.366	0.017	0.072	0.013	0.058	0.005	0.012
Step 2				5 8 8			
N-Europe	39.761	0.008	0.033	0.0068 5 8	0.027	0.002	0.006
S-Europe	32.062	0.006	0.027	0.005 8 3	0.021	0.002	0.004

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in **bold**

Calculated PEC/RAC ratios for the metabolite AMPA based on maximum PEC_{sw} values are below 1 indicating an acceptable risk following use of MON 52276 according to the proposed use patterns in field crops, orchards, vineyards, railroad tracks and to control invasive species in agricultural and non-agricultural areas.

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In the following tables, the ratios between predicted environmental concentrations of HMPA in surface water (PEC_{5W}) and regulatory acceptable concentrations (RAC) for aquatic organisms are given per intended use (as described in Table 10.2-6) for each FOCUS scenario and for each organism group.

Please note that the PEC/RAC ratios in the following tables were rounded to 3 decimal places. For endpoints and the corresponding RAC value which are presented as ">" or ">" the PEC/RAC ratios are presented without the symbol of '<'. This does not have any impact on the outcome of the risk assessment presented below.

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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 Table 10.2-24: calculations for the use of MON 52276 in field crops¹ (2×1080 g a.s./ha, with application interval of 28 days). Uses 2 a - c. 60

			<u> </u>	
Group		Inverteb. acute	Algae S S	Aquatic macrophytes
Test species		Daphnia magna	Pseudokirchneriella subcapitata	Lemna gibba
Endpoint		EC ₅₀	ErCs S	ErC ₅₀
(µg/L)		> 100000	> 120000	> 123000
AF		100	10 m 8	10
RAC (µg/L)		> 1000 0	≥ 12000	> 12300
FOCUS	PEC _{sw,max}	No.		
Scenario	(µg/L)			
Step 1				
	48.385	0.048	0.004	0.004
Step 2				
N-Europe	16.892	0.017	0.001	0.001
S-Europe	13.741	0.014	0.001	0.001

Jacob Androide Contraction of the second sec AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in **bold** 1 covering all corresponding uses in root vegetables, potatoes, bulb vegetables, fulting vegetables, leafy vegetables and sugar beets

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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 Table 10.2-25: calculations for the use of MON 52276 in orchards¹ (2×1440 g a.s./ha, with application interval of 28 days). Uses 4 a-c.

0				
Group		Inverteb. acute	Algae	Aquatic macrophytes
Test species		Daphnia magna	Pseudokirchnerietta subcapitata	Lemna gibba
Endpoint		EC ₅₀	ErC ₅₀ 6 6	$E_r C_{50}$
μ <u>g/L)</u>		> 100000	> 120000	> 123000
AF		100	10 8 8 8	10
RAC (µg/L)		> 1000	≥ 12000 Ø Ø Ø	> 12300
FOCUS	PECsw,max		J. L. L.	
Scenario	(µg/L)			
Step 1	64.512	0.005		0.005
	64.513	0.065	$\Theta.005$	0.005
Step 2				0.002
N-Europe	22.523	0.023	0.002	0.002
S-Europe	18.322	0.018	§ 0.002	0.001
	A.	0.023 0.018 concentration, RAC: Regulatory acceptable end ad olives		
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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 Table 10.2-26: calculations for the use of MON 52276 in vines (2 × 1440 g a.s./ha, with application interval of 28 days). Use 5 a-c.

G		T A T A		
Group		Inverteb. acute	Algae	Aquatic macrophytes
Test species		Daphnia magna	Pseudokirchneriella subcapitata	Lemna gibba
Endpoint		EC ₅₀	ErC ₅₀ > 120000	E_rC_{50}
(µg/L)		> 100000	> 120000 5 7 5	> 123000
AF		100	10 :5 5 5	10
RAC (µg/L)		> 1000	≥ 12000 00 00 00 00	> 12300
FOCUS	PEC _{sw,max}		0.005 S	
Scenario	(µg/L)		L. S. S.	
Step 1				
	64.513	0.065	0.005 8	0.005
Step 2				
N-Europe	22.523	0.023	£ 0.902	0.002
S-Europe	18.322	0.018	× × 10.002	0.001
		50 50 50 50 50 50 50 50 50 50	prove the relevant of the rele	
Jyphosate Renev	val Group AIR 5 – July 2020			Doc ID: 110054-MCP10_GRG_Rev 1_Jul_2020

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Group		Inverteb. acute	C < 1) for HMPA for each organism group g a.s./ha. Uses 7 a-b. Algae Pseudokirchneriella subcapitata	Aquatic macrophytes
Sest species		Daphnia magna	Pseudokirchneriella subcapitata	Lemna gibba
ndpoint		EC ₅₀	E _r C ₅₀ کې	ErC ₅₀
ıg/L)		> 100000	E _r C ₅₀ > 120000	> 123000
F		100	10 5 6 6	10
AC ıg/L)		> 1000	$\geq 120000^{\circ} 5^{\circ} 5^{\circ}$	> 12300
lardSPEC Scenario	PEC _{sw,max} (µg/L)			
ailroad track itch leaching	0.627	0.001		< 0.001
ailroad track litch runoff	0.627	0.001	5 6 5 001	< 0.001
		1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/	table concentration; PEC/RAC ratios above the relevant	

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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 Table 10.2-28: calculations for the use of MON 52276 in grass/alfalfa, (1 × 1800 g a.s./ha). Uses 8 and 9,8

Group		Inverteb. acute	Algae	Aquatic macrophytes
Test species		Daphnia magna	Pseudokirchneriella subcapitata	Lemna gibba
Endpoint		EC_{50}	E_rC_{50}	E_rC_{50}
(µg/Ĺ)		> 100000	> 120000	> 123000
AF		100	10 5 5 5	10
RAC (µg/L)		> 1000	≥ 12000 co co co co	> 12300
FOCUS	PEC _{sw,max}		St. C.C.	
Scenario	(µg/L)			
Step 1			S M S	
	40.321	0.040	0.003	0.003
Step 2			N. C. S.	
N-Europe	18.768	0.019	S 40.002	0.002
S-Europe	15.232	0.015	S 3 0.001	0.001

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in **bold** Calculated PEC/RAC ratios for the metabolite HMPA based on maximum PEC w values are below 1 indicating an acceptable risk following use of MON 52276 under aller under according to the proposed use patterns in field crops, orchards, vineyards, railroad tracks and to control invasive species in agricultural and non-agricultural areas.

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Indirect Effects via Trophic Interactions

The available regulatory ecotoxicology data for glyphosate and its main metabolite AMPA includes as battery of acute and chronic aquatic guideline studies, across multiple trophic levels, that have been designed to assess the potential for direct and indirect effects through trophic interactions. Consideration of indirect effects through trophic interactions has been used to derive a SPG that is consistent with the gurrent EFSA aquatic guidance (2013) and the Regulation ((EC) No 1107/2009). The SPG used for the biodifversity assessment states: "Negligible acute and long-term effects to aquatic plant and animal populations from direct and indirect effects through trophic interactions" (

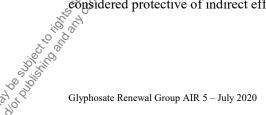
Table 10.2-29). Negligible in the context of this assessment, and the EFSA aquatic guidance, means that there is a sufficient margin of safety to conclude there will be no unacceptable effects to aquatic ecosystems for the intended uses. i)

As previously discussed, glyphosate is an important tool to realize the benefits that conservation tillage has on biodiversity in agroecosystems. Low soil disturbance leaves the surface with adequate crop residue and organic matter that resists soil aggregate breakdown and soil crusting that contribute to runoff and erosion and consequently soil / particulate matter reaching aquatic systems resulting in sedimentation. The primary nutrient forms carried in runoff are ammonium, nitrate, and phosphate that contribute to degradation and eutrophication of aquatic ecosystems. Therefore, using glyphosate within conservation agriculture schemes il.S. can minimize impact to aquatic biodiversity.

The groups of aquatic organisms that were tested are well suited for direct and indirect effects assessment through trophic interactions because it contains the key components of the aquatic food chain as well as macrophytes that are an important structural component of aquatic waterbodies. Indeed, the test battery includes numerous representative species of primary producers (i.e., chronic studies with algae, diatoms, aquatic macrophytes), representative primary consumers (i.e., acute and chronic studies with pelagic invertebrates and sediment dwelling invertebrates) and acute and chronic studies with secondary consumers (i.e., fish development and reproduction and lavaramphibian development) (Table 1, see document MCP Section 10.1 for details on the tested species)

The following assessment approach considers both direct effects and the potential for indirect effects via trophic interactions, based on the proposed Specific Protection Goals drawn from the existing EU guidance and working documents, and the 2016 EFSA Guidance on developing protection goals for ecological risk assessments (ERA) for pesticides, The SPGs based on direct effects assessment considering representative sensitive populations across the tested trophic levels. The biodiversity assessment, aimed to develop a flexible framework that informs the development of risk mitigation options to achieve the specific protection goals, that includes considering indirect effects via trophic interaction. For example, reduced application rates relative to previous Annex I renewals, a reduced overall application volume of product on the land, and inclusion of the spray buffer zones as a standard mitigation measure to protect edge of field surface waters. When defining SPGs for aquatic plants and animals, it is the responsibility of the risk assessors in the Member States to acknowledge existing protection goals and regulatory data requirements, to propose possible SPG options, and describe the possible environmental consequences of each option. The risk assessors within the Member States will need to propose realistic SPGs and exposure assessment goals and the interrelationships between them in a clear and transparent manner

The direct effects assessment covering a broad range of aquatic taxa groups, informs on the biodiversity assessment by highlighting an acceptable risk across multiple trophic layers of the aquatic food chain. Therefore, where an acceptable direct effects risk assessment is concluded upon after incorporation of standard mitigation measures to reduce off-target movement to surface waters (anyway required to support the NTTP assessment) coupled with the other standard mitigation measures that are applied, they are considered protective of indirect effects occurring outside of the target area. Subseries (19)



However, for the purpose of this biodiversity assessment, the SPGs developed for aquatic systems is considered consistent with current EFSA guidance and what will likely be adopted in future EFSA guidance. The SPG is aimed at achieving negligible acute and long term direct and indirect effects on aquatic plant and animal populations.

Available study results and the risk assessment for direct effects presented in M-CP 10 show negligible risk from direct effects on the representative species for the various trophic levels. Moreover, glyphosate and its main metabolite AMPA, do not bioaccumulate (Log Pow less than 3 and a BCF = 1.1). Additionally, the basic principles that underlie an aquatic mixture assessment for glyphosate have been provided in ²⁵Appendix 1 of the biodiversity assessment document. In addition, based on predicted environmental concentrations, either from FOCUS surface water modelling or from surface water monitoring studies, the risk of additive effects of glyphosate in the presence of other plant protection products in surface waters is low to negligible.

low to negligible. **Biodiversity Assessment** The assessment approach – as previously defined aims to assess the potential indirect effects via trophic interactions and the impact on biodiversity, by developing a flexible framework that informs the development of risk mitigation options to achieve the specific protection goals. In the following table, the specific protection goals relevant to aquatic organisms are presented with the relationship between the SPGs, the direct effects study types, assessment and measurement endpoints. The assessment endpoint is an explicit expression of an environmental entity and the specific property of that entity to be protected. Measurement endpoints relates directly to the effects study endpoints.

A conclusion that a given data requirement has been satisfied requires that an acceptable level of risk has been achieved (i.e. there is a protective margin of exposure or through a weight of evidence).

Based on the measurement endpoints from the study types, and the direct effects assessment presented above in this section, indirect effects from glyphosateon aquatic organisms are not anticipated.

The following table assessment illustrates that ecological function of aquatic organisms in off-field / offtarget areas / edge of field surface water, will be sufficiently maintained to achieve the SPG for the aquatic organisms according to the protection goals as defined in the EFSA guidance (2016), that sustains habitat Proceeding of the office office of the office of the office offic The contract of the open of th and food resources for other organisms whilst achieving negligible acute and chronic effects on aquatic

(2020) Glyphosate: Indirect effects via trophic interaction - A Practical Approach to

Biodiversity Assessment (TRR0000305).

Table 10.2-29: The relationship between the Specific Protection Goal, assessment endpoints and
measurement endpoints for aquatic systems (wetlands, rivers and lakes) exposed by runoff and/or
spray drift.

Specific Protection Goal ¹	Assessment Endpoints	Measurement Endpoints	Glyphosate Study Types ²
Negligible acute and long-term effects to aquatic plant and animal populations from direct and indirect effects through trophic interactions.	Survival, growth and reproduction of aquatic populations	Acute and chronic toxicity to aquatic plants and animals and bioaccumulation	Algal Vascular plants Acute Daphnia Daphnia life-cycles Chironomid emergence ³ Acute fish Fish ELS ³ Fish reprosereening ³ Fish Full Life-cycle ³ Amplabian metamorphosis ³

Biodiversity Assessment for Aquatic Ecosystems

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Based on the specific protection goal, inclusion of a 1 m buffer between the application area and the adjacent surface water body, for applications of MON 52276 made according to the proposed GAP, is considered protective of both direct and indirect effects on biodiversity in aquatic eccessions through trophic interactions.

¹ By accepting no population-level effects on representative sensitive populations in edge of-field surface waters, these populations will be protected and propagation of effects to the community-, ecosystem- and analyze below will not occur (Option 1: EFSA aquatic guidance, 2013).

 2 Acute and chronic aquatic studies for aquatic plants and animals are presented in the ecotoxicology section. Endpoints for AMPA are similar to endpoints for the same studies with glyphosate.

³ Note these studies were performed to assess the potential for impacts to the endocrine pathways. No effects to the four endocrine pathways can be concluded based on the results of these studies and a weight of evidence evaluation (USEPA, 2015, EFSA, 2017, KCA 5.8.3/010, 2020) As a conservative approach for finalizing the aquatic biodiversity assessment, the lower tier assessment

As a conservative approach for finalizing the aquatic prodiversity assessment, the lower tier assessment option known as the Ecological Threshold Option (ETO) from the EFSA's tiered guidance for aquatic risk assessments (EFSA (2013). This option aims at ensuring that negligible effects only, may occur in aquatic populations (transient effects followed by recovery are not accepted with this option). Both direct and indirect effects on the food chain are covered within this option. When applied to the representative sensitive populations in edge-of-field surface water, this option allows to conclude that aquatic populations will be protected, and that propagation of effects to the community-, ecosystem-, and landscape level will not occur.

The current direct effects aquatic risk assessment in MCP10 shows that inclusion of a one-meter buffer between the applied area and the edge-of-field surface water for glyphosate applications is considered protective of both direct effects and indirect effects through trophic interactions on aquatic biodiversity for the intended uses.

Ecotoxicological relevance of the glyphosate surface water monitoring data

In addition to the predicted environmental concentrations from FOCUS modeling used for the standard aquatic assessment, there is an extensive amount of surface water monitoring data that can be used to further evaluate potential effects of glyphosate on biodiversity in aquatic ecosystems.

Horth (2012) provided a review that covers glyphosate and AMPA monitoring results for surface waters from all 27 Member States. The maximum concentrations of glyphosate found in surface water ranged from 1.3 to 370 μ g acid equivalents (a.e.)/L and the maximum concentrations of AMPA ranged from 0.22 to > 200 μ g/L. Glyphosate and AMPA concentrations in the monitoring data exceeded the predicted environmental concentration (PECsw), using the FOCUS (2000) surface water model for glyphosate and AMPA at an exceedingly small frequency. When calculating TER values with the concentrations monitored in the study by Horth, the outcome of the assessment demonstrates that the risk for direct and indirect effects to aquatic organisms from the intended uses of glyphosate is acceptable.

Based on a more recent analysis of the European Environment Agency water monitoring (,2020)database, it can be concluded that 99.99 % of the measured glyphosate surface water concentrations are below a regulatory acceptable concentration (RAC). For surface water, there were > 250,000 analyses and exceedance rates of the RAC were 0.01 % for glyphosate and 0.001 % for AMPA (. 2020). The original RAC value (100 µg/L) concluded in the report is considered highly conservative, as the underlying fish toxicity study on which the RAC had been based (1997, 2000; MCA 8.2.2.1/002) is not acceptable for use in risk assessment (KCA 8.2.2.1/002 and KCA 8.2.2.1/003). Based on the now proposed lowest RAC value (400 μ g/L) from the available reliable ecotoxicology aquatic endpoints, evaluated against current validity criteria for the study types, a further 4-fold margin of safety may be applied to the evaluation of the surface water detects in the monitoring report.

Glyphosate aquatic risk assessment under the PPP regulation in the context of the Water Framework Directive (WFD)

The protection goal underlying the WFD refers to human and ecosystem health. Within the context of ecosystem health and setting Environmental Quality Standards (EQS) it is assumed that (1) ecosystem sensitivity depends on the most sensitive species population, and (2) protecting ecosystem structure protects community functioning. Aquatic risk assessments for the WFD focus on larger water bodies (e.g., river basins) and EQSs should be linked to an annual average concentration or the maximum of the measured concentrations (MAC-EQS). In contrast, the aquatic risk assessment for PPP Regulation focuses on concentrations that can be achieved in edge-of-field surface waters in agricultural landscapes and the exposure assessment uses harmonized exposure scenarios FOCUS surface water scenarios). These scenarios, in combination with models that estimate the emissions and the fate and behavior of PPPs in surface waters, predict realistic worst-case exposure concentrations in edge-of-field surface waters.

In terms of effects endpoints, EQSs are derived on the basis of predicted no effect concentrations (PNECs) for all relevant populations of water organisms and is generally comparable to the ETO approach used for a PPP aquatic assessment. Overall, the general protection goal of the WFD and PPP Regulation do not differ substantially. EQS setting within the context of the WFD in principle is based on the Ecological Threshold Option approach (ETO, EFSA, aquatic guidance 2013), and glyphosate satisfies the ETO option as discussed above. Glyphosate was identified as "low risk" to the water compartment in the 2011 evaluation of candidate EU priority substances using a PNEC in water of 24 µg a.e./L. To put this value into perspective with the new surface water monitoring data, and including values identified as outliers, less than 0.042 % of samples exceed 24 µg a.e./L (, 2020). Moreover, considering the large margin of safety (>350-fold) between the endpoint driving the standard aquatic risk assessment, and measured levels of glyphosate from monitoring studies, risk of direct effects and indirect effects through trophic interactions on aquatic communities is negligible.

ó Relevance of the Drinking Water Threshold to Biodiversity Assessment

The Drinking Water Directive (DWD) sets the compliance limits at the tap of the consumer as 0.1 μ g/L for individual pesticides and 0.5 g/L for total pesticides. Only those pesticides which are likely to be present in a given supply need be monitored. From the environmental monitoring report (2020), the analysis of the dataset available for drinking water for glyphosate and AMPA indicates that compliance is to these requirements very high. Indeed, detections above $0.1 \,\mu g/L$ are very rare. When they do sporadically occur, they occur at low concentrations that are well below human health thresholds. The measured environmental concentrations available show that neither glyphosate nor AMPA pose a risk to human health via drinking water where the point of compliance is at the tap of the consumer. The drinking water threshold is not therefore considered relevant to the ecotoxicological risk assessment.

Scientific Literature that informs the aquatic biodiversity assessment

Baker et al. (2016) investigated the potential for indirect effects on natural communities of phytoplankton and zooplankton with a glyphosate-based formulation at concentrations up to 2.88 mg a.e./L, which represents a concentration resulting from an overspray application to a shallow waterbody (approximately 43 kg a.e./ha over-sprayed in to 15 cm water). Their co-application of herbicide and nutrients resulted in a

transient decline in dietary quality of phytoplankton and zooplankton community similarity. However, direct and indirect effects were not evident in wetlands treated only with the formulation.

Rolando et al. (2017) conducted an extensive review of the available scientific literature for glyphosatebased herbicides used in forest management, at applications up to a rate of 4 kg a.e./ha and concluded that glyphosate use does not pose a significant long-term risk of direct and indirect effects in aquatic environments. Indirect effects of glyphosate to aquatic fauna were observed when high concentrations of the product were applied as overspray to the waterbodies. Effects on the aquatic fauna were associated with changes in aquatic plant community composition and habitat structure, cover, and food sources as a consequence of glyphosate's phytotoxic effects, rather than resulting from the toxicity of glyphosate on the aquatic fauna. To help put this observation of indirect effects into perspective, Edge et al. (2020) investigated the potential for indirect effects on aquatic animals from using a glyphosate based formulation to control emergent aquatic vegetation. Results showed that control of the aquatic vegetation indirectly increased the abundance of benthic invertebrates and wood frog larvae. This study shows how glyphosate can be safely used to control aquatic vegetation and has benefits to aquatic biodiversity.

Edge et al. (2011, 212, 2013, 2014) conducted field studies to assess effects of a glyphosate-based formulation, commonly used in Canadian forestry, on larval tadpoles at concentrations representative of a direct overspray into shallow water (2.88 mg a.e./L). The results from these studies showed no impact on growth, development and survival and it was concluded that there was no unacceptable risk to larval amphibians. The absence of chronic effects was concluded to result from rapid dissipation of glyphosate and its adjuvant in the water column and showed the importance of testing under environmentally realistic conditions.

Conclusion The current aquatic risk assessment for glyphosates its environmental metabolites, and the representative formulation demonstrate that a 1 m no-spray buffer zone from edge-of-field is protective of aquatic biodiversity from direct effects and indirect effects through trophic interactions. By demonstrating negligible risk of population-level effects on representative sensitive populations in edge-of-field surface waters, aquatic populations will be protected and propagation of indirect effects to the community, ecosystem, and landscape levels will not secur. When performing our assessment using the measured levels of glyphosate and AMPA from aquatic mentioning programs, we come to the same conclusion that no direct or indirect effects to aquatic biodiversity are likely to occur.

20 Environmental risk mitigation measures are a key component in defining the conditions of use of pesticides in crop protection in Europe ((EG) No 1107/2009) and (EU) No 547/2011). These risk mitigation measures are derived directly from the evaluation of pesticide products and the risk assessment conducted for each use and are specific of the type of risk they are intended to mitigate. They therefore range from the adjustment of the conditions of use, to minimizing transfers to surface and groundwater, to the setting of buffer zones at the edge of the crop, and to requiring compensatory measures (e.g., field margins).

Examples of the standard mitigation measures considered applicable at the EU level (MAgPIE, 2017) are presented in the following table. Many of these have been considered in the current dossier submission.

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Table 10.2-30:		tates to mitigate effec	tres described in MAgPIE across the	
Type of Mitigation	Risk Mitigation	Benefits	Glyphosate renewal dossier (2020)	

Type of Mitigation	Risk Mitigation	Benefits	Glyphosate renewal dossier (2020)
Measure	Measure	Denents	Giyphosate renewal dossier (2020)
Restrictions or	Application rate,	Lower transfers to	Significant reductions (50 % in volume)
modifications of	Application frequency,		in newly proposed application rates
products' conditions	application timing,		compared with the representative use
of application	and interval between		presented in the 2012 renewal dossier.
or approximitin	applications	off-crop.	See ²⁶ Appendix 2 of the biodiversity
			report that accompanies this submission.
			Treated area restriction
			7. for the representative use GAPs:
			applying to only 50 % of the total area in
			orchard/xineyard area.
			8. maximum of 50 % of the total area for
			broad acre vegetable inter-row
			0 Invertige reasons control a granup gran
			maximum of 20 % of the cropland +
			extended application intervals.
			S. S. S.
			Limited frequency and timing of
		5	application: 28-day interval between
		1° 2 3	applications and no pre-harvest
			Example a frequency and timing of application: 28-day interval between applications and no pre-harvest applications
		S. C. S.	
Application	Spray drift reduction	Reduces exposure of	Reduction of spray drift to the off-field:
equipment	nozzles (SDRN),	organisms in-crop	5. Use 75 % drift reducing nozzles for pre-
with Spray Drift	shields,	(precision treatment) and	sowing/pre-planting in arable crops.
Reduction	Precision treatment,	off-grop	6. Use of ground directed, shielded spray
Technology (SDRT)	etc.	off-grops	for band application in orchards /
	تم		vineyards and broad-acre vegetable inter-
	A.		row application.
Buffer zones	Non-sprayed zone at o	Reduces exposure of	Establishment of buffer zones:
	the edge of a crop	organisms and off-crop	Buffer zones of varying size (depending on
	2 2 2		the type of SDRT) are required as
			protection for off-crop NTTP communities
	the edge of a crop 10 miles		from spray drift.

For example in the current dossier;

- N.S.S. Reductions in maximum annual application rates of up to 50 % are considered in this dossier and are compared to the maximum rates applied for in the 2012 Annex I renewal dossier.
 - In 2012, the maximum annual application rate was 4.32 kg/ha. 0
 - The current dossier submission, the maximum annual application rate is 2.16 kg/ha
- Reducing the total area being applied on a per hectare basis for certain uses, will reduce the total solution of product being applied to the landscape. A Contraction of the second
- Liben r or example, cr area, up to a ma band application Biodiversity Assessment (TRR0000305). Higher of Glyphosate R-For example, controlling actively growing weeds in vineyards, orchards where a reduced area, up to a maximum of 50 % of the total application area is proposed e.g. using strip or band applications. Applications on target weeds around the base of trees within tree rows,

(2020) Glyphosate: Indirect effects via trophic interaction - A Practical Approach to

leaving the area between tree rows unsprayed, which is typically managed using mechanical methods.

- The use of shielded or hooded sprayers, hand-held sprayers and drift reducing technologies, e.g. 75 % drift reducing nozzles are recommended for all applications made for the control of actively growing weeds when applied to control invasive species. These measures will further reduce the off-target exposure risk.
- For weed control on railroad tracks, recommendations are made in the GAP table to use precision application equipment on spray trains, that detects and targets spray directly onto unwanted plants, thereby reducing the amount of product being applied, whilst maintaining an acceptable level of safety on the railroad tracks.
- No spray buffer areas in-field (such as compensation areas), are necessary to meet the specific protection goals for avoiding direct effects on non-target plants in off-target areas. This measure will in turn support non-target arthropod communities in off-field areas and reduces further, the potential for indirect effects on bees through trophic interaction.

In addition to the standard mitigation measures, 'non-standard mitigation measures' could also be considered where a local and specific mitigation need is identified. For example, in simplified landscapes or landscapes that are intensively managed, where typically there are limited refuge areas for insects, birds and mammals. Non-standard mitigation measures options could include for example, creation of off-target habitats, utilizing edge of field habitats and semi-field habitats that assist biodiversity by improving wildlife 80°C 0 20 connectivity. 1º

For further information on mitigation measures pleased refer to the supplementary information document²⁷ titled 'Glyphosate: Indirect Effects via Trophic Interaction - A Practical Approach to Biodiversity Assessment.' that accompanies this dossier submission , or the

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And the state of t Acute toxicity to fish, aquatic invertebrates, or effects on aquatic algae and **CP 10.2.1** 45

(2020) Glyphosate: Indirect effects via trophic interaction - A Practical Approach to

		CH CH
Annex to Regulation 284/2013	MON 52276 M-CP, Section 1 Page 193 of 55.	<i>v</i>
		.0
1. Information on the stu	dy	
Data point	CP 10.2.1/001	N. N
Report author		
Report year	1992	
Report title	MON 52276: Acute Toxicity To Rainbow Trout, Oncorhynchus mykiss, Under Flow-Through Test Conditions	
Report No	J9108002b	
Document No	-91-296	
Guidelines followed in study	US EPA FIFRA 72-1 (1982), OECD 203, and EEC Method C.1.	
Deviations from current test guideline	 Deviations from the current OECD 203 guideline (2019): Major: Fish were acclimatised 48 hours prior to the test (7 days are required) Minor: Observations occurred after 24h, 48h and 96h instead of twice/day pH of the highest concentration (59) was slightly below the specified range of 6.0 – 8.5. 	
Previous evaluation	Yes, accepted in RAR (2015)	
GLP/Officially recognised testing facilities	Yes	
Acceptability/Reliability	Valid Official	
Category study in AIR 5 dossier (L docs)	Category 2a	
2. Full summary).95 % Workssate acid) on rainbow trout (<i>Oncorhynchus mykiss</i>) were	
Executive Summary The effects of MON 52276 (3)	ر من	_

1. Information on the study

2. **Full summary**

Executive Summary

JI JAN STRANG Colored Colore The effects of MON 52276 (30.95 % glyphosate acid) on rainbow trout (Oncorhynchus mykiss) were evaluated in a 96-hour flow-through toxicity test. Two groups of ten fish each were exposed for 96 hours to nominal concentrations of MON \$2276 at 0 (control), 130, 216, 360, 600 and 1000 mg/L. The test water was a blend of treated municipal water and treated well water. At 0, 48 and 96 hours, samples of test medium were taken for the analysis of glyphosate content.

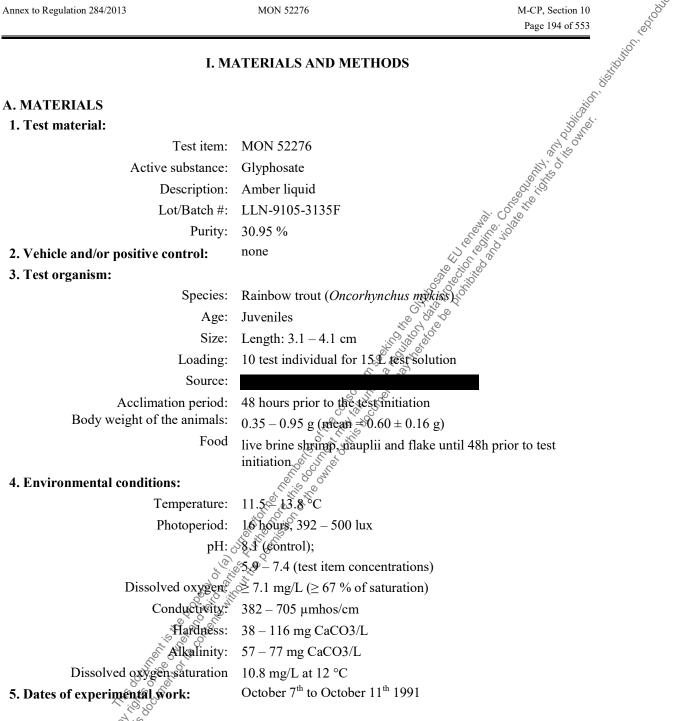
Mortality and signs of toxicity were recorded at 24, 48, 72 and 96 hours after test initiation.

Mortality to one fish was observed at the lowest test concentration (119 mg/L), but it was judged to be not treatment-related. No mostality was observed at the higher test concentrations. No sublethal effects were observed at any test concentration. The present study is considered valid according to OECD guideline 203.

Based on mean measured concentrations, the 96-hour LC₅₀ for rainbow trout (Oncorhynchus mykiss) exposed to MONS2276 in a flow-through test system was > 989 mg/L (> 306 mg glyphosate/L, arithmetic mean measured). The corresponding no observed effect concentration (NOEC) was \geq 989 mg/L Hrado (≥ 306 mg/gl/phosate/L, arithmetic mean measured), based on the absence of mortality and abnormal sublethal effects at this concentration.

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B. STUDY DESIGN

Experimental treatments: Two groups of ten fish each were exposed under flow-through conditions in a proportional diluter system 4.8 cycles/h (approx. 5.4 volume addition every 24h) for 96 hours to nominal concentrations of MON 52276 at 0 (controls), 130, 216, 360, 600 and 1000 mg/L. For flow-through system, the recommended maximum loading is 0.5 g wet weight fish/L per 24 hours. Taking into account a 15 L tank with a flow rate of 5.4 tank volumes per 24 hours, a total of 81 L passed through the tank in 24 hours. With (£6) g fish and ten fish per tank (= 6 g), this was corresponding to 6 g in 81 L in 24 hours equivalent

The test water was a blend of treated municipal water and treated well water. During the 14-day holding spection prior to test initiation, fish were fed daily and were in good health. There were two vessels per Observations: Mortality and signs of toxicity were recorded at 24, 48, 72 and 96 hours after test initiation. Water temperature in a control vessel was measured hourly throughout the test, and water pH and dissolved oxygen were measured daily in all test vessels. Hardness, total alkalinity and specific conductivity were measured at test initiation and test termination. At 0, 48 and 96 hours, samples of test medium were taken - Mon 01010 for quantification of glyphosate by HPLC.

Statistical calculations: LC₅₀ values were calculated along with the 95 % confidence limits using non-

A. FINDINGS Analytical data: The arithmetic mean measured concentrations during the 96-hour exposure ranged from 119 to 989 mg MON 52276/L and from 92 to 100 % of nominal. The results discussion in th 119 to 989 mg MON 52276/L and from 92 to 100 % of nominal. The results are provided based on mean 010 measured concentrations.

Table 10.2.1-1: Analytical results

Nominal concentration	Measured c	oncentration [mg MC	Mean (±SD) [mg MON 52276/L]	% of nominal	
[mg MON 52276/L]	0hr	48hr	Henry		
Control	ND	ND	CO MOS	-	-
130	124	114	L L 123	119 (5.1)	92
	119	112 🖉	ళ్ర 123		
216	202	190 🔊 ن	195	208 (30.2)	96
	244	172 5	^{5*} 246		
360	368	339 0 5	373	362 (16.9)	100
	357	348°.	385		
600	584	JE \$200	598	581 (42.4)	97
	599	A 545	639		
1000	1030	5 J 3 921	1010	989 (49.1)	99
	994 _م ې	S 8 937	1040		

ND = not detection, limit of detection 2.6 mg/

The LC₅₀ and NOEC values are given below based on mean measured concentrations.

Table 10.2.1-2: Endpoints

Endpoints (96 h)	MON 52276 [mg/L]	Glyphosate [mg/L] ¹
LC ₅₀ (95% C.I.)	> 989	> 306.1
NOEC	989	306.1

¹ MON 52276 is 30.95% glyphosate as active ingredient.

Jigilon. **B. OBSERVATIONS**

The first was observed at the lowest test concentration (119 mg/L), but it was judged to be not treatment-related. No mortality was observed at the higher test concentrations. No sublethal effects were observed at any test concentration. , and signs c , eish was observed related. No mortality w any test concentration.

Table 10.2.1-3: Acute toxicity of MON 52276 to rainbow trout (Oncorhynchus mykiss) under	
flow-through conditions	

MON 52276 [mg /L] ¹	Time point [h]	Abnormalities/ Sublethal Effects	Mortality ²	Cumulative % mortality
0	24	None	0	0 0 0
	48	observed		1. 0
	72			
	96			on ilo
119	24	None	1	<u>کی</u> 5
	48	observed	and a second	
	72		S.S.	10
	96			
208	24	None		0
	48	observed	NO LO SIL	
	72		Charles Q	
	96		5 6 6 X A 0	
362	24	None		0
	48	observed		
	72	Sec. Sec.	1 al	
	96			
581	24	None	0	0
	48	observed		
	72			
	96	S. S. S		
989	24	None	0	0
	48	& Sobserved		
	72			
	96			
Aean measured values. Number of dead fish of 20 to	tal.	Abnormalities/ Sublethal Effects None observed None observed None observed None observed None observed		

¹ Mean measured values. ² Number of dead fish of 20 total. All validity criteria according to OECD 203 were fulfilled, as no mortality was observed in control group, dissolved oxygen concentration was 2 60 % of air saturation and constant exposure conditions have been 15 110 D ther and the maintained.

- Fish were acclimatised 48 hours prior to the test instead of the 7 required
- Observations occurred after 24h, 48h, 72h and 96h. The requirements are the following a minimum • of 2 observations within the first 24 hours of the study and on days 2-4 of the test, all vessels with living fish inspected twice per day (preferably early morning and late afternoon to best cover the 24-hour periods).
- The pH in the highest concentration outside of accepted range of 6.0 8.5 so the stock solution • should have been adjusted to lie within this specified range.

deviation deviation deviation deviation deviation deviation de la completion de la completi These deviations are not considered to have a negative impact on the study.

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III. CONCLUSIONS

Assessment and conclusion by applicant:

Based on mean measured concentrations, the 96-hour LC₅₀ for rainbow trout (Oncorhynchus mykis) exposed to MON 52276 in a flow-through test system was > 989 mg/L (> 306 mg glyphosate/E, arithmetic mean measured). The corresponding no observed effect concentration (NOEC) was \geq 989 mg/L (\geq 306 mg glyphosate/L, arithmetic mean measured), based on the absence of mortality and illi es. Coli abnormal sublethal effects at this concentration.

The study is considered to be valid and suitable for use in the risk assessment.

Assessment and conclusion by RMS:

1. Information on the study

Data point:	CP 10.2.1/002
Report author	
Report year	1992
	MON 52276: Acute Toxicity To The Common Carp, Cyprinus carpio,
Report No	J9108002c
Document No	-91-298 5 5 5
Guidelines followed in study	OECD guideline 203
Deviations from current test guideline	 Under Flow-Through 3 est Conditions J9108002c -91-298 OECD guideline 203 Deviations from the current OECD 203 guideline (2019): Major Dissolved oxygen concentration dropped under 60% of saturation (from 8.7 mg/L to 2.5 mg/L = 28.7 %) Minor: Temperature range should not vary more than ±1°C and should be within the range 20 – 24 °C (current values: 21.7 – 23.8 °C). Observations occurred after 24h, 48h and 96h instead of twice/day Fish length ranged from 2.7 – 5 cm, outside the recommended length of 2.0 – 4.0 cm. pH of the highest concentration (5.7) was not in the specified range of 6.0 – 8.5. The test concentrations were not maintained within 80 % of nominal concentrations at 96 h (current values from 52 to 84 %). Yes, accepted in RAR (2015)
GLP/Officially recognised testing facilities	Yes
20	Valid
Category study in AIR 5	Category 2a
Glyphosate Renewal Group AIR 5 – July 2020	Doc ID: 110054-MCP10 GRG Rev 1 Jul 202



2. **Full summary**

Executive Summary

The effects of MON 52276 (30.95 % glyphosate acid) on common carp (Cyprinus carpio) were evaluated in a 96-hour flow-through toxicity test. Two groups of ten fish each were exposed for 96 hours to nominal. concentrations of MON 52276 at 0 (controls), 130, 216, 360, 600 and 1000 mg/L. The test water was a blend of treated municipal water and treated well water. At 0, 48 and 96 hours, samples of test medium were taken for the analysis of glyphosate content.

Mortality and signs of toxicity were recorded at 24, 48, 72 and 96 hours after test initiation.

No treatment related mortality or sublethal effects were observed in common carp at any test concentration. The present study is considered valid according to OECD guideline 203 (even if the dissolved oxygen criterion is not met).

Based on arithmetic mean measured concentrations, the 96-hour LC₅₀ for common carp (*Cyprinus carpio*) exposed to MON 52276 in a flow-through test system was > 895 mg/L (> 279 mg/glyphosate/L). The corresponding no observed effect concentration (NOEC) was $\geq 895 \text{ mg/}\text{B}$ ($\geq 277 \text{ mg glyphosate/L}$, arithmetic mean measured).

All and a state of the state of I. MATERIALS AND METHODS

A. MATERIALS

1. Test material:

Test item: MON 52276 Active substance Glyphosate

LLN-9105+3135F Description:

Lot/Batch #:

None

Purity:

2. Vehicle and/or positive control:

3. Test organism:

wiendo. Species: Common carp (Cyprinus carpio)

Age? Juveniles

⊗2.7 – 5.0 cm

Loading: 10 test individuals for 15 L test solution (0.93 g fish/L)

Source:

14 days prior to the test initiation

Body weight of the animals: 0.57 - 2.97 g (mean of 1.39 g)

Acclimation period:

Food brine shrimp, nauplii and flake until 48h prior test initiation

4. Environmental conditions:

Indered to and the shift of the Temperature: 21.7 – 23.8 °C Photoperiod: 16 hours light, 350 - 425 lux 8.1 (control); 7.1 to 5.7 (test item concentrations) pH: Dissolved oxygen: 6.7 - 8.7 mg/L (8.7 mg/L is 100 % saturation) Conductivity:

1614 – 1688 µmhos/cm

Hardness: 184 – 192 mg CaCO₃/L $34-45 \text{ mg CaCO}_3/L$

Alkalinity: November 19th to November 23rd 1991

B. STUDY DESIGN

Experimental treatments: Two groups of ten fish each were exposed under flow-through conditions using a proportional diluter system (3.8 daily volume turnover) for 96 hours to nominal concentrations of MOX 52276 at 0 (controls), 130, 216, 360, 600 and 1000 mg/L. The test water was a blend of treated municipal water and treated well water. During the 14-day holding period prior to test initiation, fish were feel daily and were in good health. There were two vessels per treatment, each containing ten fish (appr. 24) oglass vessels containing 15 L test medium).

Observations: Mortality and signs of toxicity were recorded at 24, 48, 72 and 96 hours after test initiation. Water temperature in a control chamber was measured hourly throughout the test and water pH and dissolved oxygen were measured daily in all test chambers. Hardness, total alkalinity and specific conductivity were measured at test initiation and test termination. At 0, 48 and 96 hours, samples of test medium were taken for quantification of glyphosate by HPLC.

Statistical calculations: LC50 values were calculated along with the 95% confidence limits using nonlinear interpolation.

II. RESULTS AND DISCUSSION

A. FINDINGS For an estimated period of 4 - 6 hours, beginning at 8 hours prior to test termination, only dilution water was delivered to test chambers due to a malfunction in the diluter system. Since there were no indications of stress or any other effects, it is unlikely that the reduction in exposure concentration for this short period -100m101 8000 had any effect on the outcome of the test.

Analytical data: The arithmetic mean measured concentrations during the 96 hour exposure ranged from 98 to 895 mg test item/L and from 75 to 90 % of nominal on the overall period. The results were determined NICONTRO CONTROL based on mean measured concentrations.

Table 10.2.1-4: Anal	ytical results	eventration [mg M	ION5227(/L)	Moor (ISD)	% of	
concentration	Wieasuneu Co	incentration [mg M	IUN52270/Lj	Mean (±SD) [mg MON 52276/L]	nominal	
[mg MON 52276/L]	Ohr	48hr	96hr			
Control	S. NDS	ND	ND	-	-	
130	૾ૢ૾૾૾૾૽ૣ૾ૹ૽ૺ	117	74	98 (21.7)	75	
, K	్ స్ట్రేష్ 12	107	67			
216	171	188	125	176 (48.4)	81	
°0, °0,	235	219	116			
360 55	395	366	215	340 (69.6)	94	
8 S	371	390	302			
600 5 5 5	570	592	481	552 (92.8)	92	
	619	649	403			
1000	1020	1002	677	895 (94.6)	90	
S. C.	1047	1010	615			

Table 10.2.1-4: Analytical results

of the LC₅₀ and NOEC values are given below based on mean measured concentrations.

Table 10.2.1-5: Endpoints

Endpoints (96 h)	MON 52276 [mg/L]	Glyphosate [mg/L] ¹	
LC ₅₀ (95 % C.I.)	> 895	> 277	10,11
NOEC	≥ 895	≥ 277	13

C_{50} (95 % C.1.)		> 895		211 8
OEC		\geq 895	≥	277 5.5
MON 52276 is 30.95 % glyp	bhosate as active ingredier	nt.		ALC ALC
. OBSERVATIONS			Contra Co	· 0 . 0 . 0
lortality and signs of the local signs of the local signs of the local signs are obtained by the local signs and the local signs are signs and the local signs are signs and the local signs are sig	toxicity in control ar oserved at any test con	nd treated groups are rep ncentrations.	ported below. No	mortality and
Table 10.2.1-6: Acute t Iow-through condition	oxicity of MON 522 Is	≥ 895 at. ad treated groups are reprocentrations. 76 to Common carp (Cy) Abnormalities/ Sublethal Effects	prinas carpio) u	nder
MON 52276 (mg/L) ¹	Time point (h)	Abnormalities/	Mortality ²	Cumulative % mortality
0	24	None	é 0	0
	48	observed		
	72 96	observed 5		
98	24		0	0
98	48	observed	0	0
	72	Subschool a		
176	24	None	0	0
	48	observed		
	$ \begin{array}{c} 48 \\ 72 \\ 96 \\ 96 \end{array} $			
240	96	Q N		
340	240 20 20	None observed	0	0
		observed		
552	్ స్ స్ సై సీ	None	0	0
	S 3 48	observed		
.0	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5			
	× 96		-	
895 1	S 24	None	0	0
Q.H	48 72	observed		
6.0	96			
Mean measured values	70	I		

¹ Mean measured values.

² Number of dead fish of 20 total.

All validity criteria according to OECD 203 were fulfilled, as no mortality was observed in control group, dissolved oxygen concentration was ≥ 60 % of air saturation and constant exposure conditions have been

During the test period, the dissolved oxygen during the test fell below 60 % of the air saturation value in at least one replicate at every dose level and in both replicates at the two highest dose levels; the fish did

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The following validity criteria according to the OECD 203 (2019) were fulfilled:

- The control mortality was lower than 10 % at the end of the study.
- Analytical measurement of the test concentrations was reported.

The following validity criterion according to the OECD 203 (2019) was not fulfilled:

The dissolved oxygen concentration was below the trigger value of ≥ 60 % of the air saturation value (ranging from 8.7 mg/L to 2.5 mg/L = 28.7 % through the study).

The following points deviated from current guideline too:

- Observations occurred after 24 h, 48 h, 72 h and 96 h. The requirements are the following a minimum of 2 observations within the first 24 hours of the study and on days $2 \approx 4$ of the test, all vessels with living fish inspected twice per day (preferably early morning and late afternoon to best cover the 24-hour periods).
- The pH in the highest concentration outside of accepted range of $6.0 \approx 8.5$ so the stock solution • should have been adjusted to lie within this specified range.
- Dissolved oxygen concentration dropped under 60 % of saturation (from 8.7 mg/L to 2.5 mg/L =٠ 28.7 %)
- Temperature range should not vary more than ± 1 °C and should be within the range 20 24 °C (current values: 21.7 - 23.8 °C).
- Fish length ranged from 2.7 5 cm, outside the recommended length of 2.0 4.0 cm.
- The test concentrations were not maintained within 80% of nominal concentrations at 96 h (current values from 52 to 84 %). The endpoints have been based on the overall mean measured 1. Color concentrations.

These deviations are not considered to have a negative impact on the study.



Assessment and conclusion by applicant;

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Based on arithmetic mean measured concentrations, the 96-hour LC_{50} for common carp (*Cyprinus*) *carpio*) exposed to MON 52276 in a flow-through test system was > 895 mg/L (> 277 mg glyphosate/L). The corresponding no observed effect concentration (NOEC) was \geq 895 mg/L (\geq 277 mg glyphosate/L, ihing. Š arithmetic mean measured).

The study is considered to be valid and suitable for use in the risk assessment.

Assessment and conclusion by RMS:

Data point:	CP 10.2.1/003
Report author	
Report year	1992
Report title	MON 52276: Acute toxicity to the water flea, Daphnia magna, under flow-through test conditions
Report No	J9108002a
Document No	TO-91-296
Guidelines followed in study	US EPA FIFRA 72-2 (1982), OECD 202 (1984), and EEC Method C.2 (1992).
Deviations from current test guideline	Deviations from current OECD 202 guideline (2004): Major: - none Minor: - The pH of the test system was correlated with MON 52276 concentration and varied by more than 1 unit across the 5 dose levels. - The temperature was slightly higher and ranged from 20.0 – 23.8 °C instead of 18.0 – 22.0 °C. This did not have a negative effect on the study and validity criteria are met.
Previous evaluation	Yes, accepted in RAR (2095)
GLP/Officially recognised testing facilities	Yes
Acceptability/Reliability	Valid Strate
Category study in AIR 5 dossier (L docs)	Category 2a $\mathcal{K} \mathcal{K} \mathcal{K} \mathcal{K} \mathcal{K} \mathcal{K} \mathcal{K} \mathcal{K} $
2. Full summary Executive Summary	Yes, accepted in RAR (2095) Yes Valid Category 2a Category 2a Cate

1. Information on the study

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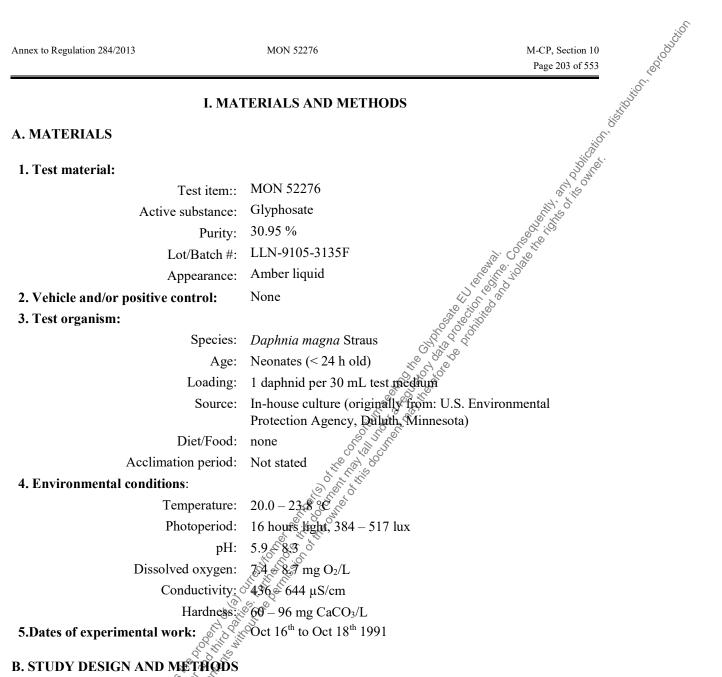
2. Full summary Executive Summary The effects of MON 52276 (30.95 % www.glyphosate acid) on *Daphnia magna* were evaluated in a 48-hour flow-through toxicity test. Neonates of Daphnia magna were exposed to nominal concentrations of MON 52276 at 130, 216, 360, 600, and 1000 mg/L and a negative control consisting of dilution water. The test consisted of two replicates per treatment group and control. 10 Daphnids were exposed per replicate and were not fed during the test Totak number of Daphnia magna exhibiting immobility and other clinical signs of toxicity was recorded at 24 and 48 hours after test initiation.

Temperature, pH-values and dissolved oxygen concentrations were measured at the beginning, at approximately 24 hours during the test and at the end of the test. At 0 and 48 hours, samples of test medium were taken for quantification of glyphosate by HPLC. The analysed test concentrations ranged between 95 and 105 % of the nominal values.

No mortality to Daphnia magna from exposure to MON 52276 was observed at test concentrations ≤ 356 mg/D. At 580 mg/L, 20 % mortality was observed at 48 hours, with 100 % mortality observed at 948 mg/E. Sublethal effects were observed only at the 580 mg/L concentration. ē

Based on mean measured concentrations, the 48-hour EC₅₀ for Daphnia magna exposed to MON 52276 in a flow-through test system was 676 mg/L (95 % confidence limits of 580 and 948 mg/L), (equivalent to 209 mg glyphosateL). The corresponding no observed effect concentration (NOEC) was 356 mg/L J. 60 D. 00 (\$107 mg glyphosate/L), based on the lack of mortality and sublethal effects at this concentration.

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1. Experimental treatments. The effects of MON 52276 (30.95 % w/w glyphosate acid) on neonates of Daphnia magna were evaluated in a 48-hour flow-through toxicity test using a proportional diluter system (1.6 cycles/h). Twenty Daphnids (2 replicates of 10 animals per test beaker) were exposed to nominal concentrations of MON 52276 at 130, 216, 360, 600, and 1000 mg/L dissolved in a blend of treated municipal water and treated well water (corresponding to 133, 227, 356, 580 and 948 mg/L of the measured concentrations). In addition, a control group was exposed to test water without test substance (blank 10,00 control).

2. Observations: Total number of immobile *Daphnia magna* was recorded 24 h and 48 h after test initiation. In addition, specimens were observed for clinical signs of toxicity.

Water temperature was measured at 0 and 48 hours in each test chamber, as well as hourly in one negative control replicate. Water pH and dissolved oxygen were recorded at test start then every 24 hours. Hardness, alkalinity and specific conductance were measured once in the dilution water at test initiation.

At and 48 hours, samples of test medium were taken for quantification of glyphosate by HPLC.

The validity criteria according to the current OECD 202 guideline are the following:

- In the control, not more than 10 percent of the daphnids should have been immobilised or show • other signs of disease or stress.
- The dissolved oxygen concentration at the end of the test should be $\geq 3 \text{ mg/L}$ in control and test is . vessels.

3. Statistical calculations: EC₅₀ values including 95 % confidence limit were determined by non-linear interpolation.

II. RESULTS AND DISCUSSION

A. FINDINGS

A and how we have iegino. The analysed test concentrations ranged between 95 and 105 % of the nominal values. The results were determined based on mean measured concentrations.
Table 10.2.1-7: Analytical results
Nominal
Measured concentration to be a second s

Nominal concentration	Measured co	oncentration [mg MC	N 52276/LJ	≫ Mean (±SD)	% of nominal
[mg MON 52276/L]	0hr	24hr	48hr 8 2		
Control	ND	ND	SND S	-	-
130	122	125	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	133 (12.1)	102
	139	136	\$\$3		
216	217	221	\$ [°] 236	227 (9.9)	105
	228	217 5 8	an 240		
360	373	3465 5 5	362	356 (16.8)	99
	370	328 ° °	359		
600	593	512 5	593	580 (41.4)	97
	612	J 350	621		
1000	969	£ 8 911	985	948 (48.1)	95
	961	870	994		

ND = not detected, limit of detection 1.9 mg/L.

The LC₅₀ and NOEC values are given below based on mean measured concentrations.

Table 10.2.1-8: Endpoints

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Endpoints	MON 52276 [mg/L]	Glyphosate [mg/L] ¹
EC_{50} (48 h)	676 mg/L (580 – 948 mg/L)	209 mg/L
NOEC (48 h)	356 mg/L	107 mg/L
¹ MON 52276 is 30.95% glyphosate as ac	tive ingredient	

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B. OBSERVATIONS

No mortality to Daphnia magna from exposure to MON 52276 was observed at test concentrations <356 mg/L. At 580 mg/L, 20 % mortality was observed at 48 hours, with 100 % mortality observed at 948 mg/L. Sublethal effects were observed only at the 580 mg/L concentration.

ex to Regulation 284/2013		MON 52276		M-CP, Section 10 Page 205 of 553
able 10.2.1-9: Acute toxi	city of MON 522	276 to Daphnia magn	a under flow-thro	M-CP, Section 10 Page 205 of 553 ugh conditions
Measured concentration MON 52276 (mg/L) ¹	Time point (h)	Abnormalities/ Sublethal Effects	No. of <i>Daphnia</i> immobilised or dead ²	Cumulative % mortality
0	24 48	None observed	0 0	
133	24 48	None observed	0 0	
227	24 48	None observed	0 0	
356	24 48	None observed		
580	24 48	None observed 3 lethargic		0 20
948	24 48	None observed		55 100

Table 10.2.1-9: Acute toxicity of MON 52276 to Daphnia magna under flow-through conditions

¹ Mean measured values. ² Of 20 total *Daphnia* in group. All validity criteria according to the OECD 202 were fulfilled; as no immobility of Daphnids was observed in control groups and dissolved oxygen concentration was 3 mg/L in all test vessels.

The following points deviated from current guideline:

- the pH of the test system was correlated with MON 522% concentration and varied by more than 1 unit across the 5 dose levels. Within each test concentration, the pH variation was less than one unit.

- The temperature range during the test was 3.8 °Cs rather than the maximum range of 2 °C specified in the guideline. ંઠે

These deviations are not considered to have a negative impact on the study. 43 000

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Assessment and conclusion by applicant:

Based on mean measured concentrations, the 48-hour EC₅₀ for Daphnia magna exposed to MON 52276 in a flow-through test system was 676 mg/L (95% confidence limits of 580 and 948 mg/L), (equivalent to 209 mg glyphosate/L). The corresponding no observed effect concentration (NOEC) was 356 mg/L (107 mg glyphosate/L) based on the lack of mortality and sublethal effects at this concentration.

The study is considered to be valid and suitable for use in the risk assessment.

ð Assessment and conclusion by RMS:

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Glyphosate Renewal Group AIR 5 - July 2020

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Annex to Regulation 284/2013	MON 52276 M-CP, Section 10	istinion south
	Page 206 of 553	je ^Q
		5
1. Information on the study		
Data point	CP 10.2.1/004	
Report author	i i i i i i i i i i i i i i i i i i i	5
Report year	1992	k.
Report title	Alga, growth inhibition test. Effect of MON 52276 on the	,
-	growth of Selenastrum capricornutum	
Report No	WE-06-057	
Document No	TO-91-298	
Guidelines followed in study	OECD Guideline 201 (1981) EU Directive 87/302/EEC, Part C (1987) NEN 6506, Delft (1984)	
	EU Directive 87/302/EEC, Part C (1987)	
	NEN 6506, Delft (1984)	
Deviations from current test	Deviation from current OECD 201 guideline (2011):	
guideline	Major:	
	- The test concentrations were not verified.	
	Minor:	
	- none	
Previous evaluation	Yes, accepted in RAR (2015)	
GLP/Officially recognised testing	Yes, accepted in RAR (2015)	
facilities		
Acceptability/Reliability	Supportive	
Category study in AIR 5 dossier	Category 2b	
(L docs)	<u> </u>	

1. Information on the study

2. Full summary Executive Summary The effects of MON 52276 on Selenastrum capitocontinuum (currently known as Raphidocelis subcapitata) were evaluated in a 72-hour static toxicity test. Algal cells were exposed to five nominal MON 52276 concentrations of 50, 90, 160, 290 and 500 mg test item/L. In addition, a control group was prepared with algae added to test medium without test substance.

Six replicate vessels were prepared for the control and three replicates for each test concentration. Each vessel was inoculated with an initial afgat cell density $1 \ge 10^4$ cells/mL.

After 24, 48, and 72 hours, mean cell densities for each test concentration and control were determined based on spectrophotometrical measurements and cell counting. The concentration resulting in 50 % inhibition of cell growth (biomass) and reduction of cell growth rate (E_bC_{50} & E_rC_{50} values respectively) were then calculated. as well as the associated NOEC values.

The 72 hour E_bC_{50} for MQN 52276 was calculated to be 150 mg/L and the 72 hour E_rC_{50} was calculated to be 393 mg/L, with a corresponding NOEC determined to be 90 mg/L. 8000th

I. MATERIALS AND METHODS

A. MATERIALS	
Test Material:	
teentification:	MON 52276
Lot No.:	LLN 260491 B
َنَّ بَنَّ Chemical purity:	31 % glyphosate acid equivalent, as 41 % isopropylamine salt of glyphosate
Physical state:	Light amber-brown liquid
Density:	1.16 mg/cm ³
Hondon Chemical purity: Hondon Chemical purity: Hondon Chemical purity: Hondon Chemical purity: Physical state: Density: Hondon Chemical purity: Chemical purity: Chem	ly 2020 Doc ID: 110054-MCP10_GRG_

Vehicle and/or positive control:

Vehicle: None

Positive control: None

Test organism:

Species:

Selenastrum capricornutum (currently known as Raphidocelis *subcapitata*)

Initial cell concentration: 1×10^4 cells/mL

All is a construction of the second s Source: Inoculum obtained from a 4 day incubated laboratory pre-culture, prepared at the performing laboratory (Original parent culture source is the Culture Centre for Amoeba and Protozoa in the UK. Strain No. CCAP 278/4) .10 000000 Contraction of the second seco

Environmental conditions:

Temperature:	20.9 – 23.1 °C (Required: 21 to 25 °C \pm 2 °C) $\stackrel{\circ}{\longrightarrow}$ $\stackrel{\circ}{\longrightarrow}$ $\stackrel{\circ}{\longrightarrow}$ 24 h light $\stackrel{\circ}{\longrightarrow}$ $\stackrel{\circ}{$
Photoperiod:	24 h light
Light intensity:	0075 ± 125 lux
pH:	8.31 – 8.97 (control), 6.38 – 8.89 at 50, 160 and 290 mg/L 7.32 – 8.99 at 90 mg/L- deviated by more than 1 pH unit (1984 guideline
1	$6.38 - 8.89$ at 50, 160 and 290 mg/L \sim
	7.32 – 8.99 at 90 mg/L- deviated by more than 1 pH unit (1984 guideline
	requirement, but within 1.5 pH units (current OECD 201 guideline
	requirement).
	5.88 – 5.98 at 500 mg/L & S
Conductivity:	Not stated
Hardness:	Not stated
	N° L° S

B. STUDY DESIGN

Experimental dates: 15 October - 18 October 1991

Experimental treatments

Based on a range finding test, the definitive algal growth inhibition test was performed with five concentrations (50, 90, 160, 220 and 500 mg test item/L) prepared by appropriate dilution of a 10 g/L stock solution. In addition, a control was also prepared where algae were exposed to algal medium only without test substance (blank control). QECD 201 recommended algal medium was used as the diluent. For each MON 52276 concentrations, three replicate vessels were prepared, and six replicate vessels were prepared for the control group 150 mL Erlenmever glass flasks with cotton wool bungs.) To each test or control vessel, 100 mL of the test medium was added, and all replicates vessels were then inoculated with algal cells, at an initial algal cell density of 1×10^4 cells/mL.

Observations 🔬

After 24, 48, and 72 hours, mean cell densities for each test concentration and control were determined based on spectrophotometrical measurements (absorbance measurement). In addition, the algal cell concentrations were also determined by microscopic counting at 48 hours and 72 hours. Inhibition of cell growth and reduction of cell growth rate were derived graphically, by plotting the average algal cell concentrations for each test concentration against time. Concentrations resulting in 50 % reduction of and the light intensity were recorded daily during the concentration at the start and end of the test. growth rate (E_rC_{50}) and 50 % inhibition of cell growth (E_bC_{50}) were determined, as well as the associated NOEC values. The endpoints were calculated for the absorbance and cell counting method. Temperature and the light intensity were recorded daily during the test, while the pH was measured in one replicate of

Statistical calculations

II. RESULTS AND DISCUSSION

A. FINDINGS

Table 10.2.1-10: Toxicity of MON 52276 to Selenastrum capricornutum

			JC.
Annex to Regulation 284/2013	MON 52276	M-CP, Section 10	1000
		Page 208 of 553	Lox
64-4 ² -4 ² -11-4 ²			illine in the second se
Statistical calculations	·	$1 \circ f C \to \infty \to 1 C \to \infty (1095)$	8
The median effect concentration	is determined using the logit mode	el of Chou and Chou (1985).	
	II. RESULTS AND DISCUSS	ION Stranger	
	II. RESULTS AND DISCUSS.		
A FINDINCS		\$	
A. FINDINGS		A CONTRACTOR	
	es are given below based on nomi	inal concentrations	
	es are given below based on nomi	inal concentrations.	
The E_rC_{50} , E_bC_{50} and NOEC value		inal concentrations.	
	tes are given below based on nomi ON 52276 to <i>Selenastrum caprice</i>	inal concentrations.	
The E_rC_{50} , E_bC_{50} and NOEC value	ON 52276 to Selenastrum caprice	»: () , , , , , , , , , , , , , , , , , ,	
The E_rC_{50} , E_bC_{50} and NOEC valu Table 10.2.1-10: Toxicity of M 0	ON 52276 to Selenastrum caprice	inal concentrations.	
The E_rC_{50} , E_bC_{50} and NOEC valu Table 10.2.1-10: Toxicity of M 0	ON 52276 to <i>Selenastrum caprico</i> MON 52276 [
The E _r C ₅₀ , E _b C ₅₀ and NOEC valu Table 10.2.1-10: Toxicity of M ⁴ Endpoint	ON 52276 to Selenastrum caprico MON 52276 [absorbance 393 150	Sell counting Sell counting Sell counting 178	
The E_rC_{50} , E_bC_{50} and NOEC valu Table 10.2.1-10: Toxicity of M Endpoint 0 - 72 h E_rC_{50} 0 - 72 h E_bC_{50} NOEC	ON 52276 to Selenastrum caprico MON 52276 [absorbance 393 150	Sell counting Sell counting	
The E_rC_{50} , E_bC_{50} and NOEC valu Table 10.2.1-10: Toxicity of M Endpoint 0 - 72 h E_rC_{50} 0 - 72 h E_bC_{50} NOEC	ON 52276 to Selenastrum caprico MON 52276 [absorbance 393 150	Sell counting Sell counting Sell counting 178	

B. OBSERVATIONS Based on cell counting, reduction of algal growth rate increased with increasing concentration of MON 52276 from a nominal concentration of 160 mg test item & upwards. For the two lowest test concentrations of 50 mg test item/L and 90 mg test item/L, increases of algal growth rate of 13.6 % and 8.4 %, respectively, were observed, with nearly 100 % inhibition in cell growth at the highest nominal concentration, compared to the control. Reduction of growth sate and cell growth results are below.

Table 10.2.1-11: Percentage reduction of growth rate and inhibition of cell growth of Selenastrum capricornutum exposed for 72 hours to MON \$2276

	Control	trol MON 52276 [mg test item/L]				
Test parameters	-	50	90	160	290	500
Mean absorbance (0-72 h)	0.260	0.419	0.391	0.128	0.027	0.015
Cell growth rate reduction (0-72 h) (%) based on absorbance	-	-13.6	-8.4	10.9	42.8	58.2
Cell growth inhibition (0-72 h) (%) based on absorbance	-	-36.9	-27.7	50.3	81.5	89.6
Mean cell densities (0-72 h) (×1000 cells/mL)	644	741	663	315	45	33
Cell growth rate reduction (0.72 h) [%] based on cell counting	-	-3.4	-0.7	17.5	64.8	72.5
Cell growth inhibition (0-92 h) [%] based on cell counting	-	-1.7	8.3	54.1	84.7	93.2

HI. CONCLUSIONS Based on absorbance, the 72 h E_rC_{50} and the 72 h E_bC_{50} for *Selenastrum capricornutum* exposed to MON 52276 were calculated to be 393 mg test item/L and 150 mg test item/L. The NOEC was determined to be 90 mg test item/L. For cell counting method, 72 h E_rC_{50} and 72 h E_bC_{50} for Selenastrum capricornutum exposed to MON 52276 were calculated to be 284 mg test item/L and 178 mg test item/L, respectively. The NOEC was determined to be 90 mg test item/L.

3. Assessment and conclusion

Assessment and conclusion by applicant:

Validity of the study was re-evaluated according to the current test guideline OECD 201 (2011) and EC_{10} , EC_{20} , and EC_{50} , NOEC and LOEC values were calculated to fulfil the data requirements according to regulation EU 283/2013.

Validity criteria		M. O
Validity criteria acc. to OECD 201 (2011)	Required (0 - 72 h)	Obtained (0 - I2 h)
The biomass in the control cultures should have increased exponentially by a factor of at least 16 within the 72-hour test period.	≥16	
The mean coefficient of variation for section-by-section specific growth rates in the control cultures must not exceed 35 %.	≤ 35 % ×	20.4 %
The coefficient of variation of average specific growth rates during the whole test period in replicate solvent control cultures must not exceed 7 %.	≤7% × × × × × × × × × × × × × × × × × × ×	4.1 %

The biomass in the control cultures increased by a factor of ≥ 16 (actual, 59), the coefficient of variance for section specific growth rates was ≤ 35 % (actual: 20.4 %) and the coefficient of variance for the whole test period it was ≤ 7 % (actual: 4.1 %).

This study was performed according to the valid test guideline at the time of conduct. In the last Annex I renewal, this study was evaluated and considered acceptable for use in risk assessment. In the current submission dossier, a re-evaluation of the study against the current test guideline validity criteria was conducted (at least a 16 fold increase in biomass, a mean coefficient of variation for section-by-section growth rates in the control being < 35 % and a coefficient of variation of the average specific growth rate over the test period in the controls being $\sqrt[87]{\%}$ and against these criteria, the study was considered valid. Chemical analysis was not conducted during the study. However, glyphosate is very water soluble (> 10 g/L) and stable under conditions of exposure in laboratory algal studies is supported by more recent studies performed with alga. The principal route of degradation of glyphosate is via microbial action. Degradation of glyphosate over a shore exposure period is not expected. Glyphosate is stable under conditions of continuous illumination (see results of the photolysis studies presented in the Environmental Fate section (see MACA Section 7). Therefore, the losses of glyphosate from the test system following 72 or 96 hr exposure would not be expected. The study should therefore be considered strongly supportive of the risk assessment. The endpoints achieved in the MON 52276 algal study were 72 hr ErC50 = 284 mg test item/L; 72 hr EbC50 = 178 mg test item/L and NOEC = 90 mg test item/L. Ì 5

Assessment and conclusion by RMS:

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Glyphosate Renewal Group AIR 5 – July 2020

Data point:	CP 10.2.1/005
Report author	
Report year	
Report title	Assessment of toxic effects of MON 52276 on aquatic plants using the duckweed <i>Lemna gibba</i> .
Report No	GA-2002-051
Document No	20021186/01-AALg
Guidelines followed in study	OECD 221 (draft of October 2000)
Deviations from current test guideline	Deviation from current OECD 221 guideline (2006)? Major: - Bacterial contamination occurred in test concentrations 2.4 and 6.8 mg/L. Minor: - none Yes, accepted in RAR (2015) Yes Supportive Category 2b
Previous evaluation	Yes, accepted in RAR (2015)
GLP/Officially recognised testing facilities	Yes
Acceptability/Reliability	Supportive
Category study in AIR 5 dossier (L docs)	Category 2b
2. Full summary Executive Summary The effects on the growth of th	e aquatic plant Lemna gibba G3 exposed to MON 52276 (30.9 % w/w

1. Information on the study

2. **Full summary**

Executive Summary

The effects on the growth of the aquatic plant Lemna gibba G3 exposed to MON 52276 (30.9 % w/w glyphosate acid) were determined in a seven-day semi-static study. For the main test, three replicates of 12 fronds in AAP Medium for Lemna gibba were exposed in glass beakers under continuous illumination to nominal MON 52276 concentrations of 0 (control), 0.9, 2.4, 6.8, 19.1, 53.6 and 150 mg/L, equivalent to 0.278; 0.742; 2.10; 5.90; 16.6; 46.4 mg glyphosate acid/L. Renewal of the test media was performed on day 3 and 5 after test initiation. Direct counts of number of fronds were conducted on day 3, 5 and 7. Observations of changes in plant development, frond size, appearance, necrosis or other abnormalities were also performed at those times? The effect on biomass production was evaluated by determining the final dry weights of the plants. The growth rate inhibition was determined by counting the number of fronds produced for each test concentration and control group. The effect on biomass production was evaluated by determining the final dry weights of the plants. Samples from all the test concentrations were collected for analysis of glyphosate by HPLC on Days 0, 3, 5 and 7.

Significant inhibitory effects of MON 52276 were observed at 53.6 and 150 mg/L (43 %) for frond numbers, growth rate and biomass increase. These were equivalent to 16.6 and 46.4 mg glyphosate acid/L respectively.

The EC₅₀ for frond number, biomass and growth rates based on frond number and biomass for MON 52276 were determined to be 66.58, 118.16 and > 150 mg MON 52276/L, respectively. The overall NOEC was determined to be 19.1 mg MON 52276/L. Hence, The EC_{50} for frond number, biomass and growth rates based on frond number and biomass were determined to be 20.57, 36.51 and > 46.35 mg glyphosate acid/L, respectively. The overall NOEC was determined to be 5.9 mg glyphosate acid/L. The validity criteria according to guideline OECD 221 are fulfilled.



Viole Balance

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I. MATERIALS AND METHODS

A. MATERIALS

1. Test material:

Test item::	MON 52276
Description:	Light amber-brown liquid formulation
Lot/Batch #:	A1C1204104
Purity:	30.9 % glyphosate acid equivalent, as 41,5
	isopropylamine salt of glyphosate
ontrol:	None

2. Vehicle and/or positive control:

3. Test organism:

Young Lemna gibba G3, 2 – 5 fronds Institut für Pflanzenökologie Un A zö University of Hohen Species: Institut für Pflanzenökologie und Ökotoxikologie, Source: University of Hohenheim, Stuttgart, Germany a regular

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May 24th to June 15th 2002

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4. Environmental conditions:

Temperature: 22 - 25 °C

Continuous illumination, 7000 lux Light intensity:

7.49 - 9.42 (adjusted to 7.5) pH: 1ºcl not stated

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Conductivity:

Not stated Hardness:

5. Dates of experimental work:

B. STUDY DESIGN AND METHODS

" Holdo 1. Experimental treatments: On the basis of the results of a range finding test, the definitive test was performed with six concentration levels, 0.9, 2.4, 6.8, 19.1, 53.6 and 150 mg MON 52276/L, equivalent to 0.278; 0.742; 2.10; 5.90; 16.6; 46.4 mg glyphosate acid/L, with 3 replicates per test concentration. Three control replicates (without test substance) were tested under the same conditions. Colonies consisting of 2 -5 fronds totalling 12 fronds per replicate were added to each replicate test chamber. The plants were placed in 100 mL test vessels containing 50 mL 20X-AAP test media. The pH of the test medium was adjusted at each test media renewal to 7.5, to avoid extreme pH values. The test was conducted under a 7day static-renewal test conditions. The renewal of the test media was performed on day 3 and 5 after test initiation. Sc Ó 77 1.01 101

2. Observations:

Biological data: Observations were made on the number and the condition of the fronds on Days 3, 5 and 7. The growth rate inhibition was determined by counting the number of fronds produced for each test concentration and control group. The effect on biomass production was evaluated by determining the final dry weights of the plants.

Physical data: pH and temperature of the test vessels were measured on days 0, 3, 5 and 7. Samples from all the test concentrations were collected for analysis of glyphosate by HPLC on Days 0, 3, 5 and 7.

and biomass were determined by probit analysis and the calculation of statistical signed determined by using one-way analysis of variance (ANOVA) and Dunnett's test (α = 0.05). 3. Statistical calculations: The 7-day EC₅₀ value for frond counts and growth rates based on frond counts and biomass were determined by probit analysis and the calculation of statistical significance was



II. RESULTS AND DISCUSSION

A. FINDINGS

Analytical data: The mean measured glyphosate concentrations were 82.9 % to 112 % of nominal over the test period. The test substance remained stable, therefore the results are based on the nominal n. Starte concentrations.

Table 10.2.1-12: Analytical results

	ncentration	Nominal concentration	Mean measured	% of nominal
	52276/L]	[mg glyphosate acid/L]	[mg glyphosate acid/I]	1 0 []
Cor	ntrol		- 200	-
0	.9	0.278	0.234	82.9
2	.4	0.742	0.701	94.5
6	.8	2.10	Nº 2 I LO	101
19	9.1	5.90	56.62	112
53	3.6	16.6	e e 17.4	105
1:	50	46.4	J 5 5 48.5	104
Results were based Table 10.2.1-13: I		52276 concentrations.		
Endpoint	Frond num	AN (A		Riomass

15	0	46.4		48.5	104
Results were based	on nominal MON 5227	6 concentration	S. C. S.		
		S	Š Š		
Table 10.2.1-13: E	ndpoints	25	No.		
		6.8 S			•
Endpoint	Frond number	Grewtera	te based on fro	nd B	iomass
	[mg/L]	S Lo O	number	[mg/L]
		AL CONT	[mg/L]		
	No	minal concentra	tion of MON 52	2276 [mg/L]	
EC_{50} (7 days)	66.58 (56.30 – 79.66)	2° 6	> 150	118.16 (9	91.37 – 171.37)
NOEC (7 days)	19.1		19.1		19.1
	Non	nal concentrati	on of glyphosat	te a.e. [mg/L]	
EC ₅₀ (7 days)	20.57 (17.39 24.61)		> 46.35	36.51 (2	8.23 - 52.95)
NOEC (7 days)	5.9 5 2		5.9		5.9
	N 8 9				

B. OBSERVATIONS

Popt of the construction o Observations: Significant inhibitory effects were observed at 2.4 and 6.8 mg/L for frond numbers and growth rates, and at 6.8 mg/L for biomass. However, these effects were not dose-related and were considered to be ductora reduced uptake of nutrients following a root decay caused by a bacterial infection. Hrad Contraction of the second Additional dose-related significant inhibitory effects were observed at 53.6 and 150.0 mg/L for frond numbers, growth rates and biomass increase.

MON 52276 concentration (mg/L) ¹	Mean	frond nur	nber ²	Mean dry weight (mg) ³	Average specific growth rate (μ)	Mean biomass increase (based on dry weight)
	Day 3	Day 5	Day 7	Day 7	0 – 7 days	0 – 7 days
0 (control)	44	120	270	32.4	0.444	3ª.Qo
0.9	45	116	234	28.5	0.4233	<u>~279</u>
2.4	43	100	204	27.8	0.4010	× 26.5
6.8	40	98	193	26.3	0.3961	25.0
19.1	49	119	242	28.3	0.4284	f i 27.0
53.6	39	84	157	24.6	0.3668	\$ 23.3
150.0	27	48	71	14.1	0.2533	12.8
¹ Nominal values. ² Initial mean frond nu ³ Initial mean dry weig						

Table 10.2.1-14: Toxicit	y of MON 52276 to <i>Le</i>	emna gibba under s	emi-static conditions

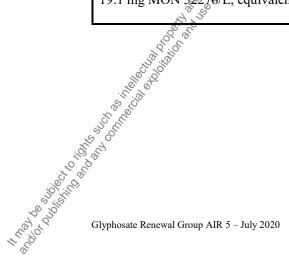
All Contraction of the second ³ Initial mean dry weight: 1.3 mg Based on nominal concentrations, the EC₅₀ for frond count of *Lemma* group exposed to MON 52276 under semi-static test conditions for 7 days was 66.58 mg MON 52276 (95%) confidence limits of 56.30 and 79.66 mg MON 52276/L), equivalent to 20.57 mg a.e./L. Since the percentage inhibition compared to control was only 43 % at the highest MON 52276 concentrations tested, the E_rC_{50} was estimated to be > 150 mg MON 52276/L, equivalent to 46.35 mg a.e./L. Based on nominal concentrations, the E_bC_{50} was 118.16 mg MON 52276/L (95 % confidence limits of 9 \$37 and 171.37 mg MON 52276/L), equivalent to 36.51 mg a.e./L. The no-observed-effect-concentration (NOBC) was 19.1 mg MON 52276/L, equivalent to 8000 onno 5.90 mg a.e./L.

The doubling time of frond numbers in the control was less than 2.5 days (37.4 hours). The validity criteria according to the current guideline OECD 221 are therefore fulfilled.

4 JUNE **HILCONCLUSION**

Assessment and conclusion by applicant:

Based on nominal concentrations, the EC50 for frond count of Lemna gibba exposed to MON 52276 under semi-static test conditions for 7 days was calculated to be 66.58 mg/L (95 % confidence limits of 56.30 and 79.66 mg MQN \$2276/L), equivalent to 20.57 mg a.e./L. Since the percentage inhibition compared to control was only 43 % at the highest MON 52276 concentrations tested, the E_rC_{50} was estimated to be store may MON 52276/L, equivalent to 46.35 mg a.e./L. Based on nominal concentrations, the E C was 118.16 mg MON 52276/L (95 % confidence limits of 91.37 and 171.37 mg MON 52276/L), equivalent to 36.51 mg a.e./L. The no-observed-effect-concentration (NOEC) was 19.1 mg MON 52276/L, equivalent to 5.90 mg a.e./L.



This study was conducted according to the draft OECD 221 test guideline from October 2000. The currently adopted test guideline is largely unchanged from the draft guideline. In the last Annex I renewal, this study was evaluated and considered acceptable for use in risk assessment. For this, submission, the study has been re-evaluated. The study was conducted at nominal rates of 0.9, 2.4, 6.87 19.1, 53.6 and 150 mg MON 52276/L. Chemical analysis was conducted during the study with mean measured concentrations of product between 82.9 and 104 % of nominal achieved. The study was considered valid with a doubling time of < 48 hours compared to the required < 2.5 days in the test guideline. The report identifies bacterial infection in some test cultures, most notably in the two lowest exposure concentrations. Relative to the control group, there was no significant difference in the frond number inhibition (%) at the end of the study across the four lowest exposure concentrations. However, there was a significant inhibition in frond number at the highest exposure concentration (150 mg MON 52276/L), where there was 43 % inhibition. Despite the apparent bacterial infection which was not confirmed in the study report – only based on observation, the study should be considered supportive for use in risk assessment. ×

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Assessment and conclusion by RMS:

1. Information on the study

	CO CO N
1. Information on the study	
Data point:	CP 10.2.1/006
Report author	LO KO KO
Report year	2012 2012
Report title	Effect of MON 52276 (Glyphosate formulation) on the Growth of <i>Myriophyllum equaticum</i> in the Presence of Sediment, with a subsequent Recovery Period.
Report No	CHE-016/4-80/A
Document No	
Guidelines followed in study	Maltby, E., et al. (2008): Aquatic Macrophyte Risk Assessment for Resticides, SETAC AMRAP
Deviations from current test &	None according to Maltby <i>et al.</i> (2008)
Previous evaluation	Yes, accepted in RAR (2015)
GLP/Officially recognised at testing facilities	Yes
Acceptability/Reliability	Valid
Category study in AIR 5 dossier (L docs)	Category 2a

Full summary 2.

Executive Summary

The toxicity of MON 52276 on growth of Myriophyllum aquaticum was evaluated in a 14 day static toxicity test, with subsequent 7 day recovery test, performed at concentrations of 0.78, 3.91, 19.6, 97.8, 489 and 244\$ mg MON52276/L, equivalent to 0.24, 1.2, 6.0, 30, 150 and 750 mg glyphosate acid equivalent/L. A No. Contraction of the second negative control (Smart & Bako medium) was prepared in parallel.

Two sets of vessels (exposure and recovery set) were prepared, with each set comprising three replicates for each test concentration and six replicates for the controls. Test vessels were 2 L beakers, each containing five individual plants potted in individual pots containing artificial sediment. Shoot length, fresh weight, dry weight and root length were determined in all vessels. Plant length was recorded at test start and after 3, 7, 10 and 14 days and after 21 days (recovery vessels). At test start and test end, fresh weight of each plant was determined. Dry weight was determined at test initiation using 25 additional plants and at test end on the tested plants. At the end of the test all plants were harvested and the root length was assessed semi-quantitatively in terms of length of the main root.

Test media were analysed for Glyphosate content at test start and end of exposure and recovery periods. The measured concentrations ranged from 83.9-145 % of nominal. Glyphosate was not detected in the and his control group.

Result showed a significant inhibition of fresh weight of 20.7 % at the lowest test concentration of 0.3 mg glyphosate acid equivalent/L. Shoot length increase and growth rate were unaffected at this concentration. Relative to the control group, at the highest treatment rate (723 mg test item/L) there was 93.8 % growth inhibition based on fresh weights, shoot length increase was inhibited by 943 growth rate by 90.2 %. The recovery period demonstrated that Myriophyllum aquaticum pre-exposed to up to 26.80 mg MON52276/L were able to recover to control levels of growth, in untreated culture medium within 7 days of transfer.

The study fulfilled the validity criteria of achieving at least 50 % increase in control plant growth in terms of length within 7 days of test initiation. The test was therefore considered to be valid.

MON 52276 significantly inhibited the fresh weight of *Myriophyllum aquaticum* after 14 days at a mean measured concentration of < 0.3 mg glyphosate acid equivalence by Shoot length was inhibited at or above mean measured concentrations of 5.16 mg glyphosate acid equivalent/L. The 14-d EC_{50} value for fresh weight inhibition was 4.4 mg glyphosate acid equivalent/L and for shoot length it was 13.44 mg glyphosate acid equivalent/L. Myriophyllum aquaticum pre-exposed for 14 days to up to 26.80 mg glyphosate acid equivalent/L were able to recover in untreated culture medium after a 7 day recovery period.

L. I. MATERIALS AND METHODS . Hallow

A. MATERIALS

1. Test material:

Test item: Glyphosate SL formulation (MON 52276)

Description: Clear, yellow, viscous liquid

Lot/Batch #: A9K0106104

None

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Purity: 358.8 ± 4.0 g glyphosate acid equivalent/L (30.68 % w/w)

2. Vehicle and/or positive control:

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3. Test organism:

Species: Myriophyllum aquaticum

Source: Institut für Gewässerschutz, MESOCOSM GmbH, Neu-Ulrichstein 5, D-35315 Homberg (Ohm), Germany

10,00 trado o piloticio de la contrata de 4. Environmental conditions:

Growth medium: Smart & Bako medium

A the state of the Artificial sediment: 4-5 % peat 20% kaolin clay 75 - 76% quartz sand CaCO₃ (if needed to adjust pH to 7.0 ± 0.5) Based on artificial soil used in OECD guideline 219 Moistening of sediment up to 30 % with deionised water or nutrient medium (ammonium chloride and sodium 6,5 Alion phosphate) iture: 20.0 °C riod: 16 h light nsity 7295 – 7518 lux pH: <u>Values recorded at test start and end (in brackets) of 14 day</u> Temperature: Photoperiod: Light intensity 8. 9. A HILL exposure period: 0.82) 0.82) 0.82) 0.82) 0.82) 0.1 mg/L = 8.01 (8.82) 0.1 mg/L = 8.15 (8.82) 0.1 mg/L = 7.79 0 145 mg/I Controls = 7.97 (8.78 – 8.82) 723 mg/L = 3.86 (6.09 - 6.82) $\begin{array}{c} \underline{ldef}\\ \text{id start = 6.t}\\ \text{id start = 6.t$ Values at start and end of 7 day recovery period: Values recorded at test start and end (in brackets) of 14 day Values at start and end of 7 day recovery period: Controls = 103 - 110 % (99 - 109 %)0.3 mg/L not included in the recovery period 1.1 mg/L = 108 - 114 % (103 - 110 %)the state of experimental work: 5.16 mg/L = 111 - 113 % (115 - 121 %)26.8 mg/L = 123 - 130 % (123 - 126 %)145 mg/L = 127 - 137 % (104 - 143 %)723 mg/L = 6 - 33 % (107 - 111 %)

B. STUDY DESIGN AND METHODS

1. Experimental treatments: The toxicity test on Myriophyllum aquaticum was performed with sixs concentration levels of 0.24, 1.2, 6.0, 30, 150 and 750 mg glyphosate acid equivalent/L, equivalent to 0.78, 3.91, 19.6, 97.8, 489 and 2445 mg MON 52276/L, with 3 replicates per test concentration. Six control replicates (without test substance) were tested under the same conditions as the test groups. Two sets of vessels (exposure and recovery) were prepared at the start of the test.

The plants were planted in small plastic plant pots into sediment and placed in glass beakers (test vessels), containing 2 L Smart & Bako medium. The test was conducted under static conditions. Five plants were added to each test and control replicate.

After 14 days exposure another set of Myriophyllum aquaticum replicates, exposed to the same concentration levels, were transferred into freshly prepared test medium without test item to determine the potential recovery after an exposure event.

2. Observations: Plant length, fresh weight, dry weight and root length were determined in all vessels. Plant length was recorded at test start and after 5, 8, 11 and 14 days. At lest start and test end, fresh weight of each plant was determined. Dry weight was determined at test initiation using 25 additional plants and at test end on the tested plants (dried at 105 °C for 24 h). At the end of the test all plants were harvested and the root length was assessed semi-quantitatively in terms of length of the main root. Temperature in the test chamber was recorded continuously. Oxygen content of and light intensity was recorded at test start and after 14 days.

Analytical control measurements of the actual concentration of the glyphosate were performed by means of LC/MS-MS analysis at test start, after 14 (after exposure phase) and 21 days (after recovery phase).

3. Statistical calculations: The EC_{10} , EC_{20} and EC_{50} and its 95 % confidence interval were calculated by probit analysis modified for continuous data. The NOEC values were determined by calculation of statistical significance using one-way analysis of variance (ANOVA), followed by Williams' t-test, Dunnett's t-test or Welch's t-test (p = 0.05). 435

II. RESULTS AND DISCUSSION

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A. FINDINGS

Analytical data: Analytical control measurements of the actual concentration of the glyphosate were performed at test start, after 14 and 21 days (after recovery phase). The measured concentrations ranged from 83.9 – 145 % of nominal at test start and 88.1 to 110 % of nominal at test end. Except for the lowest treatment level the test stem was stable during the test period. The results were evaluated using the geometric mean measured concentrations.

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Annex to Regulation 284/2013		MON 5	2276			M-CP, Section 10 Page 218 of 553	Selection of the select
Fable 10.2.1-15: Analy	tical results						in the second second
Nominal concentration	Test	start	Tes	Test end		Geometric mean	
[mg glyphosate a.e./L]	[mg glyp	hosate/L]	[mg glyphosate/L]		[mg glyphosate/L]		
	Measured	% of nominal	Measured	% of nominal	Measured	% of nominal	
	[mg/L]		[mg/L]		[mg/L]	100	
Control	<loq< td=""><td>-</td><td><loq< td=""><td>-</td><td>-</td><td>11-0</td><td></td></loq<></td></loq<>	-	<loq< td=""><td>-</td><td>-</td><td>11-0</td><td></td></loq<>	-	-	11-0	
0.24	0.35	145.0	0.26	110.0	0.30	\$ \$25.0	
1.2	1.15	95.6	1.05	87.8	1.10	§ 91.7	
6.0	5.03	83.9	5.29	88.1	5.16	[©] 86.0	
30	26.3	87.5	27.4	91.5	26.81 10	89.3	
150	145.0	96.5	145.0	96.4	a 145.0	96.7	
750	722.0	96.3	723.0	96.4	\$ 5728.0	100.4	
00 = 0.25 mg/I					20.	•	

Table 10.2.1-15: Analytical results

	1-16: 14-day end	-	hibition test are give	,	
Endpoint			incentration in gryp	nosate a.e. [mg/L]	44.5
		14 Day EC10 ¹	14 Day & C20 1	14 Day EC50 ¹	14 Day NOEC
Shoot length	/relative increase	0.43 (0.1 – 1.06)	§ 1,41,40.48 – 2.8)	13.44 (7.72 – 23.74)	5.16
Shoot length	/growth rate	1.07 (0.23 – 2.67)	3.81 (1.29 – 7.61)	42.79 (24.74 - 76.48)	5.16
Fresh weight	/relative increase	0.11 (0.01 – 0.33)	§ 0.39 (0.09 – 0.9)	4.44 (2.28 – 8.51)	< 0.30
Fresh weight	/ growth rate	0.16 (0.03 0.46)	0.66 (0.19 – 1.48)	10.33 (5.59 – 19.21)	< 0.30
Dry weight/r	elative increase	nd.	n.d.	n.d.	145
Dry weight/	growth rate	0.44 (n.d 7.50)	3.23 (n.d 30.52)	143.3 (10.06 - n.d.)	145
Root length/1	elative increase	1.05 (0.59 – 1.53)	1.89 (1.24 – 2.53)	5.84 (4.65 - 7.37)	1.10
Root length/g	growth rate	2.23 (đ.10 – 3.75)	6.33 (3.77 – 9.39)	46.50 (34.75 - 62.52)	1.10
		Equivale	ence in concentratio	n in MON52276 [mg/L]	
	800 5	14 Day EC ₁₀ ¹	14 Day EC ₂₀ ¹	14 Day EC ₅₀ ¹	14 Day NOEC
Shoot length	relative increase	1.39 (0.32 - 3.43)	4.60 (1.56 - 9.13)	43.81 (25.2 – 77.4)	16.82
Shoot length	growth rate	3.46 (0.74 - 8.64)	12.42 (4.20 – 24.8)	139.5 (80.6 – 249.3)	16.82
Fresh weight	/relative increase	0.36 (0.03 - 1.07)	1.27 (0.29 – 2.93)	14.47 (7.43 – 27.7)	< 0.98
Fresh weight	growth rate	0.518 (0.10 - 1.49)	2.15 (0.62 - 4.82)	33.67 (18.2 - 62.6)	< 0.98
Dry weight r	elative increase	n.d.	n.d.	n.d.	473
	anarrile note	1.42 (n.d. – 24.27)	10.52 (n.d 99.5)	467.1 (32.8 – n.d.)	473
Dry weight	growin rate		$(16(404 \ 925))$	19.04(15.2 - 24.0)	3.59
Dry weight r Dry weight r Root length/r Root length/s C(I) = 95% con n.d.: not determined	relative increase	3.40 (1.91 - 4.95)	0.10(4.04 - 8.23)	19.04 (15.2 24.0)	5.59

iostipilot. solodiol The EC₅₀ and NOEC values after 7 day recovery period are given below based on geometric mean measured out of the second concentrations.

Endpoint		Concentrations in glyphosate a.e. [mg/L]			
		7 Day Recovery EC ₅₀	7 Day Recovery NOEC		
Shoot length/relative increase		n.d.	26.80		
Shoot length/growth rate		n.d.	26.80		
Fresh weight/relative increase		n.d.	5 5 ≥ 723		
Fresh weight/ growth rate		n.d.	5 5 ≥ 723		
Dry weight/relative increase		n.d.	j© jili ≥ 723		
Dry weight/ growth rate		n.d. N.S.	≥ 723		
Root length/relative increase		n.d. Koro	≥ 723		
Root length/growth rate		n.d. J. S	≥ 723		
		Equivalence in concentrat	ion in MON52276 [mg/L]		
Shoot length/relative increase		ું મુસ. ું	87.35		
Shoot length/growth rate		ું ગુગતને.	87.35		
Fresh weight/relative increase		, n.d.	≥ 2357		
Fresh weight/ growth rate		De to n.d.	≥ 2357		
Dry weight/relative increase	and the second se	ຈັ້ນີ້ n.d.	≥ 2357		
Dry weight/ growth rate	5.5	n.d.	≥ 2357		
Root length/relative increase	Well Co. S	n.d.	≥ 2357		
Root length/growth rate		n.d.	≥ 2357		

Table 10.2.1-17: 7-day recovery endpoints

n.d.: not determined due to mathematical reasons or mappropriate data

B. OBSERVATIONS aquaticum. Growth was significantly reduced at 5.16 mg glyphosate acid equivalent /L, fresh weight at < 0.3 mg glyphosate acidequivalent/L, dry weight at 145 mg glyphosate acid equivalent/L and root length at 1.10 mg glyphosate acid equivalent L during the 14 day exposure test. In the subsequent recovery test it Hrando subjection of the subje was shown that Myrioplyllum aquaticum, pre-exposed to up to 26.80 mg glyphosate acid equivalent/L were able to recover to control levels of growth in untreated culture medium within 7 days of the exposure period.



Test parameters	Glyphosate a.e.[mg/L] (mean measured)					
	0.3	1.1	5.12	26.8	145	7230
Inhibition of shoot length increase (%)	-3.5	5.1	30.5	74.1	70.3	94.1
Inhibition of shoot length growth rate (%)	-2.6	2.0	17.5	58.1	53.6 §	88.3
Inhibition of fresh weight increase (%)	20.7	19.2	61.2	80.1	77.6 0	93.8
Inhibition of fresh weight growth rate (%)	14.6	13.3	49.4	70.9	67.8	90.2
Inhibition of dry weight increase (%)	14.7	18.2	34.3	15.8	6.9	106.6
Inhibition of dry weight growth rate (%)	11.1	14.4	29.6	49,6	ð -4.7	112.3
Inhibition of root length increase (%)	-6.8	-3.9	52.0	82.9	94.5	98.3
Inhibition of root length growth rate (%)	-1.7	-0.9	18.3	\$ 43.9	66.7	86.8
For Musicala II. an an atimum about fresh mo				© For right of	1	

Table 10.2.1-18: Percentage of inhibition of Myriophyllum aquaticum exposed for 14 days to **MON 52276**

1910 101 For Myriophyllum aquaticum, plant fresh weight measurements are relevant for risk assessment as lower variability is associated with individual plant measurement compared to procedure used for dry weights which attracts a greater variability - with all plants pooled according to treatment and then compared to dry weights established at test start using a separate set of plants, Furthermore, root length measurements are considered semi-quantitatively, as only the length of the longest roots have been measured. The number of side roots and total number have not been determined given the practical constraints associated with the sediment Myriophyllum test design. Effects on roots are considered to be reflected in fresh weight measurements.

The study fulfils the validity criteria as stated in the study plan which follows the criteria established by the AMRAP working group; with an increase of biomass (shoot length) in controls was > 50 %, indicating that continuous growth was supported throughout the test duration. Furthermore, constant maintenance of temperature $(20 \pm 2 \text{ °C})$ was also achieved.

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Assessment and conclusion by applicant:

MON 52276 significantly inhibited the fresh weight of Myriophyllum aquaticum after 14 days. Based on geometric mean measured concentrations, the 14-d E_rC_{50} value for fresh weight inhibition was 10.33 mg glyphosate acid equivalent/L and for shoot length it was 42.79 mg glyphosate acid equivalent/L. Myriophyllum aquaticum pre-exposed for 14 days to up to 26.80 mg glyphosate acid equivalent/L were able to recover in untreated culture medium after a 7 day recovery period.

The study is considered to be valid and suitable for risk assessment purposes.

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Assessment and conclusion by RMS:

, 3° . Information on the study

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	Data point:	CP 10.2.1
.0	Report author	Gabriel, U.U. et al.
	 [™]Report year 	2010
St. C.		
0 0 0 0 0 0 0 0	Glyphosate Renewal Group AIR 5 – July 2020	Doc ID: 110054-MCP10_GRG_Rev 1_Jul_2020

Annex to Regulation 284/2013	MON 52276 M-CP, Section Page 221 of :	0
Report title	Toxicity of roundup (a glyphosate product) to fingerlings of <i>Clarias gariepinus</i>	
Document No	ISSN: 159 – 3115	- C
Guidelines followed in study	None	in in the internet of the inte
Deviations from current test guideline	Not applicable	
GLP/Officially recognised testing facilities	No, not conducted under GLP/Officially recognised testing facilities (literature publication)	
Acceptability/Reliability:	Yes/Reliable with restrictions	

2. Full summary Acute static renewal bioassays were conducted on fingerling and adult of *Clarias gartepinus* (mean weight, 1.22 ± 0.6 g; mean total length, 5.25 ± 1.25 cm) using the herbicide, Roundup (glyphosate). In the acute study, fingerlings were exposed in triplicate to 0.0, 14.0, 16.0, 18.0, 200, 22.0, and 24.0 mg/L of the Color Color in the second se herbicide for 96 hours to determine general behavioural responses. The 96 hour LC₅₀ of Roundup on the fish was 19.58 mg/L.

Materials and methods

The fingerlings of C. gariepinus (mean weight 1.22 ± 0.6 g; mean total length 5.25 ± 1.25 cm) were obtained from a private farm, Comsystem, Kpite, Rivers State and transported in 25 litre jerry can to the Wet Laboratory, Department of Fisheries and Aquatic Environment, Rivers State University of Science and Technology, where they were distributed 60 fish per aquarity in four rectangular aquaria filled with 20 litre borehole water (dissolved oxygen, 0.01 ± 0.05 mg/L \oplus H-7.5 \pm 1.3; conductivity, 410 ± 20.4 μ S/cm; total dissolved solid 400 ± 10.25 ppm). They were fee at one percent biomass, half at 0900 and 1600 hours for a week. Cleaning of the tanks and water exchange were done daily. Mortality during acclimation period was less than one percent. Mucus accumulation on the skin as well as gills and skin pigmentation were recorded.

Range finding test and trial runs were done Twenty litres of each of the following concentrations: 14, 16, 18, 20, 22 and 24 ppm of Roundup containing \$60 g/l glyphosate (in the form of 480g/l isopropylamine salt) and a control were prepared in triplicate in glass aquaria. Ten fish was randomly distributed into each of the tanks. The general behaviours, opercular beat frequency, OBF, tail beat frequency, TBF and mortality (%) were recorded at 12, 24, 48, 72 and 96th hour, respectively. The exposure lasted for 96 hours. Data obtained from the experiments were subjected to ANOVA using Statistical Package for the Social Sciences, SPSS version 15 and differences among means were separated by Duncan Multiple Range test at 0.05%. The dependent variables in the trials (OBF, TBF and cumulative mortality) were regressed on concentration of the toxicant to obtain the regression lines of best fit for predicting the values of the dependent variables with changes in that of the independent with Microsoft Excel[®]. Correlation analysis was used to determine the degree of association among the dependent and independent variables. Lethal concentrations (LC50) values for the 24, 48, 70 and 96 hour and the median lethal times (MLT50) for the various concentrations of herbicide were done with Probit Analysis. Safe concentration of the herbicide at the various time intervals were obtained by multiplying the lethal concentration by a factor, 0.1. The interaction effects of the behavioural responses (TBF and OBF) with exposure duration and concentrations of the herbicides were presented graphically. 10

Results

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On introduction into the toxicant the fish showed initial hyper-excitability, stress responses such as increased opercular ventilatory rate, dash and erratic swimming and gasping for air within the first two hours. As exposure time increased before death occurred they "hung" on the surface of the solution gulping air, fell steadily to the aquaria bottom. This was usually followed by dash swimming. This sequence was repeated several times before the fish lost balance, lay flat on the bottom (exertion), tail beat stopped, Self. followed by cessation of opercular movement and then death (non-response to tactile stimuli).

Table 10.2.1-19: Tail and opercular beat frequency (TBF and OBF) and cumulative mortality of fingerlings of C. gariepinus exposed to various concentrations of Roundup for 96 hours

Variable			Tim	e of exposure	(hours)		C C C C C C C C C C C C C C C C C C C
	12		24	48	7	2	96 5 5
TBF/min.	5.45 ± 2.7	'3 ^b 15.4	9 ± 4.41 ^{ab}	7.87 ± 4.41 ^{ab}	21.12	± 5.22 ^b	4.49 ± 5.40
OBF/min.	113.50 ± 7.	23 ^a 113.	10 ± 7.60^{a}	115.23 ±7.23	10.79	± 8.99ª	65.15 € 9.15 ^b
Cum. mortality	6.67 ± 6.8	6 ^e 37.22	7 ± 31.21 ^d	56.11 ± 36.16	63.89 =	± 32.39 ^b	73.33 ±29.31°
		Concentration of Roundup (mg/l)					73.33`±29.31ª රැ.
	0.0	4.0	16.0	18.0	20.0	22.0	0 240
TBF/min.	15.73	5.79	16.46	9.00	7.04	02005	0.00
	±4.41 ^ª	±4.41ª	±4.41ª	±4.63ª	±5.92ª	<20.00€	±0.00
OBF/min.	96.71	123.27	108.58	100.93	73.42	€ 124,72 € ±16.99ªb	136.99
	±7.60 ^{bc}	±8.00 ^{ab}	±8.00 ^{a-c}	±8.00 ^{a-c}	±10.19°	€ ±16.99ªb	$\pm 16.99^{a}$
Cum. Mortality	0.00	22.67	24.00	32.67	FO CT Q	a 37.33	77.33
	±0.00	±12.80 ^d	±24.43 ^d	±19.81°	±37.70 8		±37.89ª

Means with the same superscript in the row are not significantly different (p > 0.05) and the second s

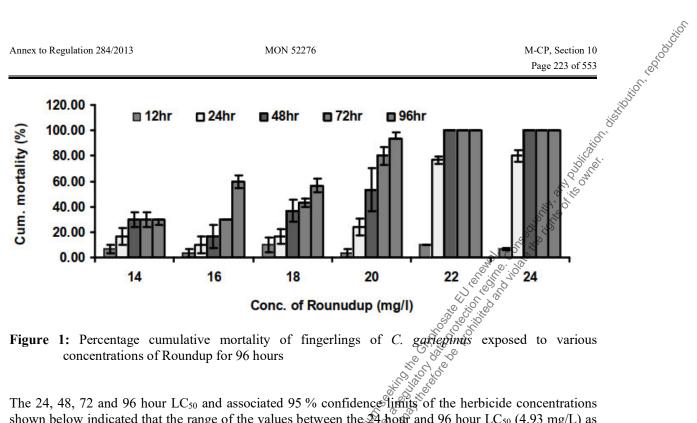
Table 10.2.1-20: Regression lines of best fit for the prediction of the values of OBF/min., TBF/min. and cumulative mortality of C. gariepinus exposed to acute levels Roundup for -unonler of th. 96 hours

Dependent Variable	Independent variable	Prediction equation	Curve type	r ²
TBF	Time	(Y=2.8415e ^{0.221x}	Exponential	0.9828
TBF	Concentration	x=0.0017x ² +0.0192x	Power	0.9442
OBF	Time	∛=23.314Ln(x) +16.325	Logarithmic	0.9186
OBF	Concentration		Logarithmic	0.9812
Mortality	Ime	Y=0.513x	Linear	0.9922
Mortality	Concentration	Y=0.0021x ² + 0.2451x +4.4278	Polynomial	0.9722

Where x = independent variable, y = dependent variable

Cumulative mortality of exposed fish was very variable relative to the concentration of the herbicide (Figure UCH I 1).

The cumulative mortality differed with the time of exposure (p < 0.01), concentration of toxicant (p < 0.001) and interactions between exposure duration and herbicide concentration (p < 0.01, Figure 1). Exposed fish produced copious amount of mucus on the gill and skin which appeared to be concentrationthe contract of the contract o dependent in exposed fish with minimal amount on the control group. Pigmentation of the skin of the fish was not noticed in any of the exposure concentrations.



shown below indicated that the range of the values between the A hour and 96 hour LC₅₀ (4.93 mg/L) as very narrow. Safe concentrations of Roundup to fingerlings of C. same pinus were very low (2.08 mg/L for 24 hour and 1.59 mg/L for 96 hour). The time it took for that of the exposed fish to die at the various exposure concentrations decreased with time with the highest concentration (24 mg/L) killing half of the exposed fish at about one sixth the time it took for 14 mg/Lof the herbicide.

I ania 1077 Lethal concentrations and associated $y_5 \%$ contidence limits of Roundlin to r_{1}
Table 10.2.1-21: Lethal concentrations and associated 95 % confidence limits of Roundup to C.
aggianing finganling averaging to Doundun for 06 hours
gariepinus fingerling exposure to Roundup for 96 hours

Time (hours)	Lethal	Safe concentration	Probit model estimation equation
24	LC50- 20.81 (19.58-22.48)	2.08	y= -4.73+0.23x
24	LC ₉₀ - 26.44 (24.45 31.47)	2.64	
48	LC₅₀-18.50 (16,67,29,40)	1.85	y= -5.18+0.29x
48	LC90-22.54 (20,88-2609)	2.25	
72	LC50-17.12 (16.30-17.84)	1.71	y= -5.30+0.31x
72	LC90-29.44 (20.59-23.31)	2.14	
96	LC5-15.88 (14.99-16.64)	1.59	y= -5.06+5.06x
96	LC 19:91 (18.97-21.42)	1.20	

Hradio and a state of the state Where y=dependent variable, x= independable variable

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Discussion

The threshold concentration causing 100 % mortality in this study was 22 mg/L which is lower than that reported for other toxicants tested on any of the clarifd species 7 suggesting that it may be more toxic than other tested toxicants. Half of the exposed fish (50%) were killed by 15.88 mg/L of herbicide if 19.69 hours, hence the herbicide can be classified as being slightly toxic. Besides, in the wild where the agro-chemical is indiscriminately used the impact of the exposure stress caused by the herbicide may be protracted, following the survivors throughout life and may affect various aspects of their lives s

Conclusion

The 24, 48, 72 and 96 hour LC₅₀ and associated 95 % confidence limits indicated that the range of the values between the 24 hour and 96 hour LC₅₀ (4.93 mg/L) as very narrow. Safe concentrations of Roundup to fingerlings of C. gariepinus were very low (2.08 mg/L for 24 hour and 1.59 mg/L for 96 hour). The 96 hour LC_{50} of Roundup on the fish was 19.58 mg/L.

3. Assessment and conclusion

Assessment and conclusion by applicant: The effects of Roundup containing 360 g/l glyphosate (equivalent to 480 g/L isopropylamine salt) were tested in an acute test with C. gariepinus fingerlings. The 96 hour-LC₉₀ was determined to be 19.91 mg product/L.

is questionable. The appearance of mucus accumulation on the skin and gills and skin pigmentation recorded in fish in the holding / stock vessels is a clear indicator of stress. Therefore, the condition of the fish used in the test is questionable. The study was not conducted in accordance with a recognised test guideline and was not performed under conditions of GLP. Furthermore, the purity of the formulation roundup is not clearly given as the specification in the full text contains some typing errors. The study is considered reliable with restrictions.

and thing Neone With Additional long-term and chronic toxicity studies on fish, aquatic **CP 10.2.2** invertebrates and sediment dwelling organisms

Available acute toxicity data on glyphosate acid and the representative product MON 52276 to fish, aquatic invertebrates, algae and aquatic macrophytes indicate no significantly enhanced toxicity of the formulated product MON 52276 in comparison to the active substance glyphosate. Therefore, based on the results of these studies the performance of any further study is not deemed necessary.

CP 10.2.3 $^{?}\mathfrak{F}$ urther testing on aquatic organisms

Further testing is not considered to be required, since the comparison of the RAC values for fish, aquatic invertebrates, algae, aquatic plants and aquatic macrophytes with the maximum PEC_{sw} values for glyphosate and the metabolites AMPA and HMPA, indicate an overall acceptable risk for aquatic organisms. Sof

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CP 10.3 Effects on Arthropods

CP 10.3.1 Effects on bees

Relevant and reliable studies for the risk assessment of honey bees, bumble bees and solitary bees, covering exposure to the different life stages of these Apis and non-Apis bee species from the active substance 5. S. glyphosate are summarised in the tables below, presenting the most sensitive endpoints.

Details of these studies with the active substance are summarised in the Document M-CA, Section 8, point 8.3.1 and relevant endpoints for the risk assessment for honey bees are provided in the table below (Table 10.3.1-1) and for bumble bees and solitary bees in Table 10.3.1-29 and Table 10.3.1-39; respectively.

Table 10.3.1-1: Endpoints and effect values of glyphosate relevant for the risk assessment for honey All Color -Uli Uli O bees

Acute toxicity				N Q Q Q	
Reference	Test item	Species	Test design/ GLP	LD ₅₀ (uga.e./bee)	NOED (μg a.e./bee)
2003 CA 8.3.1.1.1/001	Glyphosate acid	Apis mellifera	Acute oral, 48 h	ວັ _ນ ວັ>104	-
, 2003 CA 8.3.1.1.2/001	Glyphosate IPA salt	Apis mellifera	Acute contact, 48 h	f > 100	-
Chronic toxicity Reference	Test item	Species	Test design/	LDD ₅₀ (µg a.e./bee/d)	NOEDD (µg a.e./bee/d)
2017 CA 8.3.1.2/001	Glyphosate IPA- salt	Apis mellifera	Chronic, Adult 40 days	> 179.9	179.9
Honey bee developmer	nt and other honey b	ee life stages t	oxicity		
Reference	Test item	Species 3	Test design/ GLP	LD ₅₀ (µg a.e./larva)	NOED (µg a.e./larva)
2020 CA 8.3.1.3/001	Glyphosate IPA	Apis mellifera	Chronic larvae, 22-day	-	80
Sub-lethal toxicity	000 110 110	5			
Reference	Test item of the	Species	Test design/GLP	LD50 (µg a.e./L)	NOAEL (μg a.e./L)
2012 CA 8.3.1.4/001	Glyphosate IPA-	Apis mellifera	Bee brood feeding test. Field study	-	≥ 301000 (301 mg a.e./L)

a.e.: glyphosate acid equivalents

Endpoints in **bold** are used for visk assessment 8. j.

Studies on effects of the representative formulation MON 52276 on pollinators to fulfil the data requirements according to EU Regulation No 284/2013 are presented in the following. Studies considering + Topolo Julistic and a state of the state o the effects of MON 52276 on honey bees were assessed for their validity to current and relevant guidelines and are presented in the following table.

Table 10.3.1-2:	Studies on the toxicity of MON 52276 to honey bees
	Studies on the toxicity of 1101(52270 to honey bees

Annex to Regulation 284/2	2013	MON 52	2276		1	M-CP, Section 10 Page 226 of 553	ISO DUC
Table 10.3.1-2: Studies on the toxicity of MON 52276 to honey bees							Station to the state of the sta
Annex point	Study	Study type	Test species	Substance(s)	Status	Remark	
CP 10.3.1.1.1/001	2001	Acute oral and contact	Apis mellifera	MON 52276	Valid	Indi.	
CP 10.3.1.5/001	2011	Residues Semi-field	Apis mellifera	MON 52276	Valid	131 S.	

Literature articles and peer-reviewed published data considered to be relevant and reliable of reliable with restrictions with regards to the impact on pollinators are summarised in the table below. Full literature eve. - Section - Section - State evaluation is provided in document M-CA Section 9. A summary of previously evaluated peer reviewed literature from the RAR 2015 is also available in Annex M-CA 8-01 of the M-CA Section 8. Each literature article summary is presented below according to the respective annex point.

Table 10.3.1-3:	Literature on toxicity of MON 52276 to pollinators	0
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Annex point	Study	Study type	Substance(s) Status	Remark
CP 10.3.1.5/002	Thompson <i>et al.</i> (2014) Evaluating Exposure and Potential Effects on Honeybee Brood (<i>Apis mellifera</i>) Development Using Glyphosate as an Example.	Colony feeding study	MON 52276 Relevant applied on phacelia for residues in bee matrices Oomen study conducted with IPA salt.	NOEC for effects at colony level was 301 mg a.e./L

Endpoints of studies considered valid with the representative product MON 52276 are shown in the table below. In order to make a direct comparison of toxicity between studies conducted with MON 52276 and Indone of the second of the se those conducted with IPA salt, glyphosate technical and glyphosate acid, the endpoints from all these studies have been converted to acid equivalents (a.e.). This conversion has been made by the acid equivalent

Acute toxicity					Q M
Reference	Test item	Species	Test design/GLP	LD ₅₀ (µg a.e./bee)	NOED (µg a.e./bee)
2001 CP 10.3.1.1.1/001	MON 52276	Apis mellifera	Acute oral, 48 h	> 77	(µga.c/occ)
, 2001 CP 10.3.1.1.1/001	MON 52276	Apis mellifera	Acute contact, 48 h	> 100	
Cage and tunnel tox	cicity tests		1	W S S	
Reference	Test item	Species	Test design/GLP	Magnitude of re	sidues
2011 CP 10.3.1.5/001	MON 52276	Apis mellifera	a.e./ha) during flowering and in the presence of foraging	nectar: 2.78 – 3 pollen: 87.2 – 6 total daily intal mean residues	29 ke based on
a.e.: glyphosate acid eq Endpoints in bold are u Consideration of m	sed for risk assess	0.0	active and a second active act		

Table 10.3.1-4: Endpoints and effect values of MON 52276 relevant for the risk assessment for honey bees

Consideration of metabolites

e the state The primary metabolite of glyphosate is aminomethylphosphonic acid (AMPA). Most of the parent glyphosate is remained unchanged and only a small amount (less than 1% of the applied dose) is transformed to aminomethylphosphonic acid (AMPA).

Following application to plant tissues, unchanged glyphosate was the only residue detected in significant amounts. In presence of soil as a substrate and rotational crops glyphosate degrades quickly and AMPA was found at rates comparable or even higher than the parent glyphosate. However, the uptake via roots and translocation in the plants was very low, resulting in not significant residue levels as confirmed by several plant metabolism and confined rotational crop studies (e.g. lettuce, cabbage, peas, barley, wheat, carrot, beets and radishes) myolving application rates to bare soil equivalent to 3.87 - 6.5 kg ae/ha (exceeding the application rates according to the recent GAP). Neither glyphosate nor AMPA show a potential uptake into crops as a major part of the glyphosate is degraded into CO2. See M-CA Section 6, for details.

Therefore, studies with the metabolites are not considered necessary since the exposure to bees is covered by the assessment conducted with the parent glyphosate.

ò, Risk assessment for bees

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The table below indicates that the risk assessment for pollinators covers all the proposed uses presented in the GAP. There are some uses in the GAP that consider multiple applications, with a 28 day or 90 day interval, however the risk assessment presented here represents the maximum single application rates for refevant crop types for the proposed uses of MON 52276 according to available guidelines. No contraction of the contractio

GAP number and summary of use	Μ	aximum sir	gle application	on rate (g a.e	e./ha)
	1 x 540	1 x 720	1 x 1080	1 x 1440	1 x 1800
Uses 1 a-c: Applied to weeds; pre-sowing, pre- planting, pre emergence of field crops		X	Х	Х	A SI SI
Uses 2 a-c: Applied to weeds; post-harvest, pre- sowing, pre-planting of field crops		X	Х	Х	Nenti One of
Use 3 a-b: Applied to cereal volunteers; post- harvest, pre-sowing, pre-planting of field crops	Х			<i>%</i>	
Uses 4 a-c, 5a-c: Applied to weeds (post emergence) below trees in orchards and vineyards		X	X	A C C C C C C C C C C C C C C C C C C C	40
Use 6 a-b: Applied to weeds (post emergence) in field crops BBCH < 20		X	X		
Use 7 a-b: Applied to weeds (post emergence) around rail tracks				00	Х
Use 8 and 9: Applied to invasive species (post emergence) in agricultural and non- agricultural areas		, e	91101 91101 19101 19101 19101		Х
Uses 10 a-c: Applied to couch grass; post- harvest, pre-sowing, pre-planting of field crops		X	с _С о Х	Х	

Table 10.3.1-5: Risk assessment strategy for Pollinators

X = this use is covered by the application rate indicated and a risk assessment in provided. 80

Pell. ð The evaluation of the risk for bees was performed in accordance with the recommendations of the "Guidance Document on Terrestrial Ecotoxicology", as provided by the Commission Services (SANCO/10329/2002 rev.2 (final), October 17, 2002). In addition, a risk assessment according to the "EFSA Guidance Document on the risk assessment of plant protection products on bees (Apis mellifera, Bombus spp. and solitary bee)" (2013) is presented to address the data requirements of the Regulation (EU) No. 284/2013, chronic risk to adult honey bees and honey bee brood. In consideration of the recommendations of the "Technical report on the Soutcome of the pesticides peer review meeting on general recurring issues in ecotoxicology"28 currently no risk assessment for bumble bees and solitary bees is required, given that the EFSA Bee Guidance has not yet been noted. Furthermore, EFSA stated that it is not recommended to routinely perform a tisk assessment for bumble bees and solitary bees. Nevertheless, acute studies for bumble bees and solitary bees are available and the results are presented.

Although acute contact and oral data with MON 52276 are available, the endpoints are greater than values, indicating no enhanced toxicity of the formulated product in comparison to the active substance. Thus the LD_{50} values from the active substance acute studies have been used in the acute risk assessment. This assessment adequately represents also the risk from MON 52276.

Risk assessment according to SANCO/10329/2002 rev 2 final

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The hazard quotients for oral and contact exposure of honey bees are based on the recommended field use Nonthing of the state of the st rates and are presented in the table below.

Poplicitor of the sublection o A CONTRACTOR OF Technical report on the outcome of the pesticides peer review meeting on general recurring issues in ecotoxicology, provided by EFSA, published December 22, 2015

Intended use	All uses (Uses: 1a-10c)		Č.
Active substance	glyphosate		Jon Contraction
Use pattern	1-2 x 1800 g a.e./ha,		Qно, Qnc Solution QH ≤ 50
-	1-2 x 1440 g a.e./ha,		1 C
	1-3 x 1080 g a.e./ha,		
	1-3 x 720 g a.e./ha,		J. J.
	1 x 540 g a.e./ha		La La
Test design	LD50 (lab.)	Single max. application	QHO, QHC C
	(µg a.e./bee)	rate	criterion: $Q_{\rm H} \leq 50$
		(g a.e./ha)	10.0°.0
Oral toxicity	104	1800	19.35 8
		1440	140.
		1080	\$0, 4
		720	6.9
		540	5.2
Contact toxicity	> 100	1800 5 5 5 1440 5 5 5	< 18.0
•		1440	< 14.4
		1080	< 11.0
		720 20 20	< 7.2
		540 8 5 8	< 5.4

Table 10.3.1-6: Assessment	of the risk of glynhosate	for honey bees due t	to the use of MON 52276
1 abic 10.3.1-0. Assessment	. OI THE HISK OF gryphosate	ior noncy bees due t	

Q_{HO}, Q_{HC}: Hazard quotients for oral and contact exposure.

The oral and contact hazard quotients (Q_{HO}, Q_{HC}) are below the Regulation (EC) 549/2011 trigger value of 50. Low risk to honey bees is concluded for all intended use patterns and no further testing is required.

×°

· %

20

ý° no.

jje. Further considerations regarding the risk tobees &

A low acute contact and oral risk has been demonstrated in the risk assessment above for all uses. Studies to evaluate the chronic toxicity to adult honey bees and larval honey bee development are also provided along with additional information on the acute soxicity to non-Apis bees (see section on Bumble bees and Solitary bees below). Acute toxicity testing indicated that bumble bees (Bombus terrestris) and solitary bees (Osmia bicornis) are not more sensitive compared to the honey bee and hence the risk assessment for honey bees is considered to cover other types of bee. shi.

Chronic toxicity

A 10-day chronic feeding study on adult honey bees has been conducted (, 2017, KCA 8.3.1.2/001). The findings of this study indicated that there were no delayed or cumulative toxicity effects when exposure to honey bees takes place chronically. Compared with acute testing, i.e. daily dosing with 179.9 ug a.e./bee over 10 days (total dose = 1799 ug a.e./bee) led to negligible mortality (3.3 %) and did not exhibit a higher mortality than after single acute oral exposure at 104 μ g a.e./bee.

Larval toxicity/effects on brood

8%

A 22-day repeated dose laboratory test has been conducted (2000, 2020, KCA 8.3.1.3/001). A NOED for honey becarvae of 80 µg a.e./larva was recorded indicating similar sensitivity as adult honey bees.

There is currently no agreed chronic or larval risk assessment. However, as both endpoints are presented in terms of concentration in diet in addition to dose per honey bee and larva, respectively, it is possible to extrapolate the exposure to honey bees under natural conditions. (2011, CP 10.3.1.5/001) provides measurements of the levels of exposure in nectar and honey following an application at 288 kg a.e./ha, which exceeds the maximum single application rate of the proposed uses in the GAP. Residues in nectar samples taken from forager bees at various time points after application ranged from 2.78 to 31.3 mg a.e./kg. Residues in pollen samples taken from the pollen trap (higher than from pollen taken from foragers) at various times after application ranged from 87.2 to 629 mg a.e./kg. Using this

information, a risk assessment may be conducted in line with the recommendations of Reg (EU) No 283/2013 section 8(10) which states:

"Pending the validation and adoption of new studies and of a new risk assessment scheme, existing protocols shall be used to address the acute and chronic risk to bees, including those on colony survey and development, and the identification and measurement of relevant sub-lethal effects in the risk assessment". ð 1. Offer

Furthermore, under section 8.3.1. Effects on bees of the same Regulation it states that:

'n, "[...] risk assessment shall be based on a comparison of the relevant endpoint with those residue concentrations. If this comparison indicates that an exposure to toxic levels cannot be excluded, effects 5 shall be investigated with higher tier tests."

A comparison can be made between the chronic and larval endpoint based on concentration in test diets and the maximum concentrations of glyphosate measured in nectar and pollen. In the chronic adult study the NOEC and NOEDD values (10 days) were 10000 mg a.e./kg feeding solution and 179.9 µg a.e./bee/day, respectively. As forager bees consume a diet which is virtually 100 % nector this endpoint can be compared to the maximum measured residues in nectar of 31.3 mg a.e./kg demonstrating a margin of safety of 31.9.

In the larval toxicity study the NOEC and NOED values (over the larval development period) were 505 mg a.e./kg diet and 80 µg a.e./larva. Because larvae consume a mix of nectar and pollen it is necessary to consider the proportion of nectar and pollen in the diet and the contribution towards the exposure concentration. According to Rortais et al. $(2015)^{29}$ a single latva consumes 59.4 mg sugar and 2 mg pollen over 5 days. Assuming the nectar is foraged from treated weeds with a sugar content of 30 % (w/w) this means that the larval diet consists of 396 mg negar and 2 mg of pollen, i.e. a ratio of 0.995:0.05 (nectar:pollen). As the maximum concentration in nectar was 31.3 mg a.e./kg and in pollen 629 mg a.e./kg the diet would have a concentration of: L'L ð

Nectar: 0.995 x 31.3 mg a.e./kg = 31.1 mg a.e./kg + Pollen: 0.05 x 629 mg a.e./kg = 31.45 mg a.e./kg diet

Concentration of glyphosate in the larval dist = 62.6 mg a.e./kg (based on nectar and pollen)

Comparing the larval endpoint to the maximum measured residues in the larval diet of 62.6 mg a.e./kg a margin of safety of 8.1 is calculated. Note: This is considered a worst-case estimate of exposure as honey bee larvae are fed with royal jelly for the first two days of their development period.

Overall, a margin of safety between 31.9 and 8.1 is demonstrated for chronic exposure to adult honey bees and honey bee larvae. This approach indicates that the risk to honey bees is acceptable.

In addition, a honey bee brood feeding test (2012, KCA 8.3.1.4/001) was conducted to evaluate the potential risk to honey bee brood when they are directly exposed to glyphosate (tested as IPA salt). This study provides further information regarding the chronic risk to honey bees and honey bee brood. The dose levels of the test item were based on the residues characterised in the glasshouse study (2011, CP 10.3.1.5/00). The lowest test dose (75 mg glyphosate a.e./L) was based on the mean measured pollen and nectar concentration over the first 3 days following spray application, the mid-dose (150 mg a.e./L) was based on the highest residue concentration determined (in pollen and nectar following spray application) and the highest dose (301 mg a.e./L) was twice as high as the highest detected residue concentration. Mortality of adult honey bees as well as honey bee brood was assessed over a period of 7 days, Overall, no treatment related effects were observed. The NOAEL for adult mortality and brood development was the highest dose tested; 301 mg a.e./L. 15°5'

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Rortais et al. (2015) Modes of honeybees exposure to systemic insecticides: estimated amounts of contaminated pollen and nectar consumed by different categories of bees. Apidologie 36 (2005) 71-83

in the second second Consequently, the presented risk assessment for honey bees according to SANCO10329/2002 and taking into account the provisions in Reg (EU) No 283/2013 demonstrate a low risk to honey bees for glyphosate Contraction of the second seco and for all uses of MON 52276.

Risk assessment according to the EFSA GD on the Risk Assessment on Bees (2013)

In addition, the risk assessment for honey bees is performed in accordance with the recommendations of the "Guidance on the risk assessment of plant protection products on bees (Apis mellifera, Bombus spp. and solitary bees)", as provided by the European Food Safety Authority (EFSA Journal 2013;11(7):3295 doi: 10.2903/j.efsa.2013.3295, July 04, 2014). All calculations are based on the EFSA Screening Step and 1st Tier calculator (BeeTool v3).

The risk assessment presented here considers also the consumption of contaminated water (guttation water, surface water and puddles).

The screening step was conducted considering all recommended application rates according to the proposed y°

use pattern (downwards spray). Table 10.3.1-7: Screening assessment of the risk of glyphosate for honey bees due to the use of MON 52276

	All uses (Uses: 1a-10c)	8° M . K			
Application method	1 1 .	~ ~ ~ ~			
Active substance	Glyphosate				
Use pattern	1-2 x 1800 g a.e./ha,				
	1-2 x 1440 g a.e./ha,	L D N			
	1-3 x 1080 g a.e./ha,				
	1-3 x 720 g a.e./ha, 1 x 540 g a.e./ha	0°0			
Type design	LD ₅₀ (µg a.e./bee)	Max. single applica	tion rate	HQcontact	Trigger
- JF	1-2 x 1800 g a.e./ha, 1-2 x 1440 g a.e./ha, 1-3 x 1080 g a.e./ha, 1-3 x 720 g a.e./ha, 1 x 540 g a.e./ha LD ₅₀ (μ g a.e./bee)	(g a.e./ha)		criterion	88
	10 5. 0 5. 0 5. 0	1800		< 18.0	42
Adult acute contact	> 100	1440		< 14.4	
toxicity		1080		< 10.8	
		720		< 7.2	
		540		< 5.4	
Type design	Endpoint	Max. single	$E_f \times SV$	ETR	Trigger
	Endpoint K	application rate (kg a.e./ha)			
Adult acute oral	LD ₃₀ 5 104 μg a.e./bee	1.80	7.6	0.13	≤ 0.2
toxicity		1.44		0.11	
toxicity					_
toxicity		1.44	_	0.11	_
toxicity		1.44 1.08		0.11 0.08	
toxicity		1.44 1.08 0.72	7.6	0.11 0.08 0.05	
Adult chronic oral	LDD ₅₀ > 179.9 µg a.e./bee/day	1.44 1.08 0.72 0.54	7.6	0.11 0.08 0.05 0.04	-
Adult chronic oral	LDD ₅₀ > 179.9 µg a.e./bee/day	1.44 1.08 0.72 0.54 1.80	7.6	0.11 0.08 0.05 0.04 < 0.076	-
Adult chronic oral	LDD ₅₀ > 179.9 µg a.e./bee/day	1.44 1.08 0.72 0.54 1.80 1.44	7.6	0.11 0.08 0.05 0.04 < 0.076 < 0.06	-
Adult acute oral toxicity	LDD ₅₀ > 179.9 µg a.e./bee/day	1.44 1.08 0.72 0.54 1.80 1.44 1.08	7.6	0.11 0.08 0.05 0.04 < 0.076 < 0.06 < 0.04	-

Table 10.3.1-7: Screening assessment of the risk of glyphosate for honey bees due to the use of **MON 52276**

1.44	0.08	
1.08	0.06	10 M
0.72	0.04	S. S.
0.54	0.03	A. O.

Ef: exposure factor; SV: shortcut value; HQcontact: Hazard quotient for contact exposure; ETR: Exposure toxicity ratio AN CONTRACTION OF THE STREET 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 values shown in **bold** breach the relevant trigger.

The exposure toxicity ratio (ETR) for adult chronic toxicity is above the respective rigger value for application rates of 720 g a.e./ha, 1080 g a.e./ha, 1440 g a.e./ha and 1800 g a.e./ha. Therefore, a Tier 1 risk assessment is required for these use patterns. No risk is indicated at the screening step for the use rate of 1000 1000 1000 1000 540 g a.e./ha.

For the Tier 1 risk assessment calculations considering application of MON 52276 in crops planted in wide rows (i.e. orchards and vines) the "under crop application" scenario is used. The crop itself will not be oversprayed as the application is done only to the area under the crop. Thus no treated crop scenario is included in the following (Table 10.3.1-8 to Table 10.3.1-10). Only weeds, field margin, adjacent crop and next 10(1) IIS crop scenarios are considered.

Table 10.3.1-8: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 in orchard crops and vines at 1440 g a.e. ha

Intended use		Orchard crops, vines (Use	Orchard crops, vines (Uses: 4a, 5a)				
Application 1	nethod	downward spraying					
Crop Catego	ry	under crop application					
Active substa	ince	glyphosate state					
Use pattern		1-2 x 1440 g a.e. (ha ²)					
Test design	Endpoint (lab.)	Scenario	BBCH	Ef	SV	ETR	Trigger
Adult	$LDD_{50} > 179.9$	Weeds & S	weed < 10	1	0.27	< 0.01	0.03
chronic oral	μg a.e./bee/day	weeds	weed ≥ 10	1	2.9	< 0.02	
toxicity		field margin	weed < 10	0.0092	2.9	< 0.01	
		O KIL MIL	weed ≥ 10	0.0092	2.9	< 0.01	
		adjacent grop	weed < 10	0.0033	5.8	< 0.01	
			weed ≥ 10	0.0033	5.8	< 0.01	
	5	next erop	weed < 10	1	0.54	< 0.01	
	J.C.	e_6	weed ≥ 10	1	0.54	< 0.01	

Ef: exposure factor; SV: shoetcut value; ETR: exposure toxicity ratio.

¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator

² Max. single application rate of 1440 g a.e./ha considered for risk calculation

Table 10.3.1-9: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 in orchard crops and vines at 1080 g a.e./ha

Intended use Application I Crop categor Active substa Use pattern	method [.] y	Orchard crops, vines (Use downward spraying under crop application ¹ glyphosate 1-3 x 1080 g a.e./ha ²	es: 4a, 4b, 5a,	5b)			NIL Sor Sy Or Sy Out South
Test design	Endpoint (lab.)	Scenario	BBCH	Ef	SV	ETR 🔗	Trigger
Adult	$LDD_{50} > 179.9$	Weeds	weed < 10	1	0.27	< 0.00	
chronic oral	μg a.e./bee/day		weed ≥ 10	1	2.9	§0.0130	
toxicity		field margin	weed < 10	0.0092	2.9	∞<0.001	
			weed ≥ 10	0.0092	2.9	Q.001	
		adjacent crop	weed < 10	0.0033	5.84.8	\$ 0.001	
		- *	weed ≥ 10	0.0033	58.0	< 0.001	
		next crop	weed < 10	1	80,54,8	< 0.002	
		-	weed ≥ 10	1 0	0.54	< 0.002	

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA

Screening Step and 1st Tier Calculator ² Max. single application rate of 1080 g a.e./ha considered for risk calculation Table 10.3.1-10: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 in oneboard energy and view at 720 MON 52276 in orchard crops and vines at 720 g a.e./ha^o

Intended use Application 1 Crop Catego Active substa Use pattern	nethod ry	Orchard crops, vines (Uses, 4b, 4c, 5b, 5c) downward spraying under crop application glyphosate 1-3 x 720 g a.e./ha					
Test design	Endpoint (lab.)	Scenario	BBCH	Ef	SV	ETR	Trigger
Adult	$LDD_{50} > 179.9$	Weeds July St	weed < 10	1	0.27	< 0.001	0.03
chronic oral	μg a.e./bee/day	A. 4. 6	weed ≥ 10	1	2.9	< 0.008	
toxicity		field margin N	weed < 10	0.0092	2.9	< 0.001	
			weed ≥ 10	0.0092	2.9	< 0.001	
		adjacenterop	weed < 10	0.0033	5.8	< 0.001	
		weed ≥ 10 0.0033 5.8 < 0.001					
		next crop	weed < 10	1	0.54	< 0.002	
	j S	in Si	weed ≥ 10	1	0.54	< 0.002	

Ef: exposure factor; SV: shortcut value ETR: exposure toxicity ratio.

¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator

² Max. single application rate of 920 g a.e./ha considered for risk calculation

All exposure toxicity ratios (ETRs) for adult chronic toxicity are below the respective trigger value, indicating acceptable risk to honey bees following application of MON 52276 in orchard crops and vines according to the proposed use pattern.

The recommended use pattern for MON 52276 includes also application on railroad tracks. Application is Lico cameras) to detect weeds using image Lico cameras) to detect weeds using image Licous of the track that have weeds. The maximum application rate in any 12 months period as 35 3600 g a.e./ha (2 x 1800 g a.e./ha with a 90-day interval). Thus, the growth stage of weeds should not exceed BBCH 00 – 19. However, bees may possibly be exposed to MON 52276 by direct spraying while Glyphosate Renewal Group AIR 5 – July 2020 done by spray trains (spraying tanks, pumps and nozzles are mounted on special trains). Spray trains have

Oli Ali bees are foraging on flowers and weeds by oral uptake of contaminated pollen and nectar. As no definite crop scenario for railroad tracks is provided by EFSA, the under-crop application scenario was considered to address uses on railroad tracks.

Table 10.3.1-11: First-tier assessment (oral exposure) of the risk for honey bees due to t	he use of
MON 52276 – railroad tracks at 1800 g a.e./ha	and ship

Intended use		Railroad tracks (Uses: 7a,	, 7b)				S. S.
Application 1	method	downward spraying				Ö	2. JO
Crop Catego	Crop Category under crop application						0
Active substa	ance	glyphosate				0.0.0 0.0 0.0 0,0	
Use pattern		1-2 x 1800 g a.e./ha ²			Ś	0. 10°	
Test design	Endpoint (lab.)	Scenario	BBCH	Ef	SVS	≪ĔĨR	Trigger
Adult	$LDD_{50} > 179.9$	Weeds	weed < 10	1	0.27	0.002	0.03
chronic oral	μg a.e./bee/day		weed ≥ 10	1	2.90	S < 0.021	
toxicity		field margin	weed < 10	0.0092	\$ 239	< 0.001	
		-	weed ≥ 10	0.0092 C	2.9	< 0.001	
		adjacent crop	weed < 10	0.0033	5.8	< 0.001	
			weed ≥ 10	0.0033	ی 5.8	< 0.001	
		next crop	weed < 10	S S S	^{و-} 0.54	< 0.004	
			weed ≥ 10	6 8 2	0.54	< 0.004	

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

1 As no definite scenario for railroad tracks is provided by the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator, the under crop application scenario was considered to address uses on railroad tracks ² Max. single application rate of 1800 g a.e./ha considered for risk calculation autou n Jor Illien

All exposure toxicity ratios (ETRs) for adult chronic toxicity are below the respective trigger value, indicating acceptable risk to honey bees following application of MON 52276 on railroad tracks according to GAP. õ

3

Besides uses in agricultural areas and railroad tracks a proposed use of MON 52276 is also to control invasive weeds. It is important to control noxious, invasive weeds to help protect our diverse native plants, natural resources, and agriculture, as well as ensuring the safety of humans in the environment (e.g., Giant Hogweed). Although some noxious weeds may serve as forage for bees and other pollinators, e.g. invasive knotweed species are considered valuable to many beekeepers since they bloom later in the season than many other plants. However, the defrimental impacts of these invasive plants significantly outweigh their value as a pollen and nectar source.

MON 52276 is applied by sport application with a maximum single application rate of 1800 g a.s/ha in a 12 month period. Nevertheless, bees can be exposed while they are foraging by direct overspray or dried residues on plants and by oral uptake of contaminated pollen and nectar. Thus, an appropriate assessment is presented here to address risk from the use of MON 52276 on invasive weeds in agricultural and non-

Table 10.3.1-12: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 – invasive plant species in agricultural and non-agricultural areas at 1800 g a.e./ha

Intended use Application I Crop Catego Active substa	method ry	invasive plant species in a downward spraying under crop application ¹ glyphosate	agricultural an	d non-agrie	cultural are	eas (Uses: 8,	OF O
Use pattern		1 x 1800 g a.e./ha					Sx 2
Test design	Endpoint (lab.)	Scenario	BBCH	Ef	SV	ETR 🚿	Trigger
Adult	$LDD_{50} > 179.9$	Weeds	weed < 10	1	0.27	< 0.002	
chronic oral	μg a.e./bee/day		weed > 10	1	2.9	₹0.0210	
toxicity		field margin	weed < 10	0.0092	2.9	©<@.Q01	
		-	weed > 10	0.0092	2.9	@0.001	
		adjacent crop	weed < 10	0.0033	5.8	\$ 0.001	
		- *	weed > 10	0.0033	58	< 0.001	
		next crop	weed < 10	1	S0,54 S	< 0.004	
			weed > 10	1 0	0.54	< 0.004	

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio. ¹ As no definite scenario for invasive weeds is provided by the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator, under crop application: giant hogweed (Heracleum spp.) and Japanese knotweed (*Reynoutria japonica*) All exposure toxicity ratios (ETRs) for adult chronic toxicity are below the respective trigger value,

indicating acceptable risk to honey bees following application of MON 52276 on invasive species in agricultural and non-agricultural areas according to GAP S.

For the Tier 1 risk assessment calculations considering the pre-sowing, pre-planting and post-harvest uses e le the "bare soil application" scenario is selected.

Table 10.3.1-13: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 – pre-sowing, pre-planting and post-harvest uses at 1440 g a.e./ha

Intended use		Root & tuber vegetables, Bulb vegetables, Fruiting vegetables, Brassica,						
		Leafy vegetables, Stem v	egetables, Sug	ar beet (Us	ses: 1a, 2a)			
Application	method	downwardspraying						
Crop catego	·y	bare soil application – crop attractive for pollen and nectar ¹						
Active substa	ince	glyphosate						
Use pattern		1^{-2} x 1440 g a.e./ha ²						
Test design	Endpoint (laba)	Seenario	BBCH	Ef	SV	ETR	Trigger	
Adult	$LDD_{50} > 179.9$	treated crop	< 10	1	0.54	< 0.003	0.03	
chronic oral	μg a.e./bee/day	Weeds	< 10	1	0.27	< 0.002		
toxicity		field margin	< 10	0.0092	2.9	< 0.001		
	2.50	adjacent crop	< 10	0.0033	5.8	< 0.001		
	CO. HIS	next crop	< 10	1	0.54	< 0.003		

Ef: exposure factor; SV: Fortcut value; ETR: exposure toxicity ratio.

¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Hondo publishing to an on the second state of Screening Step and 1 Tier Calculator

 2 Max. single application rate of 1440 g a.e./ha considered for risk calculation

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Table 10.3.1-14: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 - pre-sowing, pre-planting and post-harvest uses at 1080 g a.e./ha

Intended useRoot & tuber vegetables, Bulb vegetables, Fruiting ve Leafy vegetables, Stem vegetables, Sugar beet, Legur (Uses: 1b, 2a, 2b, 2c, 6a, 10a)					Brassica, les	© 1. °C ML © 1. °	
Application	olication method downward spraying					0.19	
Crop categor	y 1	bare soil application – crop attractive for pollen and nectar ¹					ALL O'
Active substa	tive substance Glyphosate					S.S.	
Use pattern]	I-3 x 1080 g a.e./ha ²				Sec. 1	Ø
Test design	Endpoint (lal	o.) Scenario	BBCH	Ef	SV	ETR	Trigger
Adult	$LDD_{50} > 179.9$	9 treated crop	< 10	1	0.54	⊘<0.002	0.03
chronic oral	µg a.e./bee/da	y Weeds	< 10	1	0.27	_& 0 001	
toxicity		field margin	< 10	0.0092	2.9	\$ €0.001	
		adjacent crop	< 10	0.0033	58	< 0.001	
		next crop	< 10	1	×0.54 8	\$ < 0.002	

¹ Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator A MARINE A CONTRACT OF CONTRACT.

Screening Step and 1st Tier Calculator ² Max. single application rate of 1080 g a.e./ha considered for risk calculation Table 10.3.1-15: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 - pre-sowing, pre-planting and post-harvest uses at 720 g a.e./ha

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Intended use		Root & tuber vegetables,	Bulbovegetabl	es, Fruiting	g vegetable	s, Brassica,		
		Leafy vegetables. Stem v	egetables. Sug					
		(Uses: 1c, 2b, 6b, 10b, 10			0 0			
Application method downward spraying								
Crop categor		bare soil application scrop attractive for pollen and nectar ¹						
	ive substance glyphosate							
Use pattern		I-3 x 720 g a.e./ha ()						
Test design	Endpoint (lab.)	Scenario N. C	BBCH	Ef	SV	ETR	Trigger	
Adult	$LDD_{50} > 179.9$	treated crop	< 10	1	0.54	< 0.002	0.03	
chronic oral	µg a.e./bee/day	Weeds & S	< 10	1	0.27	< 0.001		
toxicity		field margin S	< 10	0.0092	2.9	< 0.001		
		adjacent crop	< 10	0.0033	5.8	< 0.001	1	
		next crop x	< 10	1	0.54	< 0.002	1	

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

¹Crop category in the first tier oral assessment according to the EFSA GD on the Risk Assessment on Bees (2013)

² Max. single application rate of 20 g as z./ha considered for risk calculation 20 21 92

All exposure toxicity ratios (ETRs) for adult chronic toxicity are below the respective trigger value, indicating acceptable risk to honey bees following application of MON 52276 pre-sowing, pre-planting and and cr post-harvest.

For the Tier 1 risk assessment calculations, considering ground directed inter-row applications in vegetables The second stand of the second stand the following crop categories are selected:

Annex to Regulation 284/2013	MON 52276	M-CP, Section 10 Page 237 of 553
Crop according to GAP	Crop Category ¹	
Root vegetables	Root vegetables	is in the second s
Tuber vegetables	Potatoes	۵. گ
Bulb vegetables	Bulb vegetables	
Fruiting vegetables	Fruiting vegetables 1, fru	
Brassica	Leafy vegetables	e za za
Leafy vegetables	Leafy vegetables, lettuce	e di t
Stem vegetables	Leafy vegetables	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Sugar beet	Sugar beet	
Legume vegetables	Pulses	

Leguine vege	tables		ruises		in in the second s	5 2				
	chosen according t and 1 st Tier Calcul	to the recommendations of the ator	e EFSA GD on t	the Risk Ass	essment on	Bees (2013) a	and the EFSA			
				Ċ						
Table 10.3.1-16: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 – fruiting, leafy and tuber vegetables at 1440 g a.s./ha										
Intended use Fruiting vegetables, Leafy vegetables, Tober vegetables (Uses: 1a, 2a)										
Application Crop categor		downward spraying fruiting vegetables 2, lett	uce and potate	es ¹						
Active substa	•	glyphosate	2 2 C							
Use pattern		1-2 x 1440 g a.e./ha ²								
Test design	Endpoint (lab.)	Scenario	BRCH	Ef	SV	ETR	Trigger			
		treated crop	£ \$10	1	0.012	< 0.001	-			
		arease and p	8≥70	1	0	< 0.001	-			
		Weeds 2	i i 10	1	2.9	< 0.017	-			
Adult		£. 0.	<u>_</u> o` ≥ 70	0.3	2.9	< 0.005				
chronic oral	$LDD_{50} > 179.9$	field margin	» <10	0.0092	2.9	< 0.001	0.03			
toxicity	μg a.e./bee/day	field margin	≥ 70	0.0092	2.9	< 0.001	0.03			
toxicity		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	< 10	0.0033	5.8	< 0.001				
		adjacent crop	≥ 70	0.0033	5.8	< 0.001				
	n	next crop	< 10	1	0.54	< 0.003				
		next crop	≥ 70	1	0.54	< 0.003				

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

In o the ulator, etc. of to 440 g at of to 440 g at of to 440 g at of the output of th ¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator, e.g. fruiting vegetables 2 = tomatoes, eggplants ² Max. single application rate of 1440 g are./ha considered for risk calculation

Table 10.3.1-17: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 - fruiting, leafy and tuber vegetables at 1080 g a.e./ha

Intended use		Emiting vagatables Loof	w vogetables	Fubor vogo	tablas (Usa	s: 16 20 24	20.60		
Intenueu use		10a)	y vegetables, 1	i uber veger	lables (Use	.s. 10, 2a, 2t			
Application 1	method	downward spraving					10 m		
Crop categor		fruiting vegetables 2, lettuce and potatoes ¹							
Active substa		glyphosate	1				M. O		
Use pattern		Fruiting vegetables, Leafy vegetables, Tuber vegetables (Uses: 1b, 2a, 2b, 2c, 6a, 7 10a) downward spraying fruiting vegetables 2, lettuce and potatoes ¹ glyphosate 1-3 x 1080 g a.e./ha ²							
Test design	Endpoint (lab.)	Scenario	BBCH	Ef	SV	ETR	© Trigger		
Adult	$LDD_{50} > 179.9$	treated crop	< 10	1	0.012	₹0.001€	0.03		
chronic oral	μg a.e./bee/day		$10 - 39^{3}$	1	0.92	o<0.004			
toxicity			10 - 49	1	0.92	Q Q 0004			
			≥ 70	1	04	≤ 0.001			
		Weeds	< 10	1	239	×<0.013			
			$10 - 39^3$	1	829 8	< 0.013			
			$10 - 49^3$	1 6	2.20	< 0.013			
			≥ 70	0.3 0	<u>~~2</u> .9	< 0.004			
		field margin	< 10	0.0092		< 0.001			
		-	$10 - 39^3$	0.0092	õ 2.9	< 0.001			
			10 - 49	0.0092	2.9	< 0.001			
			≥ 70	0.0092	2.9	< 0.001			
		adjacent crop	< 10 8	S0.0033	5.8	< 0.001			
			10-393	0.0033	5.8	< 0.001			
			10 - 49	0.0033	5.8	< 0.001			
			270 5	0.0033	5.8	< 0.001			
		next crop	s €10°	1	0.54	< 0.002] [
			0 10 x 393	1	0.54	< 0.002			
		, C	<u>10</u> – 49	1	0.54	< 0.002			
			≥ 70	1	0.54	< 0.002			

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

who and the second of the seco ¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator, e.g. fruiting vegetables 2 = tomatoes, eggplants

² Max. single application rate of 1080 g a.e./ha considered for risk calculation

³BBCH stage 10-39 relevant for the crop category potatoes

Table 10.3.1-18: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 - fruiting, leafy and tuber vegetables at 720 g a.e./ha

	-18: First-tier	MON 5 assessment (oral expo fy and tuber vegetable	sure) of the 1		oney bees	Р	CP, Section 10 age 239 of 553	<u>_</u> 0
Intended use Application 1 Crop categor Active substa Use pattern	nethod 'Y	Fruiting vegetables, Leaf downward spraying fruiting vegetables 2, lett glyphosate 1-3 x 720 g a.e./ha ²		-	tables (Use	es: 1c, 2b, 6b	, 10b, 10¢	
Test design	Endpoint (lab.)		BBCH	Ef	SV	ETR 🔗	Grigger	
Adult		treated crop	< 10	1	0.012	< 0.000		
chronic oral	μg a.e./bee/day		$10 - 39^{3}$	1	0.92	<80.003€°		
toxicity			10 - 49	1	0.92	∞<.0.003		
5			≥ 70	1	0 20	Q.001		
		Weeds	< 10	1	2.9	\$ 0.008		
			$10 - 39^3$	1	29.0	< 0.008		
			10 - 49	1	8298	< 0.008		
			≥ 70	0.3	2.2	< 0.003		
		field margin	< 10	0.0092	<u>~2.9</u>	< 0.001		
		-	10 - 39	0.0092	2.9	< 0.001		
			10 - 49	0.0092	2.9	< 0.001		
			≥ 70	0.0092	2.9	< 0.001		
		adjacent crop	< 10 🕺	\$ 0,0033	5.8	< 0.001		
			$10 - 39^{3}$		5.8	< 0.001		
			10-49 0		5.8	< 0.001		
			≥\$0,8.5	0.0033	5.8	< 0.001		
		next crop	S 10 . L	1	0.54	< 0.002		
				1	0.54	< 0.002		
		à	6 do x 49	1	0.54	< 0.002		
		4	్ల 70	1	0.54	< 0.002		

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

Post sendative and the sendence of the sendenc ¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator, e.g. fruiting vegetables 2 = tomatoes, eggplants

² Max. single application rate of 720 g a.e./ha considered for risk calculation

³ BBCH stage 10 - 39 relevant for the crop category potatoes

Table 10.3.1-19: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 - Brassica, leafy, stem, root, fruiting vegetables at 1440 g a.e./ha

Intended use	•	Root vegetables, Fruiting	g vegetables, I	Brassica,					
		Leafy vegetables, Stem v	egetables (Us	ses: 1a, 2a)			191		
Application	method	downward spraying					2004		
Crop catego	ry	leafy vegetables, root veg	getables and f	ruiting veg	etables 11		10 - A		
Active subst	ance	ylyphosate							
Use pattern		1-2 x 1440 g a.e./ha ²							
Test design	Endpoint	Scenario	BBCH	Ef	SV	ETR	Trigger		
	(lab.)					A. C. S.			
Adult	$LDD_{50} > 179.9$		< 10	1	0.54		0.03		
chronic oral	μg a.e./bee/day		≥ 70	1	0	© \$0, 0 01			
toxicity		Weeds	< 10	1	2.9 🐼	< 0 .017			
			≥ 70	0.3	2.9	0.005			
		field margin	< 10	0.0092	290	< 0.001			
			≥ 70	0.0092	2000	< 0.001			
		adjacent crop	< 10	0.0033	્રે છે.80	< 0.001			
			≥ 70	0.0033	5 58	< 0.001			
		next crop	< 10	K Z	్ల 0.54	< 0.003			
			≥ 70	ୢ୰ୄୖ	0.54	< 0.003			

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

respective of the second of th ¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator, e.g. leafy vegetables: artichokes, asparagus, Cabbages and other brassicas, cauliflowers and broccoli, chicory roots, spinach; root vegetables: anise, badian, fennel, corran, carrots, turnips for fodder, viper's grass; fruiting vegetables 1: chillies, peppers, cucumbers, gherkins, pumpkins, squash, gourds, melon, watermelons

2

² Max. single application rate of 1440 g a.e./ha considered for risk ealculation

Table 10.3.1-20: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 - Brassica, leafy, stem, root, fruiting and legume vegetables at 1080 g a.e./ha

								<u></u> 6
	Intended use		Root vegetables, Fru	iting vegetables, B	rassica,			
			Leafy vegetables, St	em vegetables, Leg	gume veget	ables (Use	1b, 2a, 2b, 2	2c, 6a, 10a)
	Application n	nethod	downward spraying					200
	Crop category	у	leafy vegetables, roo	ot vegetables, fruitin	ng vegetabl	les 1 and pu	ulses ¹	B
	Active substa	nce	glyphosate					ALL SO
	Use pattern		Leafy vegetables, St downward spraying leafy vegetables, roc glyphosate 1-3 x 1080 g a.e./ha ²	2				Control on the one
		Endpoint (lab.)	Scenario	BBCH	Ef	SV	ETR	© Trigger
	Adult	$LDD_{50} > 179.9$	treated crop	< 10	1	0.54	≶0.002∞	
	chronic oral	μg a.e./bee/day	_	$10 - 39^3$	1	5.8	o<0.025	
	toxicity			10 - 49	1	5.8 🎺	&©025	
	5			≥ 70	1	04	≤ 0.001	
			Weeds	< 10	1	259 5	×<0.013	
				$10 - 39^3$	1	82,9 8	< 0.013	
				10 - 49	1 8	× 2.9°	< 0.013	
				≥ 70	0.3 0	<u>_~2</u> 9	< 0.004	
			field margin	< 10	0.0092	2.9	< 0.001	
				$10 - 39^3$		ళ్ 2.9	< 0.001	
				10 - 49	0.0092	2.9	< 0.001	
				≥ 70	\$ 0.0092	2.9	< 0.001	
			adjacent crop	< 10 5	\$0,0033	5.8	< 0.001	
				10-39	0.0033	5.8	< 0.001	
				10 42	0.0033	5.8	< 0.001	
				_≥ 70 5	0.0033	5.8	< 0.001	
			next crop	5000	1	0.54	< 0.002	
			*	8 10 × 393	1	0.54	< 0.002	
				× s 10 - 49	1	0.54	< 0.002	
				ల్ ్≥70	1	0.54	< 0.002	
	² Max. single ap ³ BBCH stage 10	plication rate of 10 0-39 relevant for th of the of	Inext crop value; ETR: exposure to o the recommendations ator, e.g. leafy vegetable out vegetables; anke, k sumbers, gherking pum eas, cow peas, legumir 080 g ac the considered ne crop category root ve	l for risk calculation getables				
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	Glyphosate Renew	val Group AIR 5 – Ju	ly 2020		Doc I	D: 110054-M	CP10_GRG_F	tev 1_Jul_2020

Table 10.3.1-21: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 - Brassica, leafy, stem, root, fruiting and legume vegetables at 720 g a.e./ha

Intended use		Root vegetables, Fruiting	g vegetables, B	rassica,	11 (77	1 01 (1				
Application		Root vegetables, Fruiting Leafy vegetables, Stem v downward spraying	egetables, Leg	gume vegeta	ables (Uses	s: 1c, 2b, 6b	, 10b, 1 9 8)			
Crop category			leafy vegetables, root vegetables, fruiting vegetables 1 and pulses ¹							
Active substance Use pattern		leafy vegetables, root vegetables, fruiting vegetables 1 and pulses ¹ glyphosate 1-3 x 720 g a.e./ha ²								
	Endpoint (lab.)	Scenario	BBCH	Ef	SV	ETR	Trigger			
Adult	$LDD_{50} > 179.9$	treated crop	< 10	1	0.54	≈0.002∞	0.03			
chronic oral	μg a.e./bee/day		$10 - 39^3$	1	5.8	o [≤] <0.037				
toxicity			10 - 49	1	5.8 🎺	&©017				
			≥ 70	1	04	€0.001				
		Weeds	< 10	1	259	××× 0.008				
			$10 - 39^{3}$	1	82.9 8	< 0.008				
			10 - 49	1 2	× 2.9°	< 0.008				
			≥ 70	0.3 0	<u>_8°29</u>	< 0.003				
		field margin	< 10	0.0092	2.9	< 0.001				
			$10 - 39^3$	0.0092	ð 2.9	< 0.001				
			10 - 49	0.0092	2.9	< 0.001				
			≥ 70 ×	0.0092	2.9	< 0.001				
		adjacent crop	< 10	S0,0033	5.8	< 0.001				
			10 – 3 9 ° 🔊	0.0033	5.8	< 0.001				
			10 49	0.0033	5.8	< 0.001				
			_≥70,5	0.0033	5.8	< 0.001				
		next crop	<u>~</u> €100	1	0.54	< 0.002				
			8 10 x 393	1	0.54	< 0.002]			
		E Contraction of the second se	<u>5</u> 10-49	1	0.54	< 0.002]			
			≥ 70	1	0.54	< 0.002				

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

¹ Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator, e.g. leafy vegetables, artichokes, asparagus, cabbages and other brassicas, cauliflowers and broccoli, chicory roots, spinach; root vegetables; anise, gadian, fennel, corian, carrots, turnips for fodder, viper's grass; fruiting vegetables 1: chillies, peppers, cucumbers, gherkins, grumpkins, squash, gourds, melon, watermelons, leguminous for silage, leguminous vegetables, lentis, lupins, peas, soybeans, vetches

² Max. single application rate of 720 g a.e./ha considered for risk calculation

³BBCH stage 10 – 39 relevant for the crop category root vegetables

Table 10.3.1-22: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 - bulb vegetables at 1440 g a.e./ha

Intended use		Bulb vegetables (Uses: 1a	ı, 2a)				. I		
Application method		downward spraying							
Crop category		bulb vegetables ¹							
Active substance		glyphosate					The second second		
Use pattern		1-2 x 1440 g a.e./ha ²					ALL O		
Test design	Endpoint (lab.)	Scenario	BBCH	Ef	SV	ETR 🔗	Trigger		
Adult	$LDD_{50} > 179.9$	treated crop	< 10	1	0.54	< 0.003			
chronic oral	μg a.e./bee/day		≥ 70	1	0	₹0.0010			
toxicity		weeds	< 10	1	2.9	~~ (0.0 07			
			≥ 70	0.6	2.9	@0.010			
		field margin	< 10	0.0092	2.9	\$ 0.001			
		_	≥ 70	0.0092	20.9 8	< 0.001			
		adjacent crop	< 10	0.0033	585	< 0.001			
			≥ 70	0.0033	5.80	< 0.001			
		next crop	< 10	1 0	0,34	< 0.003			
		_	≥ 70	10,20	0.54	< 0.003			

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

No. ¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA

Crop category chosen according to the recommendations of the Er SA GD on the Alse sessment on Bees (2013) and the Er Screening Step and 1st Tier Calculator, e.g. bulb vegetables: garlic, leeks and other alliaceous vegetables, onions ² Max. single application rate of 1440 g a.e./ha considered for risk calculation Table 10.3.1-23: First-tier assessment (oral exposure) of the risk for honey bees due to the use of The or Club C MON 52276 - bulb vegetables at 1080 g a.e./ha

Intended use		Bulb vegetables (Uses: A	a 2 h 2 c f	5a 10a)					
Application 1	method	downward spraying (bulb vegetables ¹) bulb vegetables ¹ glyphosate 1-3 x 1080 g a.e./ba ²							
Crop categor	v	bulb vegetables ¹	(geomotes)						
Active substa	nce	glyphosate	5						
Use pattern		$1-3 \times 1080 \text{ g a.e./ha}^2$							
	Endnoint (lab.)	Scopario Q	BBCH	Ef	SV	ETR	Trigger		
Adult	$LDD_{50} > 179.9$	weeds of the second sec	<10	1	0.54	< 0.002	0.03		
chronic oral	μg a.e./bee/day	E Q O	10-39	1	5.8	< 0.025			
toxicity		S. C. S.	≥70	1	0	< 0.001			
		weeds	<10	1	2.9	< 0.013			
			10-39	1	2.9	< 0.013			
	2		≥70	0.6	2.9	< 0.008			
	S.	field margin	<10	0.0092	2.9	< 0.001			
	8° 5°	S. S	10-39	0.0092	2.9	< 0.001	-		
	18 × 1		≥70	0.0092	2.9	< 0.001			
	~`	adjacent crop	<10	0.0033	5.8	< 0.001			
	Q. H.		10-39	0.0033	5.8	< 0.001			
	20		≥70	0.0033	5.8	< 0.001			
	199	next crop	<10	1	0.54	< 0.002			
	6.6	<u>^</u>	10-39	1	0.54	< 0.002			
	00 01 01 01 01 01 01 01 01 01		≥70	1	0.54	< 0.002			

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Hondo and a start and a start and a start a st Screening Step and 1st Tier Calculator, e.g. bulb vegetables: garlic, leeks and other alliaceous vegetables, onions ² Max single application rate of 1080 g a.e./ha considered for risk calculation

Table 10.3.1-24: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276- bulb vegetables at 720 g a.e./ha

Intended use Application method Crop category Active substance		Bulb vegetables (Uses: 1 downward spraying bulb vegetables ¹ glyphosate	c, 2b, 6b, 10b,	10c)			Alli Alli Alli Alli Alli Alli Alli Alli
Use pattern	Endpoint (lab.)	1-3 x 720 g a.e./ha ² Scenario	BBCH	Ef	SV	ETR 🕺	Grigger
Adult		treated crop	< 10	1	0.54	< 0.002	Ø.03
	μg a.e./bee/day	active of op	10 - 39	1	5.8	്⊗0.017⊘	0.00
toxicity			≥ 70	1	0	<0.001	
-		weeds	< 10	1	2.9	Q.008	
			10 - 39	1	2.94	\$ 0.008	
			≥ 70	0.6	209	< 0.005	
		field margin	< 10	0.0092	829 S	< 0.001	
			10 - 39	0.0092	2.2	< 0.001	
			≥ 70	0.0092	<u>~</u> 2.9	< 0.001	
		adjacent crop	< 10	0.0033	5.8	< 0.001	
			10 - 39	0,0033	\$ 5.8	< 0.001	
			≥ 70	0.0033	5.8	< 0.001	
		next crop	< 10		0.54	< 0.002	
			10 - 39	র্জ জী ব্রু 1	0.54	< 0.002	
			≥ 700 €	<u>చి</u> 1	0.54	< 0.002	

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio. Ì

¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator, e.g. bulb vegetables: garlic Tecks and other alliaceous vegetables, onions

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² Max. single application rate of 720 g a.e./ha considered for risk calculation 6.00 (1) (1)

Table 10.3.1-25: First-tier assessment (oral exposure) of the risk for honey bees due to the use of ALL CLAR HUS MON 52276 - sugar beet at 1440 g a.e./ha

8

Intended use		Sugar beet (Uses: 1a, 2a) downward spraying sugar beet ¹					
Application method		downward spraying					
Crop catego	'y	sugar beet k k					
Active substa	ance	glyphosate i i					
Use pattern		1-2 x 1/40 g a.e./ha ²					
Test design	Endpoint (la		BBCH	Ef	SV	ETR	Trigger
Adult	$LDD_{50} > 179.$	9 treated crop	< 10	1	0.54	< 0.003	0.03
chronic oral	us a a /haa/da		≥ 70	1	0	< 0.001	
toxicity	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	5 weeds	< 10	1	2.9	< 0.017	
			≥ 70	0.25	2.9	< 0.004	
		field margin	< 10	0.0092	2.9	< 0.001	
	Q. N.	_	≥ 70	0.0092	2.9	< 0.001	
	20	adjacent crop	< 10	0.0033	5.8	< 0.001	
	18		≥ 70	0.0033	5.8	< 0.001	
	6,0	next crop	< 10	1	0.54	< 0.003	
ć			≥ 70	1	0.54	< 0.003	

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Hondo Parisin Screening Step and 1st Tier Calculator

² Max single application rate of 1440 g a.e./ha considered for risk calculation

Table 10.3.1-26: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 - sugar beet at 1080 g a.e./ha

Intended useSugar beet (Uses: 1b, 2a, 2b, 2c, 6a, 10a)Application methoddownward spraying	. ೧*
Application method downward spraying	ETR 0 Srigger 0.000 - 40 03
	A S
Crop category sugar beet ¹	20 22
Active substance glyphosate	A. 4
Use pattern $1-3 \ge 1/a^2$	M. O
<u> </u>	ETR Strigger
	0.002 0.03
	0.0010
	0.025
	Q .013
	0.003
	0.003
field margin < 10 0.0092 $\lesssim 29$ \lesssim	0.001
≥ 70 0.0092 $\otimes 2.9$ <	0.001
$\frac{-70}{10-39}$ 0.0092° 2.9 <	0.001
adjacent crop <10 0.0033 5.8 $<$	0.001
≥ 70 0.0033 ≤ 5.8 <	0.001
$\frac{10-39}{10-39}$ 0.0033 $5.8 <$	0.001
$\frac{10^{-0.00}}{10^{-0.00}} = \frac{10^{-0.00}}{10^{-0.00}} = $	0.002
$\frac{100}{270} \approx \frac{100}{5} \approx \frac{0.51}{10} \approx \frac{100}{5} \approx $	0.002
$\frac{2.70}{10-39}$ $\frac{1}{10}$ $\frac{0.54}{10}$ <	0.002
Ef: exposure factor: SV: shortcut value: ETR: exposure toxicity ratio.	0.002
Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.	s (2013) and the EFSA
Screening Step and 1st Tier Calculator	
² Max. single application rate of 1080 g a.e./ha considered for risk calculation	
No. Contraction of the second s	
Le & Le	
15 5 5°	
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Table 10.3.1-27: First-tier assessment (oral exposure) of the risk for honey bees due to the use of MON 52276 - sugar beet at 720 g a.e./ha

Intended use Application method Crop category Active substance		Sugar beet (Use 1c, 2b, 6 downward spraying sugar beet ¹ glyphosate	b, 10b, 10c)				All
Use pattern		1-3 x 720 g a.e./ha					
Test design	Endpoint (lab.)	Scenario	BBCH	Ef	SV	ETR &	Tigger
Adult	50	treated crop	< 10	1	0.54	< 0.002	Ø.03
chronic oral	μg a.e./bee/day		≥ 70	1	0	₹0.0010	
toxicity			10 - 39	1	5.8	©<€0.007	
		weeds	< 10	1	2.9	0.008	
			≥ 70	0.25	2.9	\$ 0.002	
			10 - 39	1	209 8	< 0.008	
		field margin	< 10	0.0092	829 8	< 0.001	
			≥ 70	0.0092	2.9	< 0.001	
			10 - 39	0.0092	2.9	< 0.001	
		adjacent crop	< 10	0.0033	5.8	< 0.001	
			≥ 70	0.0033	5.8	< 0.001	
			10 - 39	0.0033	5.8	< 0.001	
		next crop	< 10 🔅	S & L	0.54	< 0.002	
			≥ 70 €	হ প্র	0.54	< 0.002	
l .			10-39 0	్ _ట ్ 1	0.54	< 0.002	

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio, P

¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator

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² Max. single application rate of 720 g a.e./ha considered for risk calculation 11. 2005:

All exposure toxicity ratios (ETRs) for adult chronic toxicity are below the respective trigger value, indicating acceptable risk to honey bees following application of MON 52276 in vegetables.

Overall, a low risk to honey bees has been demonstrated in the risk assessment above for all uses according to proposed GAP. 1000 CUL

Assessment of risk according to EFSA GD on bees (2013) from exposure to contaminated water

An assessment of the risk to bees from contaminated water is provided in the table below. The risk Hrande-Julie to the solution of the solution o assessment for contaminated water focuses on honey bees only based on the very high level of water fluxes in honey bee colonies. This should be also sufficiently protective for bumble bees and solitary bees.

Table 10.3.1-28: Assessment of the risk for bees due to the use of MON 52276 considering exposure
to contaminated water

Intended use		All uses (Uses: 1a	a-10c) ng i i c (Step 3, grass/alfalfa, D2 ditch, early/la L (Step 3, pome/stone fruit, R4, early ap water consumption (μl) 11.4 11.4 11.4		a de la calencia de la ca e calencia de la calencia
Application metl	nod	downward spravi	ng		
Active substance		glyphosate			203
Use pattern 1 x 1800 g a.e./ha			1		\$.\$
•		2 x 1440 g a.e./ha	1		IN O
Water solubility		12000 mg/L			2.5
PEC _{sw} ¹		0.01141 µg a.e./L	L (Step 3, grass/alfalfa, D2 ditch, early/la	te application)	
PEC _{puddle} ²		0.032340 µg a.e./	L (Step 3, pome/stone fruit, R4, early ap	plication) 🖒	o O
Surface water ¹				10°	7
Test design	Enc	dpoint (lab.)	water consumption (µl)	ETR	Trigger
Acute	104 µg a.	e./bee	11.4	\$ 0.01	0.2
Chronic	> 179.9 µ	ıg a.e./bee/day	11.4	o<0.001	0.03
Larvae	80 µg a.e./larva		111 5	0.01	0.2
Puddle water ^{1,2}			S &	No.	
Test design	Enc	dpoint (lab.)	water consumption (µ)	ETR ²	Trigger
Acute	104 µg a.	e./bee	11.4 5 5 5	< 0.01	0.2
Chronic	> 179.9 µ	ig a.e./bee/day	11.4 6 8	< 0.001	0.03
Larvae	80 µg a.e	./larva	111 5 5	< 0.01	0.2
Guttation water					
Test design	Enc	dpoint (lab.)	water consumption (µl)	ETR	Trigger
Acute	104 µg a.	e./bee	ૂથો,4 જ	1.32	0.2
Chronic	>179.9 μ	ıg a.e./bee/day	5 19 4 8	0.411	0.03
Larvae	80 µg a.e	./larva	L & 101	11.99	0.2
ETR: exposure toxi Values shown in bo	city ratio. Id breach th	e relevant trigger.			×0.1.1.0

¹ Highest application rate of 1800 g a.e./ha considered for risk calculation, calculation based on FOCUS (2001) (for details refer to MCP Section 9) .e` ñ

² Application rate of 2 x 1440 g a.e./ha considered for risk, calculation, PEC_{puddle} was calculated using a PRZM model (for details see MCP Section 9), which is independent from the PECK S

The calculated exposure toxicity ratios (ETRs) are below the relevant trigger values for surface and puddle water indicating no risk from exposure sia contaminated water to honey bees. However, the calculated ETRs are above the trigger for guitation water. In EFSA (2013) the assumptions for the guitation risk assessment are for the crop to be the source of guttation and that this covers the risk to other sources of guttation fluid. The crop is a uniform stand of plants of a single species and at similar growth stages at any given time. In contrast MQN 52276 applications are made to a potentially diverse assemblage of weeds to be controlled. Consequently, the conditions of EFSA 2013 regarding guttation do not relate to the use of the product. Therefore, several species of weed at different growth stages may be present and will not necessarily all be producing guttation fluid. Furthermore, it was observed in Thompson (2011 CP 10.3.1.5/001) that the treated plants start to wilt soon after treatment and honey bee foraging was greatly reduced after 4 - 5 days. Root pressure and cell turgor are required for a plant to produce guttation fluid and wilted plants will rapidly stop producing guttation fluid. The reduced bee activity will also limit exposure.

The assumption that guttation fluid will contain the active substance at its limit of solubility is a huge over estimate of exposure for substances of higher water solubility such as glyphosate. There are technical considerations regarding this point to consider in relation to the risk assessment. Assuming a guttation droplet contains glyphosate at the limit of water solubility, ca. 12000 mg/L, and the daily water intake of 1.4.4 ul/bee/day (EFSA bee GD 2013) this is equivalent to a forager daily intake of 136.8 µg a.e./bee. In the AQ-day chronic study honey bees were observed to consume 179.9 μg a.e./bee/day without any observed mortality or other adverse effects. Given that the chronic risk assessment requires a trigger equivalent to approximately 34x the endpoint this would mean in order to pass the risk assessment the endpoint would

need to be > 4651.2 μ g a.e./bee/day which is almost 5 % of the average body weight of a honey bee of 100 mg. This level of consumption would not be achievable in a standard laboratory test with ad libitum feeding and is not likely to occur under field conditions. Currently it is not possible to gavage honey bees to achieve higher doses. Even so the 10-day chronic endpoint, which is a NOEDD, is higher than the worstcase unrealistic daily dose via guttation fluid which gives a good indication that there is an acceptable is a

For larvae the exposure to water is considered a moot point. For the first 3 days they are fed exclusively on worker jelly which is a secretion from the glands of nurse bees. After that on days 4 and 5 they are still fed with jelly but also receive some pollen and nectar from hive stores. Larval water needs are met from the liquid food they receive but some dilution of stored honey may occur and fed to the larvae on days 4 and 5 of their development if these coincide with periods of cool wet weather and the colony needs to use some of the stored honey. Overall of the 111 μ l water required by larval bees (EFSA bee $(aD_{2}Q_{1})$) only a minor proportion would come from extraneously collected water and of that only a fraction would be derived from guttation fluid. The real-life exposure of larvae to guttation water is probably negligible and the level of exposure to a low toxicity substances such as glyphosate arising from this is unlikely to pose a risk to honey bee brood.

The water exposure route and in particular via consumption of guttation fluid is not considered as a major exposure route compared to nectar and pollen. The presented higher the assessment for honey bees based on the worst-case exposure via nectar and pollen should be sufficiently protective for the risk from exposure 500 via contaminated water.

Additionally, it has to be considered that the bee guidance assumes that the whole water consumption is based on guttation, surface or puddle water. However, honey bees also use different sources and is most likely a mixture of available water resources.

OMO Higher-tier assessment for exposure via contaminated water

A glasshouse study was conducted to determine worst-case field exposure of bees to glyphosate by quantifying residues in relevant bee matrices; pollen and nectar (2011, CP 10.3.1.5/001). Additionally, residues in honey bee larvae were measured. In total two large glasshouses with Phacelia tanacetifolia were set up, each glasshouse contained two honey bee colonies. Glasshouses were unheated and well ventilated but insect-proof during the exposure phase, each glasshouse comprised an area of 180 m². MON 52276 was applied once during full flowering at a rate of 2880 g a.e./ha.

Samples of pollen were collected from pollen traps. For nectar samples forager bees were collected and their stomachs were prepared. Pollen and nectar samples were collected on days -1 (control), 1, 2, 3, 4 and 7. Additionally, nectar samples were taken directly from the colonies on day 7. Also honey bee larvae were collected from the combs on days 4 and 7 in each hive.

Residue analysis indicated no residues in pollen and nectar before application of MON 52276 (samples on day -1, served as control < 0.3 mg a.e./kg).

Residues in nectar samples from forager honey bees ranged from 2.78 to 31.3 mg a.e./kg. Residues in nectar samples from the colonies 7 days after application ranged from < LOQ (1.0 mg a.e./kg) to 1.30 mg a.e./kg.

Residues in pollen samples taken from the pollen traps ranged from 87.2 mg a.e./kg to 629 mg a.e./kg. Residues in larvae samples at day 4 and day 7 ranged from 1.23 mg a.e./kg to 19.50 mg a.e./kg.

During the study also the foraging activity as well as the crop status was recorded. Thus, combined with the residue data the approximate daily exposure of a honey bee colony to glyphosate residues was calculated.

Results indicated a daily intake of glyphosate residues of 44.0 mg per colony (40.6 mg via nectar and 3.4 mg sta pollen) considering the max. mean residues at day 1 at 22.0 mg per colony (20.1 mg via nectar and 1.9 mg via pollen) considering the mean residues over days 1-3.

Ş 2 Subsequently, a honey bee brood feeding test (according to Oomen et al. (1992)) was conducted to evaluate the potential risk to honey bee brood when they are directly exposed to glyphosate (tested as IPA salt) (Study No. V7H1001). The dose levels of the test item were based on the residues characterised in the glasshouse study (Study No. V7H1002, see below). The lowest dose (75 mg glyphosate a.e./L) was based on the mean pollen and nectar residue concentrations over the first 3 days following spray application, the mid-dose (150 mg a.e./L) was based on the highest residue concentration determined in pollen and nectar following spray application and the highest dose (301 mg a.e./L) was twice as high as the highest detected residue concentration.

Mortality of adult honey bees as well as honey bee brood was assessed over a period of 7 days. Overall, no treatment related effects were observed.

Considering the outcome of the Tier I calculation for contaminated water. The detected potential risk from contaminated water (guttation water) is sufficiently covered by the presented signer tier risk assessment considering exposure of honey bee via pollen and nectar. The NOAEL (305 mg.a.e./L) is based on the measured residues after an application of 2880 g a.e./ha. The highest maximum single application rate according to proposed GAP is 1800 g a.e./ha on grasses and 1440 g a.e/ha on field crops, thus, there is no uncertainty left that the risk from contaminated water can be considered as negligible. a Court il of

Bumble bees

her In consideration of the recommendations of the "Technical report on the outcome of the pesticides peer review meeting on general recurring issues in ecotoxicology currently no risk assessment for bumble bees is required, given that the EFSA Guidance Document on the risk assessment of plant protection products on bees has not yet been noted. Furthermore, EFSA stated that it cannot be recommended to routinely perform a risk assessment for bumble bees? Nevertheless, acute studies for bumble bees are available and a corresponding risk assessment is presented.

Details of the acute studies with Bombus terrestris and glyphosate are summarised in the Document M-CA, Section 8, point 8.3.1 and relevant endpoints for the risk assessment are provided in the table below.

Reference	Test item	Species	Test design/ GLP	LD50 (µg a.e./bee)	NOED (µg a.e./bee)
2017a CA 8.3.1.1.1/007	Glyphosate	Bombus terrestris	Acute oral, 48 h	> 412	≥ 412
2017a CA 8.3.1.1.2/008	Glyphosate S IPA-salt	Bombus terrestris	Acute contact, 48 h	> 461	≥ 461

Table 10.3.1-29: Endpoints and effect values of glyphosate relevant for the risk assessment for bees

Further testing with the representative product MON 52276 and the toxicity to Bombus terrestris was not considered necessary and the risk assessment will be conducted on the active substance data.

Risk assessment for bumble bees

The risk assessment for the proposed uses of MON 52276 and the effects on bumble bees is provided below. A CONTRACT OF CONTRACT.

-1/6 SLCH A DIN COLOR OF COLORO Technical report on the outcome of the pesticides peer review meeting on general recurring issues in ecotoxicology, provided by EFSA, published December 22, 2015

Intended use	All uses (Uses: 1a to 10c)				
Application method	downward spraying				Joint Contraction
Active substance	glyphosate				AN ON
Use pattern	1-2 x 1800 g a.e./ha,				7.0
	1-2 x 1440 g a.e./ha,			Ś	N.S.
	1-3 x 1080 g a.e./ha,			02	6
	1-3 x 720 g a.e./ha,			S. S. T	
	1 x 540 g a.e./ha			NO XO	- r
Type design	LD50 (µg a.e./bee)	Max. single application rat	te 🔬	MC contact eriterion	Trigger
		(g a.e./ha)	L.	criterion	
		1800		₹3.9	7
Acute contact	> 461	1440	5 5 5	< 3.1	
toxicity		1080	8.8	< 2.3	
		720	1 Se	< 1.6	
		540 Max. single application rate (kg a.e./ha)	©`	< 1.2	
Type design	LD50 (µg a.e./bee)	540 Max. single application rate (kg a.e./ha) 1.80 1.44	SV SV	ETR	Trigger
		application rate 8			
		(kg a.e./ha) کر کر ک			
Acute oral toxicity	> 412	1.80 5 5 11.2	2	< 0.05	0.036
		1.44		< 0.04	
		1.08 6 6		< 0.03	1
		0,72,0 1		< 0.02	1
		10.54 °		< 0.01]

Table 10.3.1-30: Screening assessment of the risk of glyphosate for bumble bees due to the use of	
MON 52276	

Ef: exposure factor; SV: shortcut value; HQ_{contact}: Hazard quotient for contact exposure; ETR: Exposure toxicity ratio; ETR The start of the s T HILL of the second se values shown in **bold** breach the relevant trigger.

The exposure toxicity ratio (ETR) for acute oral toxicity is above the respective trigger value for the application rates of 1440 g a.e./ha and 1800 g a.e./ha. Therefore, Tier 1 risk assessment is required for these use patterns. No risk is indicated at the screening step for the use rate of 540 g a.e./ha, 720 g a.e./ha and 11ents 1080 g a.e./ha.

1080 g a.e./ha. For the Tier 1 risk assessment calculations considering application of MON 52276 in crops planted in wide rows (i.e. orchards and vines) the "under crop application" scenario is used. The crop itself will not be oversprayed as the application is done only to the area under the crop. Thus, no treated crop scenario is included in the following assessment. Only weeds, field margin, adjacent crop and next crop scenarios are

Table 10.3.1-31: First-tier assessment (oral exposure) of the risk for bumble bees due to the use of MON 52276 in orchard crops and vines at 1440 g a.e./ha

Intended use Application method Crop Category Active substance Use pattern		Orchard crops, vines (Use downward spraying under crop application ¹ glyphosate 1-2 x 1440 g a.e./ha ²	es: 4a, 5a)				NIL Soft Soft Soft Soft Soft Soft Soft Soft
Test design	Endpoint (lab.)	Scenario	BBCH	Ef	SV	ETR 🖉	Grigger
Acute oral	$LD_{50} > 412 \ \mu g$	weeds	weed < 10	1	0.46	< 0.01	
toxicity	a.e./bee		weed ≥ 10	1	6.5	₹0.0230	
		field margin	weed < 10	0.0092	6.5	ଁ 🔬 🖓	
			weed ≥ 10	0.0092	6.5	0.01	
		adjacent crop	weed < 10	0.0033	11,2	≈0.01	
			weed ≥ 10	0.0033	14.2	< 0.01	
		next crop	weed < 10	1	8098	< 0.01	
		_	weed ≥ 10	1 0	0.2°	< 0.01	

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator ² Max. single application rate of 1440 g a.e./ha considered for risk calculation

Toll All exposure toxicity ratios (ETRs) for acute oral toxicity are below the respective trigger value, indicating acceptable risk to bumble bees following application of MON 53276 in orchard crops and vines according S OF HO C A CONTRACT to the proposed use pattern. 8 Or HIS

The recommended use pattern for MON 52276 includes also application on railroad tracks. Application is done by spray trains (spraying tanks, pumps and nozzles are mounted on special trains). Spray trains have an automatic plant detection system (infrared sensors and video cameras) to detect weeds using image processing. The automation system allows the nozzles to be opened or closed. So, MON 52276 is only sprayed on sections of the track that have weeds. The maximum application rate in any 12 months period is 3600 g a.e./ha (2×1800 g a.e./ha with a 90 day interval). Thus, the growth stage of weeds should not exceed BBCH 00-19. However, bees may possibly be exposed to MON 52276 by direct spraying while bees are foraging on flowers and weeds by oral uptake of contaminated pollen and nectar. As no definite crop scenario for railroad tracks is provided by EFSA, the under crop application scenario was considered to address uses on railroad tracks as well.

Table 10.3.1-32: First-tier assessment (oral exposure) of the risk for bumble bees due to the use of MON 52276 - railroad tracks at 1800 g a.e./ha

Intended use		Railroad tracks (Uses: 7a	, 7b)				. P
Application method		downward spraying					N. DUDI
Crop Category		under crop application ¹					2000
Active substance		glyphosate					
Use pattern		1-2 x 1800 g a.e./ha ²					
Test design	Endpoint (lab.)	Scenario	BBCH	Ef	SV	ETR 🔗	Trigger
Acute oral	$LD_{50} > 412 \ \mu g$	weeds	weed < 10	1	0.46	< 0.002	Ø.036
toxicity	a.e./bee		weed ≥ 10	1	6.5	is 0.02&	
		field margin	weed < 10	0.0092	6.5	©<@.001	
			weed ≥ 10	0.0092	6.5	Q.001	
		adjacent crop	weed < 10	0.0033	11,2	\$ 0.001	
			weed ≥ 10	0.0033	1.2,0	×< 0.001	
		next crop	weed < 10	1	S 0.9 S	< 0.004	
			weed ≥ 10	1 6	20.9°	< 0.004	

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio. As no definite scenario for railroad tracks is provided by the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator, the under crop application was considered to address uses on railroad tracks 0.3 ² Max. single application rate of 1800 g a.e./ha considered for risk calculation ø in the second

All exposure toxicity ratios (ETRs) for acute oral toxicity are below the respective trigger value, indicating acceptable risk to bumble bees following application of MON \$2276 on railroad tracks.

õ

Besides uses in agricultural areas and railroad tracks MON 52276 is also used to control invasive weeds. It is important to control noxious, invasive weeds to help protect our diverse native plants, natural resources, and agriculture. Although some noxious weeds may serve as forage for bees and other pollinators, e.g. invasive knotweed species are considered valuable to many beekeepers since they bloom later in the season than many other plants. However, the detrimental impacts of these invasive plants significantly outweigh their value as a pollen and nectar source.

their value as a pollen and nectar source. MON 52276 is applied by spot application with a maximum single application rate of 1800 g a.s/ha in a 12 tradice of the second and second month period. Nevertheless, bees can be exposed while they are foraging by direct overspray or dried residues on plants and by oral ustake of contaminated pollen and nectar. Thus, an appropriate risk assessment is presented in the following to address risk from the use of MON 52276 on invasive weeds.

Table 10.3.1-33: First-tier assessment (oral exposure) of the risk for bumble bees due to the use of MON 52276 – invasive plant species in agricultural and non-agricultural areas at 1800 g a.e./ha

Intended use Application Crop Catego Active substa	method ry	invasive plant species in a downward spraying under crop application ¹ glyphosate	agricultural an	d non-agrie	cultural are	as (Uses: 8	(9) (9) (9) (9) (9) (9) (9) (9) (9) (9)
Use pattern Test design	Endpoint (lab.)	1 x 1800 g a.e./ha ² Scenario	BBCH	Ef	SV	ETR 🔏	Trigger
Acute oral	• • • • • • • • • • • • • • • • • • • •	weeds	weed < 10	1	0.46	< 0.002	
toxicity	a.e./bee		weed > 10	1	6.5	₹0.028	
-		field margin	weed < 10	0.0092	6.5	ଁ < ଡି.001	
			weed > 10	0.0092	6.5	Q.001	
		adjacent crop	weed < 10	0.0033	11,2	\$ 0.001	
			weed > 10	0.0033	14.2	š [×] < 0.001	
		next crop	weed < 10	1	809°8	< 0.004	
			weed > 10	1 0	D.2 Q.2	< 0.004	

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

¹ As no definite scenario for invasive weeds is provided by the EFSA GD on the RiskAssessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator, under crop application: giant hogweed (Hergeleum spp.), Japanese knotweed (Reynoutria ⁶00 japonica)

N.

² Max. single application rate of 1800 g a.e./ha considered for risk calculation indicating acceptable risk to honey bees following application of MON 52276 on invasive species in agricultural and non-agricultural areas according to proposed GAP.

For the Tier 1 risk assessment calculations considering the pre-sowing, pre-planting and post-harvest uses 00 the "bare soil application" scenario is selected. ð

Table 10.3.1-34: First-tier assessment (ogal exposure) of the risk for bumble bees due to the use of MON 52276 -pre-sowing, pre-planting and post-harvest uses at 1440 g a.e./ha

			A Star					
Intended use		Root &	tuber vegetables, B	ulb vegetables,	Fruiting ve	getables, B	brassica,	
		Leafy vegetables. Stem vegetables, Sugar beet (Uses: 1a, 2a)						
Application method downward spraying								
Crop categor	ry	bare soil application – crop attractive for pollen and nectar ¹						
Active substa	nce glyphosates							
Use pattern		1-2 x 12	40 g a.e./ha ²					
Test design	Endpoint (la	¢_0,€	Scenario	BBCH	Ef	SV	ETR	Trigger
Acute oral	$LD_{50} > 412 \mu$		ted crop	< 10	1	0.9	< 0.004	0.036
toxicity	a.e./bee	? _ک wee?	ds	< 10	1	0.46	< 0.002	
		field	l margin	< 10	0.0092	6.5	< 0.001	
	8°, 10°	adja	cent crop	< 10	0.0033	11.2	< 0.001	
	6 6	next	crop	< 10	1	0.9	< 0.004	

Ef: exposure factor; SV shortcut value; ETR: exposure toxicity ratio.

¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator

² Max. single application rate of 1440 g a.e./ha considered for risk calculation alloof,

et of LI ex, accepta harvest. All exposure toxicity ratios (ETRs) for acute oral toxicity are below the respective trigger value, indicating acceptable risk to bumble bees following application of MON 52276 pre-sowing, pre-planting and post-



ion the second state of th For the Tier 1 risk assessment calculations considering ground directed inter-row applications at a rate of 1440 g a.e./ha in vegetables the following crop categories are selected:

Crop according to GAP	Crop Category ¹
Root vegetables	Root vegetables
Tuber vegetables	Potatoes
Bulb vegetables	Bulb vegetables
Fruiting vegetables	Fruiting vegetables 1, fruiting vegetables
Brassica	Leafy vegetables
Leafy vegetables	Leafy vegetables, lettuce
Stem vegetables	Leafy vegetables
Sugar beet	Sugar beet

¹ Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator Stores of Ś

Table 10.3.1-35: First-tier assessment (oral exposure) of the risk for bumble bees due to the use of MON 52276 – fruiting, leafy and tuber vegetables at 1440 g a.e./ha

					5.00			
	Intended use)	Fruiting vegetables, Leat	fy vegetables,č	T. Alexand	ables (Use	es: 1a, 2a)	
	Application	method	downward spraying		5.6			
	Crop catego		fruiting vegetables 2, lett	tuce and potate	besp			
	Active substa	ance	glyphosate	J. L. L.	, Č			
	Use pattern		1-2 x 1440 g a.e./ha ²					
	Test design	Endpoint (lab.)	downward spraying fruiting vegetables 2, lett glyphosate 1-2 x 1440 g a.e./ha ² Scenario	BBCH	Ef	SV	ETR	Trigger
	Acute oral	$LD_{50} > 412 \ \mu g$	treated crop	\$ \$ <10	1	0.03	< 0.001	0.036
	toxicity	a.e./bee	, e	,∜_,⊗≥ 70	1	0	< 0.001	
	-		weeds S	స్ < 10	1	6.5	< 0.023	
			10 CO.	s ≥ 70	0.3	6.5	< 0.007	
			field margin	< 10	0.0092	6.5	< 0.001	
			SILIT'S	≥ 70	0.0092	6.5	< 0.001	
			adjacent crop & &	< 10	0.0033	11.2	< 0.001	
				≥ 70	0.0033	11.2	< 0.001	
			next crop 8	< 10	1	0.9	< 0.004	
			O HILL N	> 70	1	0.9	< 0.004	-
	Ef: exposure fa	actor; SV: shortcut	value, ETRoexposure toxicit	y ratio.		*.,		L]
	¹ Crop category	chosen according	to the recommendations of th	e EFSA GD on	the Risk Ass	essment on	Bees (2013)	and the EFSA
	Screening Step	and 1st Tier Calcul	ator, e.g. fruiting vegetables	2 = tomatoes, e	ggplants			
	² Max. single a	pplication rate of 1	440 g a.e./ha considered for	risk calculation				
		10,00 10	treated crop weeds field margin adjacent crop next crop value: ETR exposure toxicit to the recommendations of the ator, e.g. fruiting vegetables 400 g a.e./ha considered for					
4 90 00 00 00 00 00 00 00 00 00 00 00 00	Glyphosate Rene	wal Group AIR 5 – Ju	ıly 2020		Doc II	D: 110054-N	ICP10_GRG_I	Rev 1_Jul_2020

Table 10.3.1-36: First-tier assessment (oral exposure) of the risk for bumble bees due to the use of MON 52276 - Brassica, leafy, stem, root, fruiting vegetables at 1440 g a.e./ha

Intended use		Root vegetables, Fruiting Leafy vegetables, Stem)		
Application	method	downward spraying					2000
Crop catego		leafy vegetables, root ve	getables and f	ruiting veg	etables 11		\$.\$
Active substa Use pattern	ance	glyphosate 1-2 x 1440 g a.e./ha ²				2	Chill Chill Correction Correction Correction Correction
Test design	Endpoint	Scenario	BBCH	$\mathbf{E_{f}}$	SV	ETR	Trigger
_	(lab.)						
Acute oral	$LD_{50} > 412 \ \mu g$	treated crop	< 10	1	0.9	₹00.04	0.036
toxicity	a.e./bee		≥ 70	1	0	ି 🔊 ରିପ୍ରଥିପି 1	
		weeds	< 10	1	6.5 🐼	< 0.023	
			≥ 70	0.3	6.5	0.007	
		field margin	< 10	0.0092	6.5 0	< 0.001	
			≥ 70	0.0092	265 0	< 0.001	
		adjacent crop	< 10	0.0033	ઑ્. માં, જી	< 0.001	
			≥ 70	0.0033	S 10.2	< 0.001	
		next crop	< 10		్ల 0.9	< 0.004	
			\geq 70	8 8	0.9	< 0.004	

¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator, e.g. leafy vegetables: artichokes, asparagus, Cabbages and other brassicas, cauliflowers and broccoli, chicory roots, spinach; root vegetables: anise, badian, fennel, corran, carrots, turnips for fodder, viper's grass; fruiting vegetables 1: chillies, peppers, cucumbers, gherkins, pumpkins, squash, gourds, melon, watermelons

² Max. single application rate of 1440 g a.e./ha considered for risk calculation

2000 Table 10.3.1-37: First-tier assessment (oral exposure) of the risk for bumble bees due to the use of MON 52276 - bulb vegetables at 1440 g a.e./ba

Intended use		Bulb vegetables (Uses: 1a	a, 2a)				
Application 1	nethod	downward spraying					
Crop category		bulb vegetables"					
Active substance		glyphosate న్ స్					
Use pattern		glyphosate 5 1-2 x 1440 g a.e./ha ²					
Test design	Endpoint (lab.)	Scenario	BBCH	Ef	SV	ETR	Trigger
Acute oral	$LD_{50} > 412 \ \mu g$	treated crop	< 10	1	0.9	< 0.004	0.036
toxicity	a.e./bee	\$ \$ \$ \$	≥ 70	1	0	< 0.001	
	e la	weeds	< 10	1	6.5	< 0.023	
	Solution of the second		≥ 70	0.6	6.5	< 0.014	
	0 6 	field margin	< 10	0.0092	6.5	< 0.001	
	10° 5° 50	_	≥ 70	0.0092	6.5	< 0.001	
	07.50	adjacent crop	< 10	0.0033	11.2	< 0.001	
	S. M.		≥ 70	0.0033	11.2	< 0.001	
		next crop	< 10	1	0.9	< 0.004	
	17 0 S		≥ 70	1	0.9	< 0.004	

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

¹Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Hrado optimie Screening Step and 1st Tier Calculator, e.g. bulb vegetables: garlic, leeks and other alliaceous vegetables, onions ² Max. single application rate of 1440 g a.e./ha considered for risk calculation

Table 10.3.1-38: First-tier assessment (oral exposure) of the risk for bumble bees due to the use of MON 52276 - sugar beet at 1440 g a.e./ha

Intended use		Sugar beet (Uses: 1a, 2a)					. C.
Application 1	method	downward spraying					31,0
Crop category		sugar beet ¹					200
Active substa	ance	glyphosate					NI SULUS
Use pattern		1-2 x 1440 g a.e./ha ²					
Test design	Endpoint (lab.)	Scenario	BBCH	Ef	SV	ETR 🔊	Trigger
Acute oral	$LD_{50} > 412 \ \mu g$	treated crop	< 10	1	0.9	< 0.004	0.036
toxicity	a.e./bee		≥ 70	1	0	₹0.0010	
		weeds	< 10	1	6.5	ଁ < ଡି.023	
			≥ 70	0.25	6.5	Q.006	
		field margin	< 10	0.0092	6.5	\$ 0.001	
			≥ 70	0.0092	65	×<0.001	
		adjacent crop	< 10	0.0033	81125	< 0.001	
			≥ 70	0.0033	P122	< 0.001	
		next crop	< 10	1 0	_°_0.9	< 0.004	
		_	≥ 70	10,2	0.9	< 0.004	

Ef: exposure factor; SV: shortcut value; ETR: exposure toxicity ratio.

 ¹ Crop category chosen according to the recommendations of the EFSA GD on the Risk Assessment on Bees (2013) and the EFSA Screening Step and 1st Tier Calculator
 ² Max. single application rate of 1440 g a.e./ha considered for risk calculation Rest and and a service of the servic

All exposure toxicity ratios (ETRs) for acute oral toxicity are below the respective trigger value, indicating acceptable risk to bumble bees following application of MON 52276 in vegetables.

Solitary bees

il. ý° In consideration of the recommendations of the "Technical report on the outcome of the pesticides peer review meeting on general recurring issues in econoxicology"³¹ currently no risk assessment for solitary bees is required, given that the EFSA Guidance Document on the risk assessment of plant protection products on bees has not yet been noted. Furthermore, EFSA stated that it cannot be recommended to routinely perform a risk assessment for softary bees. Nevertheless, an acute contact study for solitary bees is available and a corresponding risk assessment is presented.

Details of the studies with Osmia bicornis and glyphosate are summarised in the Document M-CA, Section 8, point 8.3.1 and relevant endpoints for the risk assessment are provided in the table below.

Table 10.3.1-39: Endpoints and effect values of glyphosate relevant for the risk assessment for 10 50 ST bees

	NOEI (µg a.e./ł	LD50 (µg a.e./bee)	Test design/ GLP	Species	Test item	Reference & g
461	≥ 461	> 461	Acute contact, 48 h	Osmia bicornis	Glyphosate K-salt	, 2017b CA 8.3.121.2009
		401	· · · · · · · · · · · · · · · · · · ·		• •	CA 8.3.147.2009

A CONTRACT OF CONTRACT. Technical report on the outcome of the pesticides peer review meeting on general recurring issues in ecotoxicology, provided by EFSA, published December 22, 2015

Further testing with the representative product MON 52276 and the toxicity to Osmia bicornis was not considered necessary and the risk assessment will be conducted on the active substance data.

Risk assessment for solitary bees

The risk assessment for the proposed uses of MON 52276 and the effects on solitary bees is provided below.

Table 10.3.1-40: Screening assessment of the risk of glyphosate for solitary bees due to the use of **MON 52276**

Intended use	All uses (Uses: 1a-10c)		No. Co.	
Application method			200,00 0	
Active substance	glyphosate		5 6 5	
Use pattern	1-2 x 1800 g a.e./ha,			
-	1-2 x 1440 g a.e./ha,	Č. Č,	S. S.	
	1-3 x 1080 g a.e./ha,	A. S.	ž.	
	1-3 x 720 g a.e./ha,			
	1 x 540 g a.e./ha	× 5,5		
Type design	LD ₅₀ (µg a.e./bee)	Max. single application rate (g a.e./ha)	HQ _{contact} criterion	Trigger
		1800	< 3.9	8
Adult acute contact	> 461	1440 5 5 5 5	< 3.1	_
toxicity		1080	< 2.3	
		720 5 5 5	< 1.6	
		5405 5 5 5	< 1.2	
HQcontact: Hazard quoties	nt for contact exposure	S S S	•	

The hazard quotients (HQ) for acute contact toxicity are above the respective trigger value for the application rates of 540 g a.e./ha, 720 g a.e./ha, 1080 g a.e./ha, 1440 g a.e./ha and 1800 g a.e./ha. Therefore, no Tier 1 risk assessment is required.

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Currently no official OECD test guideline considering oral toxicity to solitary bees is available. Thus, no study was conducted. However, comparison of the available acute contact data indicated that solitary bees did not show a higher sensitivity towards glyphosate. Therefore, the presented risk assessment considers that oral exposure of honey bees and bumble bees should be protective for solitary bees.

the out Indirect Effects on bees via Trophic Interactions

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The ecotoxicology regulatory studies database for glyphosate includes a battery of acute and chronic guideline studies, designed to assess the potential for direct effects to bees, covering a range of life stages and different bee species.

The following approach has been taken to assess potential indirect effects via trophic interactions considers the proposed Specific Protection Goals drawn from the existing EU guidance and working documents, and the 2016 EFSA Guidance on developing protection goals for ecological risk assessments (ERA) for Currently, specific protection goals (SPGs) for bees have not been adopted. this biodiversity assessment, three SPGs have been developed (Table 10-41). pesticides: The SPGs based on direct effects assessment considering representative sensitive populations

Currently, specific protection goals (SPGs) for bees have not been adopted. However, for the purpose of

Concerning specifically potential impacts on biodiversity, there currently is no EU wide guidance on how this should be assessed at the taxa group level within the context of a single active substance renewal risk assessment.

The first SPG is derived from the Plant Protection Product (PPP) regulations to achieve no significant effect on honeybee colony survival and development. The second SPG is aimed at protection of pollination services and production of hive products. The third SPG is aimed at protecting bee biodiversity.

The submitted risk assessment for direct effects considering the proposed GAP, is based on the existing EPPO and EFSA approaches (section 10.3.1). This has concluded low to negligible acute and chronic risk to larval and adult bees from direct effects and no risk mitigation measures are considered necessary.

Further information on the biodiversity assessment for glyphosate may be found in the [doc number] Droylining accompanying this dossier submission. <u>Indirect effects assessment for Bees</u> Indirect effects to bees, resulting from reduction of off-crop pollen and nector sources, may be mitigated

through required no-spray buffer zones implemented to protect non-target terrestrial plant (NTTP) 1) 0 communities (Section 10.6).

Indirect effects to bees may potentially result from reducing pollen and nectar sources by control of in-crop flowering weeds. However, a recent analysis of the likelihood of indirect effects by reduction of in-crop flowering weeds shows that indirect effects are unlikely to occur because of the relatively low amount of flowering weeds in-crop (Last et al., 2019). This data was derived from herbicide efficacy trial control data from a range of arable crops (sunflower, maize, oilseed rape, cereals, sugar beet, potatoes, peas and beans) as well as some permanent crops (orchards, citrus and grapes) and from a large data set on the presence of weed species within trial plots. Relevant information was extracted from the efficacy data with the intention of demonstrating that, for some crops, the occurrence of attractive flowering weeds in treated fields is relatively rare and constitutes < 10 % of the area of use, thereby highlighting that the presence of bee weeds in the treated field scenario, is not applicable for many commercially grown crops.

Ecotoxicological relevance of monitoring data for glyphosate residues in honey and pollen

The duration of exposure of honey bees to glyphosate in the environment will be transient and of limited duration. The reason for this is that only assmall proportion of weeds in the field will be flowering at the time of application (Last et al., 2019) and flowering weeds that are sprayed – for example in crop inter-row applications, in recently emerged crops, will rapidly wilt and their flowers will no longer be attractive to bees (Thompson et al., 2014). In addition, levels of glyphosate in nectar and honey will rapidly decline with 50 % of initial levels after only 1 to 2 days (Thompson et al., 2014).

Laberge et al., (1997) measured glyphosate levels in nectar and pollen in a field study conducted in an agroforestry environments For this study, hives were placed within or at various distances from treated sites. Detectable residues of glyphosate were observed in approximately 50 % of the pollen samples and 3 of 9 honey samples, with maximal residues of 8.2 mg a.e./kg in pollen sampled 3 days post-treatment from a hive situated directly within the treated area. Based on their risk assessment, Laberge et al., (1997) concluded that risks associated with glyphosate were negligible.

Data, on the frequency of detection and the level of glyphosate in honey, are summarized within the EFSA residue database. These data show a 10 % frequency of detection (42 out of 406 samples), with a maximum level detected of 0.61 ppm and an average of 0.09 ppm (minimum LOQ of 0.01 ppm and max LOQ of 0.14 ppm).

Glyphonet B

n. No

ppm with a range of 0.017 to 0.121 ppm. Low levels of glyphosate in honey were likely as the outcome of processing of the nectar by the bee's, limited exposure to glyphosate in the environment, and/or dilution with untreated nectar in the hive.

Additional studies in the literature report similar residues in honey and have been summarized in Vicini e al., (2020). The results of these monitoring studies demonstrate low environmental exposures to glyphosate and the conservative nature of the exposure values used for glyphosate exposure assessment for bees 10%

Scientific Literature that informs the bee assessment

The potential for adverse effects of glyphosate and Roundup to honey bees have been extensively tested in colony level feeding studies (Ferguson, 1987, 1988; Burgett and Fisher, 1990; Thompson et al, 2014). The first colony feeding study was performed in Australia and found no significant effects to larval and adult honey bees after six consecutive days of whole-hive exposure to 5 mg a.e./kg secrose solution (Ferguson, 1987; Ferguson, 1988). Ferguson concluded from her study that glyphosate could be safely used around honey bee hives. Further, Ferguson reported that levels for a range of pesticides apidly decline in nectar and pollen, with > 90 % dissipation in 3 to 4 days after spraying. Similar results, showing a rapid decline of glyphosate residues in nectar and pollen, were also reported by Thompson et al. (2014). This rapid decline of glyphosate residues in nectar and pollen greatly limits exposure of honey bee colonies to glyphosate.

These original findings by Ferguson were supported by colony feeding trials conducted by two wellestablished apicultural experts, Burgett and Fisher, from Oregon State University (Burgett and Fisher, 1990). In their first honey bee colony feeding study, colonies were fed Roundup in sucrose solution at a concentration that was 100 to 1000 times above worst case glyphosate exposure levels reported by Thompson et al. (2014). No significant effects were observed to honey bee adults or brood production after 42 days of observation, which is an indicator of no effects to egg production, egg laying and brood maintenance. In their second whole-hive study, blooming bee-attractive vegetation adjacent to the hives were treated at 6.8 kg a.e./ha. As with the colony feeding study, there were no effects to adult honey bee or brood production over the 42-day post-application period. These earlier findings are supported by a more recently published colony feeding study followed international guidance for honey bee testing (OECD guidance document 75) and this study was found to be acceptable for risk assessment in the recent glyphosate Annex 1 renewal (Thompson et al, 2014). Thompson et al. demonstrated no effect to larval development, growth and survival and adult survival at glyphosate concentrations of 75, 150 and 300 mg ,8⁰ a.e./L.

All of the other bee effect studies reviewed in the literature did not measure effects on survival, growth, development, or reproduction with the exception of one study that evaluated effects on survival after an extreme challenge with the opportunistic pathogen Serratia marcescens (Motta et al. 2018). The relevance of the laboratory study conducted by Motta et al. is questionable because of the relatively high exposure levels (10 mg a.e./L) and artificial nature of the study.

Assessment

After a through literature review and considering all recent guidance, the approach taken, aimed to assess potential indirect effects via trophic interactions and the impact on biodiversity for bees including Apis and non-Apis bee species, using a flexible framework that informs the development of risk mitigation options to achieve the specific protection goals.

In the following table, the specific protection goals relevant to bees / pollinators are presented with the relationship between the SPGs, the direct effects study types, assessment and measurement endpoints. The assessment endpoint is an explicit expression of an environmental entity and the specific property of that entity to be protected. Measurement endpoints relates directly to the effects study endpoints. A conclusion that a given data requirement has been satisfied, requires that an acceptable level of risk has been achieved (i.e. there is a protective margin of exposure or through a weight of evidence) and if necessary through the application of standard mitigation measures as recognised at the EU level.

Based on the measurement endpoints from the study types, and the direct effects assessment presented above in this section, it is anticipated that for the proposed uses on the GAP table, that there will be not indirect effects on bee populations in terms of loss of foraging habitat that is not protected by the required in-field buffer distance required to support the non-target terrestrial plant - direct effects risk assessment, required to meet the specific protection goal for NTTPs which will also support bees, given the fimited relevance to bees of weed species found in-field.

Table 10.3.1-41: The relationship between Specific Protection Goals, assessment and measurement Colify Colify 1100 J.S. endpoints for bees from contact and dietary exposure.

Specific Protection Goals	Assessment Endpoints	Measurement Endpoints	Study Types
No significant effect on honeybee colony survival and development.	Population size and stability of managed bees	and larval emergence	Adult honeybee acute Adult Bumble bee acute Adult solitary bee acute Adult honeybee chronic Larval honeybee emergence
Pollination services and production of hive products	Population size and stability of native and commercially managed bees and quantity and quality of honeybee hive products.	Adult and larval survival and larval emergence	Honeybee semi-field brood study
Bee Biodiversity	Species richness and abundance	Actilitation larval survival	

Bee Biodiversity Assessment

The direct effects assessment demonstrates negligible acute and chronic risk to adult and larval bees and is protective of effects at the population level. Indirect effects to bee populations from in-crop weed control is unlikely because in-crop flowering weeds aro not a significant resource for nectar and honey and the off-crop NTTP community will be protected by in-grop no spray zones. Taken together, impacts on bee biodiversity from the intended uses of glyphosate and following the required risk mitigation measures, impacts to bee biodiversity are unlikely. is the second

416 0010 415 ... **Conclusion** Glyphosate is a critical tool to enable conservation tillage systems, which can greatly improve water quality in agroecosystems by reducing sediment and nutrient run-off. Negligible risk of direct effects to bee biodiversity is supported by measures of glyphosate residues in honey from monitoring programs. Indirect effects from in-crop weed control is unlikely to impact bee populations because in-crop flowering weeds are not a significant resource for nectar, pollen and honey. In addition, the off-crop NTTP community will be protected by inscrop no-spray zones as a required mitigation. Taken together, impacts on bee biodiversity from the intended uses of glyphosate and following the required risk mitigation measures, impacts to bee biodiversity are unlikely.

Examples of the standard mitigation measures considered applicable at the EU level are presented in the following table. Many of these have been considered in the current dossier submission.

Table 10.3.1-42: Examples of standard mitigation measures as described in MAgPIE (2017) across the various Member States to mitigate effects of glyphosate on biodiversity.

Type of Mitigation	Risk Mitigation	Benefits	Glyphosate renewal dossier (2020)
Measure	Measure	Denents	Gryphosate renewal dossier (2020)
Restrictions or	Application rate,	Lower transfers to	Significant reductions (50 % in volume)
modifications of	Application frequency,		in newly proposed application rates
products' conditions	application timing,		compared with the representative use
of application	and interval between		presented in the 2012 renewal dessier.
or application	applications	off-crop.	See ³² Appendix 2 of the biodiversity
	apprications	on crop.	document accompanying this
			submission.
			Treated area restriction
			10. for the representative use GAPs:
			applying to only \$0 % of the total area in
			orchard/vineyard area.
			11. maximum of 50 % of the total
			are for brend are vagatable inter row
			12. The size species control e.g.
			12. The second active vegetable inter-row provide the second seco
			growland + extended application
		in the second	vintervals.
		5 m	imited frequency and timing of
		Le p b	application: 28-day interval between
			applications and no pre-harvest
		Reduces exposure of	Coopen grass – maximum of 20 % of the croppand + extended application intervals. Climited frequency and timing of application: 28-day interval between applications and no pre-harvest applications
		R C N	
Application	Spray drift reduction	Reduces exposure of	Reduction of spray drift to the off-field:
equipment	nozzles (SDRN),	Reduces exposure of organisms in-crop (precision treatment) and off-orop	7. Use 75 % drift reducing nozzles for pre-
with Spray Drift	shields,	(precision treatment) and	sowing/pre-planting in arable crops.
Reduction	Precision treatment,	(precision treatment) and	8. Use of ground directed, shielded spray
Technology (SDRT)	etc.		for band application in orchards /
	6	× ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	vineyards and broad-acre vegetable
			inter-row application.
Buffer zones	Non-sprayed zone at	Reduces exposure of	Establishment of buffer zones:
	the edge of a crop	organisms and off-crop	Buffer zones of varying size (depending on
	202		the type of SDRT) are required as
			protection for off-crop NTTP communities
	Non-sprayed zone at the edge of a crop is th		from spray drift.

- maximum annual application rates of up to 50 % considered in this dossie compared to the maximum rates applied for in the 2012 Annex I renewal dossier.
 In 2012, the maximum annual application rate was 4.32 kg/ha.
 In the current dossier submission, the maximum annual application rate is 2.16 kg/ha Reductions in maximum annual application rates of up to 50 % considered in this dossier are

(2020) Glyphosate: Indirect effects via trophic interaction - A Practical Approach to

Glyphosate Re-

- Reducing the total area being applied on a per hectare basis for certain uses, will reduce the total volume of product being applied to the landscape.
 - For example, controlling actively growing weeds in vineyards, orchards where a reduced area, up to a maximum of 50 % of the total application area is proposed e.g. using strip or band applications. Applications on target weeds around the base of trees within tree rows? leaving the area between tree rows unsprayed, which is typically managed using mechanical methods. ð
- The use of shielded or hooded sprayers, hand-held sprayers and drift reducing technologies, e.g. 75 % drift reducing nozzles are recommended for all applications made for the control of actively growing weeds when applied to control invasive species. These measures will further reduce the off-target exposure risk.
- For weed control on rail tracks, recommendations are made in the GAP table to use precision application equipment on spray trains, that detect and targets spray directly onto unwanted plants, thereby reducing the amount of product being applied, whilst maintaining an acceptable level of safety on the railways.
- No spray-buffer areas in-field are considered necessary to meet the specific protection goals for avoiding direct effects on non-target plants in off-target areas. This measure will in turn support non-target arthropod communities, including beneficial insects such as the pollinators, in off-field areas and reduces further, the potential for indirect effects of bees through trophic interaction.

In addition to the standard mitigation measures, 'non-standard mitigation measures' could also be considered where a local and specific mitigation need is identified. For example, in simplified landscapes or landscapes that are intensively managed, where typically there are limited refuge areas for insects, birds and mammals. Non-standard mitigation measures options could include for example, creation of off-target habitats, utilizing edge of field habitats and semi-field habitats that assist biodiversity by improving wildlife connectivity.

For further information on mitigation measures pleased refer to the supplementary information document³³ titled 'Glyphosate: Indirect Effects via Trophic Interaction - A Practical Approach to Biodiversity Assessment.' (DOC No.) that accompanies this dossier submission.

References for the Indirect Effects via Frophic Interaction Section

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CP 10.3.1.1 Acute toxicity to bees

CP 10.3.1.1.1 Acute oral toxicity to bees

1. Information on the study

CP 10.3.1.1 Acute toxicity to	bees
CP 10.3.1.1.1 Acute oral toxic 1. Information on the study	bees ity to bees CP 10.3.1.1.1/001
Data point:	CP 10.3.1.1.1/001
Report author	
Report year	2001
Report title	Laboratory bioassays to determine acute oral and contact toxicity of MON 52276 to the honeybee, Apis mellifera
Report No	MON-00-2 version 2 5 5
Document No	- <u> </u>
Guidelines followed in study	EPPO Guideline on test methods for evaluating the side-effects of plant protection products on honeybees. No. 170 (1992).
	 Deviations from the current guideline OECD 213 (1998): Major Minor: Minor: 3 to 4 hours starvation instead of 1 to 2 hours recommended Humidity was slightly outside the expected range: 46 - 83% instead of 50 - 70 % 4 hours assessment was not carried out These deviations are not expected to have a negative impact on the validity of the study which was valid at the time of conduct.
Previous evaluation 5	Yes, accepted in RAR (2015)
GLP/Officially recognised testing facilities	Yes
Acceptability/Reliability	Valid
Category study in AIR 5 dossier (Ladoes)	Category 2a
2 Stall summary	

de liter 2. Full summary

The acute oral toxicity of the formulated product MON 52276 to worker bees (Apis mellifera L.) was determined in a limit test at the nominal dose of 103 µg glyphosate isopropylamine/bee (a.s.), equivalent to 77 µg glyphosate acid equivalent/bee (a.e.) for oral exposure. Bees were also exposed to dimethoate at concentrations from 0.075 to 0.3 µg dimethoate/bee (reference toxicant group) or to an aqueous sucrose North Star solution (negative control). The test comprised 5 replicate groups of 10 bees for the test treatments and the control group. Further 3 replicate cages containing each 10 bees were prepared for the reference group. Bees condition was assessed after 1, 3, 24 and 48 hours.

After 48 hours, there were no sub-lethal effects observed. Mortality did not reach or exceed 50 % The control and treatment group mortality were both 4 %. All validity criteria according to OECD guidefine 213 were fulfilled. In the oral test, the 48 h LD_{50} for honey bees exposed to MON 52276 was > 103 μ g a.s./bee, equivalent to > 77 μ g a.e./bee, the maximum amount consumed over a 5 h period.

I. MATERIALS AND METHODS

A. MATERIALS

I. MAT	TERIALS AND METHODS MON 52276 Soluble concentrate (SL) Dark yellow-coloured fluid glyphosate isopropylamine 100399 41.5 % w/w glyphosate isopropylamine 30.3 % w/w glyphosate acid equivalent (measured) 1.168 g/cm ³ (nominal)
A. MATERIALS	
Test material:	4) ~ 40° 6
Test item:	MON 52276
Formulation type	Soluble concentrate (SL)
Description:	Dark yellow-coloured fluid
Active substance	glyphosate isopropylamine salt
Lot/Batch #:	100399
Purity:	41.5 % w/w glyphosate sopropylamine
	30.3 % w/w glyphosate acid equivalent (measured)
Density:	1.168 g/cm ³ (nominal)
Vehicle and/or positive control:	BASF Dimethoate 40 (400 g dimethoate/L)
Test organisms:	Honey bee (Apis mellifera L.)
Species:	
Age:	Adult worker bees
Source:	Boselea Apiaries, East Wellow, Hampshire, UK
Environmental conditions:	³ 24−26 °C
Temperature	² 24 – 26 °C
Humidity	$^{\circ}46-83\%$
Photoperiod:	24 h dark
Experimental dates:	Not stated in the report
Temperature: Humidity Photoperiod: Experimental dates:	
In a second s	

B

Experimental treatments

For the oral test, the test treatments and negative control group comprised five groups of 10 bees, maintained in stainless steel coard 2 - 2.5 mm wire mesh cylinders measuring 140 mm deep \times 40 mm in diameter, closed by polyurethane foam bungs at both ends. For the reference toxicant, 3 groups of 10 bees were held in mesh cages of the same design, for each of the treatment groups.

Worker hones bees were collected from a queen right hive on the morning of the tests. All bees were lightly anaesthetised using humidified carbon dioxide and added to cages in groups of ten and allowed to recover. Honeybees for the oral test remained unfed during recovery.

Los solution delivered to polyurethane bungs. A 200 μL volume of Los each bee would consume at least 20 μL of solution over a 5 h only, which was replenished *ab libitum* for the 48 h duration of the test. The reference item group was prepared in the same way as for the treatment groups. The reference item for the test of the reference item group AIR 5 – July 2020 In the oral test, honeybees were exposed to MON 52276 dispersed in a 50 % sucrose solution delivered to

illi Billi

group was evaluated in two stages, the highest application rate was tested alongside the treatment and control groups, with the lower two treatment rate evaluated five days later with an additional control group included for comparison.

All cages were maintained in the dark in an incubator for the duration of the test.

Observations

unor in In the oral test, the feeding vials were weighed prior to treatment and again after 5 h to establish the actual dose per bee consumed. An assessment of the condition of the bees was made 1, 3, 24 and 48 hours after 1.05% treatment. The bees were classified as being live, affected, moribund/dead.

Validity criteria

For a test to be valid the following conditions apply:

- y criteria st to be valid the following conditions apply: The average mortality for the total number of controls must not exceed 10 % at the end of the test. The LD₅₀ of the toxic standard meets the specified range

• The LD₅₀ of the toxic standard meets the specified range. **Statistical calculations** Descriptive statistics only based on empirical observation. As the tests were conducted as limit tests, and Course . there and a second not dose response tests, statistical analysis was not required.

A. FINDINGS

The oral LD_{50} and NOEL values for honeybees exposed to MON 52276 are given below based on nominal L. 8 concentrations. 1.º

II. RESULTS AND DISCUSSION

Table 10.3.1.1.1-1: Toxicity of MON 52276 to honey bees (Apis mellifera L.) in an oral toxicity test

Endpoints (48 h)	MON 52276 کے لیے کہ glyphosate acid equivalents[بیچ کے اور	MON 52276 glyphosate isopropylamine [µg a.s./bee]
LD ₅₀ oral	> 7 6 5	> 103
NOEL oral	27193 8	> 103

all with out B. OBSERVATIONS The mortality in control and in the treatment groups was 4 % in the 48-hour exposure. There were no observations of treated bees being sick or behaving abnormally. A HOLE CONTRACT Coord Coord

Annex to Regulation 2	84/2013	MON 52276	M-CP, Section 10 Page 266 of 553 Apis mellifera L.)
Table 10.3.1.1.1		MON 52276 to honey bees (. Mortality [%]	Corrected mortality ²
	Control	MON 52276 103 μg a.s./bee ¹ 77 μg a.e/bee ¹	
1 h	0	0	-
3 h	0	0	- 20 20
24 h	0	0	- 2° . 0° . 0° . 0°
48 h	4	4	

¹ Based on mean weight of test solution of 5 $\mu g/\mu L$ consumed per cage of 10 bees, corregted for the density of the And Milling

50 % w/w sugar solution ² Corrected mortality according to Abbott (1925) a.e = glyphosate acid equivalent, a.s.= glyphosate isopropylamine For the reference group (BASF Dimethoate 40), 100 % and 33 % mortality were observed in 0.3 and 0.15 ug dimethoate/bee concentrations after 24 hours are concentration. The LD = 241 $0.15 \,\mu g$ dimethoate/bee concentrations after 24 hours exposure, respectively. The LD₅₀-24h was in the range $0.10 - 0.35 \,\mu g$ a.s./bee requested in the guideline and was in line with published values (Gough et al., 1994), indicating that the test insects were suitably sensitive. \mathcal{S} D

20^C The mortality in the control treatments did not exceed 10 % All the validity criteria according to guideline OECD 213 were therefore fulfilled.

The following points are deviated from the current guideline but are not expected to have any negative on 20 the study validity: S.

- 3 to 4 hours starvation instead of 1 to 2 hours recommended.
- Humidity was slightly outside the expected range: 46 83 % instead of 50 70 %.
- 1 and 3 hours assessments were carried out instead of the 4 hours requested.



Assessment and conclusion by applicant:

The LD₅₀ (48 h) for honey bees exposed to MON 52276 was determined to be > 103 µg a.s./bee, equivalent to > 77 μ g a.e./bee for oral exposure.

This study is considered valid and suitable for risk assessment purposes.

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Assessment and conclusion by RMS:

CP 10.3.1.1.2 Acute contact toxicity to bees

1. Information on the study

Data point	CP 10.3.1.1.2/001
Report author	
Report year	2001
Report title	Laboratory bioassays to determine acute oral and contact toxicity of MON 52276 to the honeybee, <i>Apis mellifera</i>
Report No	MON-00-2 version 2
Document No	
Guidelines followed in study	EPPO Guideline on test methods for evaluating the side-effects of plant protection products on honeybees. No. 1705(1992).
Deviations from current test guideline	 Deviations from the current guideline OECD 214 (1998): Major: none Humidity was slightly outside the expected range: 46 – 83 % instead of 50 – 70 % 4 hours assessment was not carried out These deviations are not expected to have a negative impact on the validity of the study which was valid at the time of conduct.
Previous evaluation	Yes, accepted in RAR (2015)
GLP/Officially recognised testing facilities	Yes Contraction
Acceptability/Reliability	Yes, Valid Study
Category study in AIR 5 dossier (L docs)	Category 2a 5 5
2. Full summary Executive Summary	Category 2a Catego

2. Full summary Executive Summary The acute contact toxicity of the formulated product MON 52276, to young adult worker bees (Apis *mellifera* L.) was determined in a limit test at the equivalent of a single nominal dose of 134 µg glyphosate isopropylamine salt/bee, equivalent to 100 µg glyphosate acid equivalent (a.e.)/bee. Bees were also exposed to dimethoate at concentrations of 0.075 and 0.3 µg dimethoate/bee (reference toxicant group) or to an aqueous sucrose solution (negative control). The test comprised 5 replicate groups of 10 bees for the test treatments and the control group. Further 3 replicate cages containing each 10 bees were prepared for the reference group. Beecondition was assessed after 1, 3, 24 and 48 hours.

After 48 hours, there were no sub-lethal effects observed. Mortality did not reach or exceed 50 %. After 48 hours control and treatment group mortality were 2 % and 12 % respectively. All validity criteria according to QECD guideline 214 were fulfilled.

^{δ h}, μga, co μga, co ^h, co ^h, μga, co ^h, co The 48 h $\mathcal{L}_{D_{50}}$ for honeybees exposed to MON 52276 was > 134 µg a.s./bee, equivalent to $> 100 \ \mu$ g a.e. bee for contact exposure.

Glyphosate Renewal Group AIR 5 - July 2020

I. MATERIALS AND METHODS

A. MATERIALS

Test material:

Test item:	MON 52276
Formulation type	Soluble concentrate (SL)
Description:	Soluble concentrate (SL) Dark yellow-coloured fluid glyphosate isopropylamine salt 100399 41.5 % w/w glyphosate isopropylamine e ^{ol} (10 ⁶) (10 ⁶)
Active substance	glyphosate isopropylamine salt
Lot/Batch #:	100399
Purity:	41.5 % w/w glyphosate isopropylamine
	30.3 % w/w glyphosate acid equivalent (measured)
Density:	1.168 g/cm ³ (nominal) 2°
Vehicle and/or positive control:	BASF Dimethoate 40 (400 g dimethoate/L)
Test organisms:	Honey bee (<i>Apis mellifera</i> b), Young adult worker bees (<i>Solary</i>) Roselea Apiaries, East Wellow, Hampshire, UK
Species:	Honey bee (Apis mellifera D) 5
Age:	Young adult worker bees to the set of the se
Source:	Roselea Apiaries, East Wellow, Hampshire, UK
Environmental conditions:	Roselea Apiaries, East Wellow, Hampshire, UK 24 – 26 °C 46 – 83 %
Temperature:	24 – 26 °C 8 8
Temperature: Humidity:	46-83 % 5 5 5
Photoperiod:	24 h dark S
	\$ 8 8 P

B. STUDY DESIGN

(a) B. STUDY DESIGN Experimental dates: No dates reported maintained in stainless steel coated $2 \ge 25$ mm wire mesh cylinders measuring 140 mm deep \times 40 mm in diameter, closed by polyurethane foam bungs at both ends. For the reference toxicant, 3 groups of 10 bees were held in mesh cages of the same design, for each of the treatment groups.

Worker honey bees were collected from a queen right hive on the morning of the tests. All bees were lightly anaesthetised using humidified carbon dioxide and added to cages in groups of ten and allowed to recover. Bees for the contact test were provided with sucrose solution during the recovery period.

For the contact test, the bees were again lightly anaesthetised with humidified carbon dioxide and then in groups of 10 were turned onto their back using lightweight forceps, and a 1 μ L volume of test solution (MON 52276 dispersed in 0.01 % v/v Farmon blue – used to facilitate application to the hydrophobic hairs on the thorax) was applied to the ventral thorax using a micro-applicator and the bees were returned to the cages. The bees were fed 50 % sucrose solution ad libitum via a glass feeding tube inserted through one bung for the 48 h duration of the test

The reference item group was prepared in the same way as for the treatment groups. The reference item group was evaluated in two stages, the highest application rate was tested alongside the treatment and control groups, with the lower treatment rate evaluated five days later with an additional control group ch. All ca. ^{30²0</sub> ^{10¹⁰} ^{10¹⁰} ^{10¹⁰} ^{10¹⁰} ^{10¹⁰}} included for comparison.

All cages were maintained in the dark in an incubator for the duration of the test.

Observations

An assessment of the condition of the bees was made 1, 3, 24 and 48 hours after treatment. The bees were Delle internet intern classified as being live, affected, moribund/dead.

Validity criteria

For a test to be valid the following conditions apply:

- -on Holy The average mortality for the total number of controls must not exceed 10 % at the end of the test. •
- The LD_{50} of the toxic standard meets the specified range. •

Statistical calculations

in the second second Descriptive statistics only based on empirical observation. As the tests were conducted as limit tests, and and hi Ś

-	tests, statistical analysis was		slon
The contact LD ₅₀ nominal concentra Table 10.3.1.1.2 -	ations.	ybees exposed to	MON \$2276° are given below based on
Endpoints (48 h)	MON 52276 glyphosate acid equivalent [µ	0 20	ON 52276 phosate isopropylamine [µg a.s./bee]
LD ₅₀ contact	> 100	\$ \$ \$	> 134
NOEL contact	≥ 100	A LINE	≥ 134

B. OBSERVATIONS

After 48-hour exposure, the mortality was 2 % and 6 % in the control and treatment groups, respectively. The corrected mortality was 4 % after 48 hours of exposure. There were no observations of treated bees being sick or behaving abnormally. ð

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Table 10.3.1.1.2-2: Contact	toxicity of MON 52276 to	honev bees (<i>Apis mellifera</i> L.)
	2 2 X	honey bees (Apis mellifera L.)

Exposure	بر کې کې Mo	rtality [%]	Corrected mortality ¹	
	Control *	MON 52276 134 μg a.s/bee 100 μg a.e/bee	[%]	
1 h		0	-	
3 h	8 J 0	0	-	
24 h	\$ e 0	0	-	
48 h		6	0	

¹ Corrected mortality according to Abbott (1925)

a.e = glyphosate acid equivalent, a.s.= glyphosate isopropylamine hhelecti -

Glyphosate Renewal Group AIR 5 – July 2020

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and a state of the state of the

OECD 214 were therefore fulfilled.

III. CONCLUSION

3. Assessment and conclusion

The contact LD₅₀ (48 h) for honey bees exposed to MON 52276 was determined to be > 134 μ g as /bee, equivalent to > 100 μ g a.e./bee. COLSE Olate the

This study is considered valid and suitable for risk assessment purposes.

Assessment and conclusion by RMS:

CP 10.3.1.2 Chronic toxicity to bees Further studies with honeybees are not considered required with representative product MON 52276 based on the low toxicity demonstrated by the risk assessments above. Sol

Effects on honey bee development and other honey bee life stages CP 10.3.1.3

Further studies with honeybees are not considered required with representative product MON 52276 based on the low toxicity demonstrated by the risk assessments above. 11. 11. ű.

CP 10.3.1.4 Sub-lethal effects

Further studies with honeybees are not considered required with representative product MON 52276 based on the low toxicity demonstrated by the risk assessments above. Darrie .

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CP 10.3.1.5

Cage and tunnel tests Lindo and and and and and and a strand and a strand a str Further studies with honeybees are not considered required with representative product MON 52276 based on the low toxicity demonstrated by the risk assessments above.

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Annex to Regulation 284/2013	MON 52276 M-CP, Section 10	<i>2</i> 0
	Page 271 of 553	3 6
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1. Information on the study		in the second se
Data point	CP 10.3.1.5/001	No.
Report author		0
Report year	2011	1. 1.
Report title	Glyphosate: Study to determine potential exposure of honeybee	
	colonies to residues under semi-field conditions	
Report No	colonies to residues under semi-field conditions	
Document No	- 2.5	
Guidelines followed in study	None; tailor made study	
Deviations from current test guideline	Not applicable field study	
Previous evaluation	Yes, accepted in RAR (2015)	
GLP/Officially recognised testing facilities	Yes, accepted in RAR (2015)	
Acceptability/Reliability		
Category study in AIR 5 dossier (L docs)	Category 2a	
	Category 2a	
2. Full summary	S S S	
Executive Summary	S. S. S.	
A semi-field study was undertaken to	determine the potential exposure of honeybee colonies to glyphosate	3

1. Information on the study

 Full summary
 Executive Summary
 A semi-field study was undertaken to determine the potential exposure of honeybee colonies to glyphosate by quantifying residues in relevant food matrices, i.e. pollen and nectar, when the formulation MON 52276 was applied to flowering *Phacelia* grown in two large (180 m²) glasshouses. Following treatment of nominal 8 L/ha, equivalent to 2.88 kg a.e./ha, two honeybee colonies per glasshouse were exposed. Foraging activity in the crop and activity at each hive was assessed daily for 7 days. On days 0, 1, 2, 3, 4 and 7, forager bees were taken to get hold of the nectar from the honey stomach of the bees after foraging in the treated crop. On days -1, 1, 2, 3, 4 and a samples of pollen were collected from the pollen traps fitted to each hive. Samples of nectar were also colleged from the combs in each hive on day 7. Furthermore, samples of larvae were collected from the combs in each hive on days 4 and 7. Daily assessments were made of the percentage of plants with wilted leaves or flowers.

Foraging assessment showed foraging activity on the crop from start of study throughout the exposure period in glasshouse 1 with a peak on day 4. The lowest foraging activity was observed on day 5 at 38 % of the mean pre-spray activity. In classhouse 2 the activity declined throughout the assessment period to reach less than 10 % of mean spray activity on days 5 - 7. In line with the decreased foraging activity in glasshouse 2, the crop started to show significant effects of the treatment from day 4 onwards.

Residues in nectar samples taken from forager bees at various time points after application ranged from 2.78 to 31.3 mg a.e./kg residues in nectar samples taken from the colonies ranged from below LOQ (1.0 mg a.e./kg) to 1.30 mg a.e./kg. Residues in pollen samples taken from the pollen trap at various time points after application ranged from 87.2 to 629 mg a.e./kg. Residues in larvae samples ranged from 1.23 to 19.50 mg a.e./kg 🖉

The residue data can be used to assess the approximate exposure level of brood within colonies exposed under worst-case conditions.

The maximum pollen collected per colony was 2.9 g on day 0 and the traps are estimated to be about 50 % efficient so about 6 g of pollen per day was returned to the hive (the colony is using about 4.5 g of this based on the Rortais et al. 2005).

As a worst-case example considering the colony size of the present study, a honey bee colony collects 6 g pollen and 1296 mL nectar and of this the brood consumes 4.5 g pollen and 135 g nectar, which allows the excess to be stored for later consumption. As simulated in this study, for honeybee colonies foraging on the Glyphosate Renewal Group AIR 5 – July 2020 The nextar can be assessed using a mean of 18 foragers returning to the hive per 30 seconds and

Silling Silling Silling model crop Phacelia treated with 8 L MON 52276/ha, a total daily intake of glyphosate residues of 44.0 mg a.e. (based on day 1 maximum mean residues) and of 22 mg a.e. (based on mean residues over days 1-3) can be estimated.

I. MATERIALS AND METHODS

S. H.S. Martin A. MATERIALS Gryphosate acid equivalents/L (nominal) 358.8 g glyphosate acid equivalents/L (nominal) Certificate of Analysis) **Test material:** Test item: Active substance: Active substance content: Drohibitor. Proposed use: Herbicide Description: Clear brown liquid . 90 90 Lot/Batch #: A9K0106104 1.1693 g/mL at 20 °C (according to the Certificate of Density: ,⁶⁰, Apis mellifera Le al bound Analysis) Vehicle and/or positive control: **Test organism:** Species: 4 honeybee colonies containing 4 - 6 frames of brood, containing 6000 - 12000 adult bees Not stated Age: UK national Bee Unit Source: 3 days Acclimatisation: Test system: Two 80 m² glasshouses at Stockbridge Technology Centre, Selby, North Yorkshire, U.K. Crop cultivated *Phacelia* (sown directly into soil of the glasshouse, no pesticide use during cultivation) Replication: 2 glasshouses, each containing 2 bee colonies Environmental conditions. Temperature: Glasshouse 1: 7.7 - 39.9 °C, temperatures of > 35 °C were recorded on day 6 and 7 for 10 and 30 min. Glasshouse 2: 8.3 - 47.4 °C, temperatures of > 35 °C were recorded on days -1, 1, 2, 4, 6 and 7 for up to 30 min until day 4, for 1.5 h on day 4, 50 min on day 6 and 40 min on day 7. High temperatures occurred primarily between 11:30 and 14:00 and exhibited no obvious effects on crop or foraging bees Humidity: Glasshouse 1: 19.5 to 93.4 % Glasshouse 2: 13.9 to 100 % 12 May – 22 June 2011

Color Color

B. STUDY DESIGN

Experimental treatments

Study site: The study was conducted in two 180 m² glasshouses situated at Stockbridge Technology Centre, Cawood, Selby, North Yorkshire. The glasshouses were well ventilated (but equipped with insect proof) to be as representative as possible of the outdoor situation but without direct precipitation. Phacetia was planted directly into the soil inside the glasshouse and no pesticides were applied during cultivation. The timing of the start of test i.e. transfer of colonies into the glasshouse was determined by the flowering of the crops. Temperature and humidity in the glasshouses were recorded continuously.

Experimental design: Four colonies of bees and brood comprising each of 4 to 6 frames of brood and containing 6000 to 12000 adult bees were used. Hives were fitted with a pollen trap. Three days prior to application two colonies each were located on opposite sides of each glasshouse and allowed to fly freely within the glasshouse. Colonies A and B were placed in glasshouse 1, colonies C and D were placed in glasshouse 2.

Test item application: The test item MON 52276 (nominal content: 360 g gyphosate acid equivalent/L) was applied onto the crop grown in the glasshouse on day 0 during a period when bees were actively foraging using a 3 nozzle lunch box sprayer unit with a hand-held boom fitted with Lurmark 03 F110 nozzles. The sprayer was pre-calibrated to deliver a known application rate of 400 L/ha. The colonies were protected from direct overspray and spray drift during the application.

Observations

Foraging assessments were performed each day during times peak foraging activity. The assessments were performed by counting the number of bees foraging in a marked area (5 m by 1 m transects) during a 1 minute period during peak activity. In addition, the number of bees returning to each hive and the number carrying pollen loads were counted during a 30 second period.

Visual assessment of the crop was performed daily by determination of the proportion of plants with wilted flowers and wilted leaves. , er ð

The contents of the pollen traps were collected on days -1, 1, 2, 3, 4 and 7 after application. Samples of forager bees were collected on days 0, 1, 2, 3, 4 and 7 after application. The nectar was collected from the bees honey stomachs. On days 4 and 7 samples of ten 4 - 5 day old larvae were taken from each colony, on day 7 an additional sample of nectar was collected from the combs of each colony. , mos

Residues analysis

Analysis of glyphosate acid in samples was conducted following extraction with acetonitrile:water (1:4, v/v), clean up by solid phase extraction on C18 and derivatisation as FMOC-glyphosate and a second clean up (solid phase extraction on Qasis HLB, methanolic elution) by HPLC-MS/MS. Limit of quantification (LoQ) and limit of detection (LoD) were 1.0 and 0.3 mg/kg, respectively.

Data analysis

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Sec Considering residue levels determined in nectar and pollen after treatment of a model crop, possible exposure scenarios of honeybee brood are estimated based on information available from literature and the and a in the second se present study.

II. RESULTS AND DISCUSSION

A. FINDINGS

Verification of test item application: The actual application rates were 8.19 L MON 52276/ha (2.94 kg a.e./ha/in glasshouse 1 and , 8.30 L MON 52276/ha (2.98 kg a.e./ha) in glasshouse 2. The application rate was 102 - 104 % of the nominal application rate of 8 L MON 52276/ha and 102 - 103 % of the nominal application rate of 2.88 kg a.e./ha. Selling Selling

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in in it is Residue analysis: Residues in nectar samples taken from forager bees at various time points after application ranged from 2.78 to 31.3 mg a.e./kg; residues in nectar samples taken from the colonies ranged from below LOQ (1.0 mg a.e./kg) to 1.30 mg a.e./kg. Residues in pollen samples taken from the pollen trap various 300 Strong times after application ranged from 87.2 to 629 mg a.e./kg. Residues in larvae samples ranged from 1.23 (10) 19.50 mg a.e./kg.

						S.S.
			[mg glyph			~ K~
Hive	-1	1	2			¢° 7
A+B	n.d.	25.5	9.24		4.90	
				(samples	combined DAT 3,	4, 7)
C+D	n.d.	31.3	15.2	7.1	8 2 2 2	2.78
				(samples combi	ned DAT 3, 4)	
Overall	n.d.	28.4	12.2	6,		
mean				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	8.6	
Α	-	-	-	- 0,0	- 5	<loq< td=""></loq<>
В	-	-	-	- 2 3 3	-	1.30
С	-	-	-	7000 1000 1000 1000 1000 1000 1000 1000	-	1.06
D	-	-	-		-	1.00
						0.99
А	-	-	-		8.32	2.54
В	-	-	- 🤇	- 2. 2. 2 2. 2. 2	16.70	10.6
С	-	-	- 3	-	19.50	6.72
D	-	-	-855	- -	2.88	1.23
			8.800	n	11.9	5.3
А	n.d.	325	255 J	119	134	87.2
В	n.d.	405	L 213	(samples	(samples	(samples
				combined)	combined)	combined
Mean A&B	n.d.	365	234	119	134	87.2
С	n.d.	518	S 333	181	176	130
D	n.d.	ું 62ૂ9 ્ ર	477	147	180	(samples
		E 2 0 0				combined
Mean C&D	n.d. 🥳	S. 534	405	164	178	130
Overall	n.d.o	ల్ న470	320	142	156	109
mean	.5 6					
y after treatment t detected mg/kg mg/kg mg/kg	C 25	<u> </u>				
	C+D Overall mean A B C D A B C D A B Mean A&B C D	A+Bn.d.C+Dn.d.Overalln.d.meann.d.A-B-C-D-A-B-C-D-An.d.Bn.d.Mean A&Bn.d.Cn.d.Dn.d.	A+B n.d. 25.5 C+D n.d. 31.3 Overall n.d. 28.4 mean - - A - - B - - C - - D - - A - - A - - A - - A - - A - - A - - A - - A - - A n.d. 325 B n.d. 365 Mean A&B n.d. 365 Mean C&D n.d. 518 Mean C&D n.d. 518 Mean C&D n.d. 518 Mean C&D n.d. 518 Mean C&D a.d. 518 Mean C&D a.d. 518 Mean C&D a.d. a.d. a.d. Mean C&D a.d.	Hive -1 1 2 A+B n.d. 25.5 9.24 C+D n.d. 31.3 15.2 Overall n.d. 28.4 12.2 mean - - - A - - - B - - - D - - - B - - - D - - - A - - - D - - - A - - - D - - - A - - - D - - - A n.d. 325 255 B n.d. 325 245 Mean A&B n.d. 365 234 C n.d. 518 333 D n.d. 518	Hive -1 1 2 3 A+B n.d. 25.5 9.24 (samples C+D n.d. 31.3 15.2 7.1 Mean n.d. 28.4 12.2 6d Mean n.d. 28.4 12.2 6d Mean n.d. 28.4 12.2 6d Mean - - - - A - - - - B - - - - D - - - - B - - - - D - - - - B - - - - D - - - - A n.d. 325 255 119 B n.d. 405 213 (samples combined) Mean A&B n.d. 365 333 <t< td=""><td>Hive -1 1 2 3 4 4 6 A+B n.d. 25.5 9.24 (samples combined DAT 3, (samples combined DAT 3, (samples combined DAT 3, 4) C+D n.d. 31.3 15.2 7.18 5 Mean n.d. 28.4 12.2 6.0 5 A - - - - - B - - - - - D - - - - - - A - - - - - - - B -</td></t<>	Hive -1 1 2 3 4 4 6 A+B n.d. 25.5 9.24 (samples combined DAT 3, (samples combined DAT 3, (samples combined DAT 3, 4) C+D n.d. 31.3 15.2 7.18 5 Mean n.d. 28.4 12.2 6.0 5 A - - - - - B - - - - - D - - - - - - A - - - - - - - B -

Table 10.3.1.5-1: Summary of residue analysis of pollen, nectar and larvae samples

DAT day after treatment

B. OBSERVATIONS

Foraging activity: Foraging assessment showed foraging activity on the crop from start of study throughout the exposure period in glasshouse 1 with a peak on day 4. The lowest foraging activity was observed on day 5 at 38 % of the mean pre-spray activity. In glasshouse 2 the activity declined throughout the assessment period to reach less than 10 % of mean spray activity on days 5 - 7. In line with the decreased foraging activity in glasshouse 2, the crop started to show significant effects of the treatment from day 4 onwards. chi 8

Data analysis: The residue data can be used to assess the approximate exposure level of brood within colonies exposed under worst-case conditions.

Scenario	Daily intake of glyphosate residues in nectar (1296 g nectar/d) [mg]	Daily intake of glyphosate residues in pollen (6 g pollen/d) [mg]	Total daily intake of glyphosate residues [mg a.e.]
Day 1 maximum mean residues (31.3 µg a.e./g in nectar, 574 µg a.e./g in pollen, glasshouse 2)	40.6	3.4	
Mean residues over days 1-3 (15.5 μg a.e./g in nectar, 310 μg a.e./g in pollen, both glasshouses)	20.1		5 5 22.0 5

Table 10.3.1.5-2: Assessment of possible exposure of honey bee colonies to glyphosate residues under two scenarios is depicted below.

Two approaches can be made to assessing exposure - one based on generic published data on the requirements for nectar and pollen by larvae (generic data) and the other based on the observations made in this study (study data).

Generic data: The calculations are based on a daily brood requirement of 30 mg nectar (based on 40 % sugar in nectar) and 1 mg pollen for worker brood (Rortais *et al.* 2005). Based on a brood frame being 3600 cells and 25 % of the time is as unsealed brood (haten day 3 to sealed day 8 with emergence day 21) then five frames of brood (4 - 6 were used in this study) is 18,000 brood cells therefore for 4500 larvae with a requirement of 135 g/day nectar and 4.5 g/day pollen for the colony.

Study data: The second approach is to assess the amount of pollen and nectar returning to the hive over the time course of exposure using the data on the numbers of returning foragers in the study and the amounts of pollen and nectar collected from bees by using the pollen trap and individual bee samples.

The maximum pollen collected per colony was 2.9 g on day 1 and the traps are estimated to be about 50 % efficient so about 6 g of pollen per day was returned to the hive (the colony is using about 4.5 g of this based on the Rortais *et al.* 2005).

The nectar can be assessed using a mean of 18 foragers returning to the hive per 30 seconds and approximately 50 μ L per load (max), which gives 18 trips/30 sec × 60 sec/min × 60 min/hour × 12 hours max foraging/day, equal to 25,920 trips/day × 0.050 mL, resulting in 1296 mL/day (of which the colony is using 135 g based on Rortais *et al.* 2005).

III. CONCLUSION

3. Assessment and conclusion

Assessment and conclusion by applicant:

As a worst case example considering the colony size of the present study, a honey bee colony collects 6 g pollen and 1296 mL nectar and of this the brood consumes 4.5 g pollen and 135 g nectar, which allows the excess to be stored for later consumption. As simulated in this study, for honeybee colonies for aging on the model crop *Phacelia* treated with 8 L MON 52276/ha, a total daily intake of glyphosate residues of 44.0 mg a.e. (based on day 1 maximum mean residues) and of 22 mg a.e. (based on mean residues over days 1 - 3) can be estimated.

This study is considered valid and suitable for risk assessment purposes.

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Assessment and conclusion by RMS:

Data point:	CA 8.3.1.3 / CP 10.3.1.5/002
Report author	Thompson et al.
Report year	2014
Report title	Evaluating Exposure and Potential Effects on Honeybee Brood
	(Apis mellifera) Development Using Glyphosate as an Example
Document No	DOI: 10.1002/ieam.1529
	E-ISSN: 1551-3793
Guidelines followed in study	Oomen <i>et al.</i> 1992
Deviations from current test	Not applicable
guideline	Stad of
GLP/Officially recognised testing	No, not conducted under GLP/Officially recognised testing
facilities	facilities (literature publication)
Acceptability/Reliability:	Yes/Reliable
2. Full summary Executive summary	
This study aimed to develop an app	reach to evaluate potential effects of plant protection products on

1. Information on the study

2. Full summary

Executive summary

This study aimed to develop an approach to evaluate potential effects of plant protection products on honeybee brood with colonies at realistic worst-case exposure rates. The approach comprised 2 stages. In the first stage, honeybee colonies were exposed to a commercial formulation of glyphosate applied to flowering *Phacelia tanacetifolia* with glyphosate residues quantified in relevant matrices (pollen and nectar) collected by foraging bees on days 1, 2, 3, 4, and 7 post-application and glyphosate levels in larvae were measured on days 4 and 7. Glyphosate levels in pollen were approximately 10 times higher than in nectar and glyphosate demonstrated rapid decline in both matrices. Residue data along with foraging rates and food requirements of the colony were then used to set dose rates in the effects study. In the second stage, the toxicity of technical glyphosate to developing honeybee larvae and pupae, and residues in larvae, were then determined by feeding treated sucrose directly to honeybee colonies at dose rates that reflect worst-case exposure scenarios. There were no significant effects from glyphosate observed in brood survival, development, and mean oupal weight. Additionally, there were no biologically significant levels of adult mortality observed in any glyphosate treatment group. Significant effects were observed only in the fenoxycarb toxic reference group and included increased brood mortality and a decline in the numbers of bees and brood. Mean glyphosate residues in larvae were comparable at 4 days after spray application in the exposure study and also following dosing at a level calculated from the mean measured levels in pollen and nectar, showing the applicability and robustness of the approach for dose setting with honeybee brood studies. This study has developed a versatile and predictive approach for use in higher tier honeybee toxicity studies. It can be used to realistically quantify exposure of colonies to pesticides to allow the appropriate dose rates to be determined, based on realistic worst-case residues in pollen and nectar and estimated intake by the colony, as shown by the residue analysis. Previous studies have used the standard methodology developed primarily to identify pesticides with insect-growth disrupting properties of pesticide formulations, which are less reliant on identifying realistic exposure scenarios. However, this adaptation of the method can be used to determine dose-response effects of colony level exposure to pesticides with a wide range of properties. This approach would limit the number of replicated tunnel or field-scale studies that need to be undertaken to assess effects on honeybee brood and may be of particular benefit where residues in pollen and nectar are crop- and/or formulation-specific, such as systemic seed treatments and granular applications.

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Materials and methods

Technical grade glyphosate (62.27 % w/w glyphosate isopropylamine [IPA] salt corresponding to 46.14 % w/w glyphosate acid equivalent [a.e.]) and the soluble concentrate formulation of glyphosate (MON 52276) (30.68 % glyphosate a.e. as the IPA salt, batch no GLP-0810-19515-A), supplied by Monsanto (St. Louis MO) were used in the study. All honeybee colonies were obtained from National Bee Unit, FERA, (York, UK) apiaries and were confirmed as having low incidence of adult bee diseases, viruses, and varia with no clinical signs of brood diseases.

Exposure assessment

Exposure assessment Two 180 m^2 well-ventilated but insect-proof glasshouses were used for the study so as to be as representative as possible of the outdoor situation (e.g., polytunnel) but without direct rainfall. Phacelia was planted directly into the soil in the glasshouses and no pesticides were used during its cultivation. Application was performed when *Phacelia* flowers were at 100 % of full bloom

Three days before the application, 2 small honeybee colonies comprised of 4 to 6 frames of brood and 6000 to 12 000 adult bees were located on opposite sides of each glasshouse and allowed to fly freely. At the time of installation, each colony was fitted with a pollen trap and provided with a limited amount of stores to ensure that feeding on the crop was encouraged. This was done by removing as many frames as possible which contain only nectar or pollen, while ensuring survival and a maximum foraging activity. A supply of clean water, with provision to prevent bees from drowning, i.e., a sponge, was provided and replenished as required (it was removed during spray application). 020

To confirm that bees were foraging on the flowering *Phacelia*, foraging assessments were carried out each day during times when peak activity was expected. The assessments were performed by marking a 5 m \times 1 m wide transect within the crop and counting the number of bees foraging within the marked area during a 1 min period once each day during the peak activity period (between 10.00 - 15.00 h in this study, based on previous experience). In addition, the number of bees returning to each hive and the number carrying pollen loads were counted during a 30 s period. These counts provided information on the level of foraging activity of each hive within each glasshouse. Daily assessments of the crop were undertaken by visual assessment of the quality of the forage available e.g., b plants with wilted flowers, wilted leaves.

The glyphosate formulation was applied at a rate equivalent to 8 L/ha (2.88 kg a.e./ha) in 400 L water/ha achieving an application efficiency of between 102% to 104% of the target rate, in both glasshouses. The application rate of 2.88 kg a.e./ha is the highest single application rate recommended for glyphosate, whereas the typical single application rate is 2.16 kg a.e./ha. The final treatment solution was prepared by adding the required quantities of test new measured by weight, to measured volumes of tap water and thoroughly mixing in the field immediately before use to give the final treatment solution. The application was made during a period when the bees were actively foraging, using a 3 nozzle lunch box sprayer unit with a hand-held boom fitted with Eurmark 03 F110 nozzles. Direct spray drift onto the colonies was avoided by directing the spray away from the hives, and no direct overspray of the colonies occurred.

Pollen traps were activated 24h before pollen collection, and the content of the pollen trap fitted to each hive was collected on days 1 (i.e., the day before application), 1, 2, 3, 4, and 7 after the application. The content of the traps was discarded on day 6 so as to only collect a sample from days 6 to 7. Each day and hive sample was kept separate unless they were too small for residue analysis, in which case samples from the same glasshouse were combined. All samples of pollen, nectar, and larvae were stored at -20 °C.

On days 0 (before application), 1, 2, 3, 4, and 7 after the application samples of approximately 40 returning forager bees were collected from each colony by blocking the entrance of the hives with a foam bung and collecting returning foraging bees directly into collection jars. The nectar was collected from the honey stomachs of individual honeybees by removal of the stomach by dissection and placed in a preweighed tube. Samples were combined to produce samples large enough for residue analysis (minimum 200 mg).

On days 4 and 7 after the application, samples of 104 - 5 day old larvae were taken from each colony using a force s and stored at -20 °C. Each day and hive sample was kept separate. On day 7, an additional sample of nectar was taken from the combs using a syringe in each colony and each hive sample was kept separate. Residue analysis

Residues of glyphosate were extracted from larvae, pollen, nectar, and sucrose solution samples with acetonitrile/water (1:4, v/v). Recovery samples were fortified by spiking blank samples after weighing. For larvae, pollen, and nectar, the whole sample was accurately weighed into a single-use centrifugation tube.

The sample was then homogenized, extracted with acetonitrile-water (1:4) with a high speed laboratory mixer, separated by centrifugation followed by solid-phase extraction of the supernate using a C18 column. All samples were then derivatized with fluorenylmethyl-chloroformate (FMOC-Cl). For derivatization, internal standard (1.0 µg/mL), borate buffer (0.2 mol/L sodium tetraborate decahydrate in water), and FMOC-Cl (5 g/L in acetonitrile) were added to the diluted extract. The samples were closed, mixed and incubated at ambient temperature for at least 1 h. Finally, pH 3 water was added.

A second cleanup was carried out by applying the derivatized product to an Oasis HLB SPE column (equilibrated with dichloromethane followed by methanol and pH 3 water) and then rinsed with dichloromethane and the glyphosate-FMOC was eluted with methanol. The eluate was exaporated to dryness using a vacuum rotary evaporator. The residue was reconstituted in 5 % acetonitrite solution and transferred into a glass vial for high-performance liquid chromatography (HPLC) tandem mass spectrometry (MS/MS) analysis.

The samples were analyzed using high-pressure liquid chromatography (Shimadzu LG System) coupled with a triple quadrupole mass spectrometry detector (Sciex API4000). A Phenomenex Synergi column $2.5 \,\mu\text{m}$ Max-RP, $20 \times 2.0 \,\text{mm}$, $2.5 \,\mu\text{m}$ (No. 00M-4372-B0-CE) + 4 mm guard column was used. The column temperature was 40 °C and a 30 µL injection volume was used. The mobile phase comprised A: water + 0.1 % acetic acid (80 %), B: methanol + 0.1 % acetic acid (15%) and C: 100 mM ammonium acetate solution in methanol (5 %) with a linear gradient over 5 min to comprise A: water + 0.1 % acetic acid (0 %); B: methanol + 0.1 % acetic acid (95 %) and C: 100 mM animonian acetate solution in methanol (5%). Glyphosate-FMOC was quantified using the transition 390.0 to 149.8 with an internal standard 20° glyphosate 1,2-¹³C2 15N-FMOC transition 393.0 to 152.8.

At the start of the analytical sequence, the detector linearity was confirmed over the calibration range of interest by constructing a calibration function of peak area versus concentration within the range from 2.0 ng/mL to 5000 ng/mL for larvae and nectar samples, 130 ng/mL to 3500 ng/mL for pollen samples, and from 2.0 ng/mL to 4000 ng/mL for sucrose solution samples. Injections of sample extracts were interspersed with injections of quality control standards after 2 to 4 samples to verify the detector response.

The methods were validated before use and showed $92\% \approx 102\%$ recovery with relative standard deviation (RSD) < 15 % with sucrose samples spiked at 1 and 400 kmg a.e./kg, larval samples spiked at 1 and 200 mg a.e./kg, pollen samples spiked at 1, 500 and 700 mg a.e./kg and nectar samples spiked at 1 and 500 mg a.e./kg. Calibrations were linear within the range. Unless otherwise specified the limit of detection (LOD) was 0.3 mg a.e./kg, denoted as not detected (nd), and the limit of quantitation (LOQ) was 1.0 mg a.e./kg. Where data were used to generate mean values residues less than the LOQ were ascribed a value of 0.6 mg a.e./kg.

Effects assessment

Two approaches were made to assess exposure levels to be used in the effects study: one based on generic published data on the requirements for nectar and pollen by larvae (generic data) and the other based on the observations made in the exposure study (study data).

Generic data. The calculations were based on a daily brood requirement of 30 mg nectar (based on 40 % sugar in nectar) and 1 mg potten per worker larva (Rortais et al. 2005). Based on a brood frame being 3600 cells (British Standard frame) and 5 frames of brood (4 – 6 were used in this study), there are 18000 brood cells. The brood is unsealed for 25 % of the time (hatch day 3 to sealed day 8 with emergence day 21, empirically determined in this study) therefore 4500 larvae have a requirement for 135 g/d nectar and 4.5 g/d pollen

Study data

The second approach was to assess the amount of pollen and nectar returning to the hive over the time course of exposure using the data on the numbers of returning foragers in the study and the amounts of pollen and nectar collected from bees by using the pollen trap and individual bee samples.

The maximum pollen collected per colony was 2.9 g on day 1 and the traps were estimated to be Glyphonte B Selling Selling

hive per 30 s (observed in this study) and approximately 50 μ L per load (max) this gives 18 trips/30 s \times 60 s/min \times 60 min/h \times 12 h max foraging/d = 25 920 trips/d \times 0.050 mL = 1296 mL/day (of which the colony was using 135 g, based on Rortais et al. [2005]). Because the assessment is brood exposure, the conservatives collection estimate is justified. Therefore, as a worst case example considering the colony size used in the exposure study, the colony collected 6 g pollen and 1296 mL (i.e., 518 g sugar, assuming 40 % sugar content) nectar and of this the brood consumes 4.5 g pollen and 135 g nectar (Rortais et al. 2005) that allowed the excess to be stored for later consumption.

Considering that bee colonies used in the brood study were up to 50 % bigger than those used in the residue study, an additional calculation for the expected total daily intake of glyphosate residues was undertaken assuming that such colonies would collect 9 g pollen and 1944 mL nectar. Furthermore, the determined residue content based on a worst-case application rate of 2.88 kg a.e./ha for spot treatments in orchards and vines and was adjusted to reflect the more realistic maximum application rate of 2.16 kg a.e./ha for preplanting, preemergence of crops, and preharvest applications.

The brood feeding study was undertaken using glyphosate as the technical grade PA saft. Three dose levels of the test item were used based on the residues identified in pollen and nectar in a glass house study performed before the initiation of the bee brood study. The lowest dose was based on the mean residue concentrations achieved over the first 3 days following the residue study spray application (75 mg glyphosate a.e./L). The mid-dose was based on the highest residue concentrations following the spray application (150 mg glyphosate a.e./L) and the highest dose was equivalent to twice this latter rate (301 mg glyphosate a.e./L). The test item was introduced into each hive in equivalent volumes of 50 % sucrose (w/v) solution (1 L) for each treatment group. Hence, the range could also be expressed in terms of concentration in the introduced dosing solution (mg glyphosate a.e./kg and mg glyphosate a.e./kg). Control colonies were supplied with 50 % w/v sucrose solution in dejonized water and the toxic reference, fenoxycarb, (750 mg a.s./L as the formulation Insegar WG220 g a.s./kg, batch no SM01A406) reported to have significant adverse effects on honeybee brood, was used to ensure that the study had the ability to detect effects of the test substance if they occurred (de Rujter and van der Steen 1987).

Twenty standardized honeybee colonies each consisting of a single wooden Smith hive with British Standard frames and a queen were used; each of the queens used in the study was of similar age and lineage. The colonies were divided into 5 groups of 4 colonies. Each colony had a dead bee trap fitted to the front and the contents were counted daily during the brood assessment period (Imdorf et al. 1987). The colonies contained a mean of 14 250 to 19 500 adult bees; 1.5 to 2.5 frames of brood, 1.0 to 1.9 frames of stores, and 0.2 to 0.7 frames of pollen. The test colonies were allowed to fly freely, there were no nearby flowering crops and few flowering weeds (clovet). Colonies were assembled according to treatment and groups were placed at least 20 m apart from each other. Two colonies (one control colony and one of the highest exposure rate colonies) (301 mg glyphosate a &/L) became queenless after dosing but were retained in the study as the marked brood was viable and this was therefore not considered to have a significant impact on the study. All colonies were generally assessed within 1 week before dosing and again within weeks 1, 2, and 3 after dosing (day 0). Each assessment was carried out on every frame within each colony, and included counts of the number of combs of adults, brood (sealed and unsealed), and stores (nectar and pollen) as well as any behavioral or physical abnormalities.

The processes during the study followed the method for honeybee brood feeding test with insect growth regulating compounds (gomen et al. 1992). Up to 24 h before dosing, 100 brood cells containing eggs, 100 cells containing A-to 2-day-old larvae and 100 cells containing 3- to 4-day-old larvae were selected in each colony and marked using the standard Oomen et al. (1992) acetate overlay sheet method.

On day 0, one group was an untreated control, i.e., fed 1 L 50 % sucrose solution, 3 groups were treated with glyphosate PPA salt (added to 1 L of 50 % sucrose to achieve doses of 301, 150 and 75 mg glyphosate a.e./L), and one group was treated with the toxic reference, fenoxycarb, dispersed in 1 L of 50 % w/v sucrose (750 mg a soll). Doses were administered by removing frames of stores from the colonies and placing a 1 L glass container containing the treated or control sucrose within the brood chamber. The container contained a cork float to allow access to the sucrose solution. Samples of each concentration of test item treated sucrose solution were retained for analysis by subsampling 5 mL from each of the prepared solutions and combining to a single sample (total 4 samples; control and 3 doses of glyphosate). The uptake of each et Stern P Stern St sucrose solution was checked daily and the container removed when empty or after 5 days whichever was

On day 7, the marked brood cells (eggs, young, and old larvae) were assessed for mortality and appearance in each test colony. The final assessment for each larval was undertaken at day 13 for brood cells marked as containing old larvae, day 15 for cells containing young larvae, and day 16 for cells containing eggs. They cells were uncapped, the bee removed carefully with forceps, and the age of the bee assessed, weighed, and any deformities noted.

On days 4 and 7 (when the marked brood cells were assessed), samples of ten 4- to 5-day-old larvae were sampled from each treated colony (not from an area in which marked brood cells were located) for residue analysis. For the purpose of this study, mortality was defined as the total number of cells in any one group at any one observation period that were empty (other than recently emerged), contained dead havae or pupae or contained larvae or pupae that were considered unhealthy (sick) and unlikely to survive. Brood mortality was statistically analyzed using a generalized linear model linked to a logit distribution for the brood mortality data and an analysis of variance for pupae weight data to determine the no observed effect concentration (NOEC) (equivalent to the no observed adverse effect level [NOAEL]) statistically, using the software Genstat v12 (VSN International). The study was considered valid if there were significant effects of the toxic reference (> 40 % effects on all stages) during the detailed brood assessment when compared to the control. The performance of the colonies in the control group were comparable with historical control data for the testing facility (10 % - 30 % larval mortality overall), and demonstrate that the control colonies 11 OC had performed correctly.

Results

Exposure study

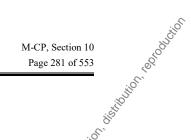
Daily assessments were made of the percentage of the plants that had wilted leaves or flowers. The crop started to show significant effects of the treatment from day 4 on ward in both glasshouses and this coincided with the decreased foraging activity in glasshouse 2 atthough less pronounced effects on foraging were observed in glasshouse 1.

Foraging assessments showed foraging activity on the grop at the start of the study and this continued throughout the exposure period in glasshouse 1 with a peak on day 4; lowest foraging activity was on day 5 at 38 % of the mean prespray activity. In glasshouse 2, the foraging activity declined throughout the assessment period and reached < 10 % of the mean prespray activity on days 5 to 7. The weights of pollen collected from the traps fitted to each hive ranged from 0.37 to 1.8 g per colony per day.

Samples of honeybee products (nectar and pollen) and larvae were analyzed for residues of glyphosate acid equivalents. Glyphosate residues in needaes amples taken from forager bees before the application were not detectable (< 0.3 mg a.e./kg). Residues in nectar samples taken at various time points after the application and originating from forager hone where ranged from 2.78 to 31.3 mg a.e./kg and declined over time (Figure 1A). Residues in nectar samples taken from the colonies 7 days after the application ranged from below the LOQ (1.0 mg a.e./kg) to 1.30 mg a.e./kg.

Residues in pollen samples taken from the pollen trap before the application were not detectable (< 0.3 mg) a.e./kg). Residues in pollen samples taken at various time points after the application and originating from the trap ranged from 8%2 mg a.e./kg to 629 mg a.e./kg and declined over time (Figure 1B). Residues in the the second s larvae samples at 2 time points (day 4 and day 7) after the application ranged from 1.23 mg a.e./kg to 19.50

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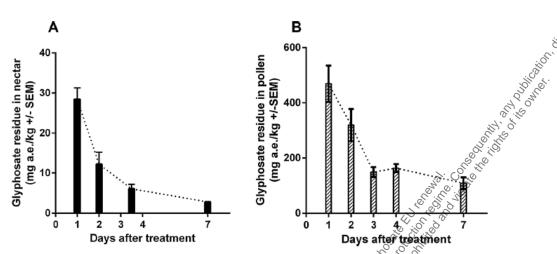


Fig. 1. Decline of glyphosate residues (mg a.e./kg \pm SE). (A) Nectar collected from foragers. The nectar sample from days 3 and 4 were combined due to the small amount collected for analysis. (B) H Solo

Pollen collected in pollen traps in mg a.e./kg matrix. nominal doses. The control colonies consumed between 0.63 and 1.0 L of untreated sucrose. In the glyphosate-treated colonies, at least 3 of the 4 colonies in each group consumed the total volume of treated sucrose fed to each of them. There was no statistically significant difference in sucrose consumption in comparison to control for the 301 mg a.e./L group ($p \neq 0.438$), 150 mg a.i./L group (p = 0.212), the 75 mg a.i./L group (p = 0.054), which was slightly higher than the control, and the positive control fenoxycarb (p = 0.151). 5 6

In the 301 mg glyphosate a.e./L group, one colony consumed 0.39 L and the other 3 each consumed 1.0 L resulting in mean exposure to 255 ± 26 mg glyphosate a.e. In the 150 mg glyphosate a.e./L group, one colony consumed 0.67 L and the other 3 each consumed 1.0 L resulting in mean exposure to 130 ± 12 mg glyphosate a.e. In the 75 mg glyphosate a.e./k group one colony consumed 0.90 L and the other 3 each consumed 1.0 L resulting in mean exposure to 73 ± 2 mg glyphosate a.e. In the fenoxycarb treated colonies, consumption rates ranged from 0.45 to 0.88 L resulting in mean exposure to 510 ± 72 mg fenoxycarb. Exposure at the 150 mg a.i./L dose was significantly lower than at the 301 mg a.i./L dose (p = 0.049) and exposure at the 75 mg a.i./L dose was significantly lower than at 150 mg a.i./L dose (p = 0.002).

Brood mortality. Figure 2 summarizes the survival of marked brood stages at day 7 after dosing and just before emergence. There were no significant treatment-related effects except in the fenoxycarb toxic reference treated colonies in which overall survival of marked cells was 20 % for marked eggs (p < 0.001). 0 % for marked young larvae (p < 0.001) and 12 % for marked old larvae (p < 0.001), meeting the established validity criterion for the toxic reference (> 40 % effects at all stages). This can be compared with overall survival of \$5 % for marked eggs, 96 % for marked young larvae, and 96 % for marked old larvae in controls and 82% - 87% for marked eggs (300 mg a.i./L: p = 0.435, 150 mg a.i./L: p = 0.310, 75 mg a.i./L: p = 0.250, 87 % - 94 % for marked young larvae (300 mg a.i./L: p = 0.185, 150 mg a.i./L: p = 0.180.060, 75 mg as/L: p = 0.254), and 94 % – 95 % for marked old larvae (300 mg a.i./L: p = 0.434, 150 mg a.i./L: $p = 0.262\sqrt{3}5$ mg a.i./L: p = 0.291) in the glyphosate-treated colonies. The control mortality is similar to historical levels in studies conducted at the Food and Environmental Research Agency (FERA) (10 % – Glyphosate Renewal Group AIR 5 – July 2020 30 %). Deformities were observed in the fenoxycarb-treated colonies where discolored heads, thorax, and

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ion in the second secon were recovered from the colonies over the 17-day period after dosing compared with 2.0 pupae/d in the control and 1.3 to 1.8 pupae/d in the glyphosate-treated colonies. The only adverse effects on colony development were observed in the fenoxycarb-treated colonies where declines in the numbers of bees and brood were observed in the latter stages of the study compared to controls for the 300 mg a.i./L group $(p \neq 1)$ 0.401), the 150 mg a.i./L group (p = 0.414), the 75 mg a.i./L group (p = 0.360), or the positive control fenoxycarb (p = 0.070).

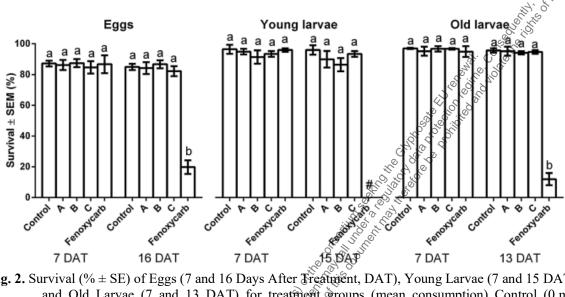


Fig. 2. Survival (% ± SE) of Eggs (7 and 16 Days After Treatment, DAT), Young Larvae (7 and 15 DAT) and Old Larvae (7 and 13 DAT) for treatment groups (mean consumption) Control (0 mg glyphosate a.e.), A (255 \pm 46 mg glyphosate a.e.), B (138 \pm 12 mg a.e.), C (73 \pm 2 mg glyphosate a.e.), and Fenoxycarb (510 ± 72 mg). Different letters above the bars indicate statistical difference (p < 0.05) from the respective control. ⁴ no statistical analysis as no variance due to 100 % mortality.

	N 4 N S
Table 10 3 1 5-3 Mean nunae we	ght with SE at final assessment including dead and sick in the
	gne wan sel at mar assessment meruumg ucau and sex in the
fenoxycarb treatment	
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Treatment	Dose rate mg/L	Mean dose consumed mg (SE)	Weight-surviving pupae marked as eggs (mg)	Weight-surviving pupae marked as young larvae (mg)	Weight-surviving pupae marked as old larvae (mg)
Control		0	127.5 ± 0.7	128.4 ± 0.6	128.9 ± 0.4
Glyphosate	3010	255 ± 46	135.7 ± 0.6	125.4 ± 0.6	125.6 ± 0.4
Glyphosate	<u>ू</u> ८1् <u>ड</u> 0	138 ± 12	126.7 ± 0.6	124.4 ± 0.8	122.6 ± 0.5
Glyphosate	\$ 5° 75	73 ± 2	124.7 ± 0.8	128.3 ± 1.0	121.2 ± 0.5
Fenoxycarb	۶ ⁰ 750	510 ± 72	125.9 ± 0.9	128.8 ± 1.3	115.4 ± 1.0^{a}

SE = standard error^a Statistically different effect (p < 0.01) "heller

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Adult bee mortality. No biologically significant adult mortality was observed in any treatment group with a mean total of 73 to 25 dead adult workers were recovered from dead bee traps over the entire 17-day speriod after dosing.

Residue analysis. The residues in larvae sampled at 2 time points (day 4 and day 7) after dosing of the colonies (Figure 3) ranged from below the LOQ (1.0 mg a.e./kg) to 82.1 mg a.e./kg (at the highest dose rate) confirming that larvae were exposed to test item provided in the sucrose solution and consumed it. There was a linear relationship between dose level and glyphosate levels in larvae on days 4 and 7. Levels of day 7 were considerably lower than on day 4 and are likely the result of larval growth and glyphosates exposure ending after 5 days of exposure. Notably, these residue levels are comparable with values from the exposure study which ranged from 2.9 to 19.5 mg a.e./kg with a mean of 11.5 mg a.e./kg on day # to 1.2 to 10.6 mg a.e./kg with a mean of 5.3 mg a.e./kg on day 7 after the glyphosate application.

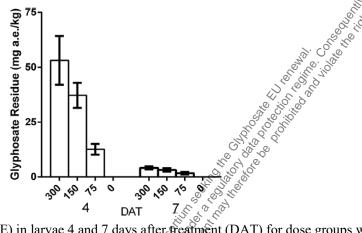


Fig. 3. Residues (mg a.e./kg \pm SE) in larvae 4 and 7 days after frequencies (DAT) for dose groups with dose rate of 300, 150, 75, and 0 mg a.e./kg sucrose solution

Conclusion

There were no significant effects from glyphosate observed in brood survival, development, and mean pupal weight. Additionally, there were no biologically again and levels of adult mortality observed in any glyphosate treatment group. Significant effects were observed only in the fenoxycarb toxic reference group and included increased brood mortality and a decline in the numbers of bees and brood. Mean glyphosate residues in larvae were comparable at 4 days after spray application in the exposure study and also following dosing at a level calculated from the mean measured levels in pollen and nectar, showing the applicability and robustness of the approach for dose setting with honeybee brood studies. Notice Solution

3. Assessment and conclusion

Assessment and conclusion by applicant:

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The Oomen et al. (1992) approach was used to quantify at residues in relevant matrices (pollen, nectar, and larvae) following application of glyphosate at 2.88 kg a.e./ha (400 L water/ha) to flowering Phacelia tenacetifolia in large glasshouses. Then brood feeding tests following the Oomen approach, were conducted by feeding LL treated sucrose solution at 75 / 150 and 301 mg glyphosate a.e./L directly to honeybee colonies.

The study is adequately described and all information to evaluate the study are available. At the time the study was conducted, there were no field level test guidelines adopted for use in the EU. The test did follow a recognised approach and is considered fit for purpose. The study is considered as reliable.

CP 10.3 1.6 Ş

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Field tests with honeybees

Further studies with honeybees are not considered required with representative product MON 52276 based on the low toxicity demonstrated by the risk assessments above. Contraction of the second seco

CP 10.3.2 Effects on non-target arthropods other than bees

Studies on effects of the representative formulation MON 52276 on non-target arthropods to fulfil the data

requirements according to EU Regulation No 284/2013 are presented in the following. and his second s for validity against current and relevant guidelines and are presented in the following table. Studies previously evaluated in either the monograph 2001 or the RAR 2015 were also included in this assessment.



Table 10.3.2-1: Studies on the toxicity of MON 52276 to non-target arthropods other than bees

nnex to Regulati	on 284/2013			M-CP, Section 10 Page 285 of 553			
Fable 10.3. 2	2-1: Studies or	n the toxicity	of MON 5227	6 to non-targ	et arthropo	M-CP, Section 10 Page 285 of 553 ds other than bees	
Annex point	Study reference	Study type	Test species	Substance	Status	Remark	
Fier 1 – labo	ratory studies					Pully Pully	
CP 10.3.2.1/001	1995	Laboratory	Aphidius rhopalosiphi	MON 52276	supportive	Single rate tested 3.6 kg a.e/ha 100 % mortality at 24 hrs, therefore no reproduction endpoints available.	
CP 10.3.2.1/002	1995	Laboratory	Typhlodromus pyri	MON 52276	supportive	Single rate tested 3.6 kg a.e/ha. 100 % mortality at day 4, therefore no reproduction endpoints.	
CP 10.3.2.1/003	1995	Laboratory	Poecilus cupreus	MON 52276	Valid	5 N	
CP 10.3.2.1/004	1995	Laboratory	Pardosa sp.	MON 8 52276	Valid		
Tier 2 – exte	nded laborator	y and aged re	esidue				
CP 10.3.2.2/001	2010	Extended laboratory	Typhlodromus pyri	252276	Valid		
CP 10.3.2.2/002	1999	Extended laboratory	Typhlodromas Byris	5 MON 52276	supportive	Several minor deviations to relevant guideline. A more recent study 2010) is available.	
CP 10.3.2.2/003	1998	Extended laboratory	Typhlodromus	MON 52276	supportive	Several minor deviations to relevant guideline. A more recent study (2010) is available.	
CP 10.3.2.2/004	2010	laboratory	Aphidius rhopalosiphi	MON 52276	Valid		
CP 10.3.2.2/005	1999	Extended laboratory	Aphidius rhopalosiphi	MON 52276	Valid		
CP 10.3.2.2/007	2010 2010	Extended laboratory	Aleochara bilineata	MON 52276	Valid		
CP 10.3.2.2/008		Extended laboratory	Chrysoperla carnea	MON 52276	supportive	Control eggs < 15. Mean No. eggs per female/day was 7.9.	

Endpoints of studies considered valid with the representative product MON 52276 are shown in the table below. In order to make a direct comparison of toxicity between studies conducted with MON 52276 and those conducted with IPA salt, glyphosate technical and glyphosate acid, the endpoints from all these studies have been converted to acid equivalents (a.e.). Although no NTA studies with the active substance

are available, the endpoints for MON 52276 have been converted to be consistent with the other organism groups. This conversion has been made by the acid equivalent purity of the test item stated in the reports. allon,

Table 10.3.2-2: Endpoints: studies on toxicity of MON 52276 to non-target arthropods other th bees	an E.
bees	J' NO
	S.

Reference	Test item	Species	Test design	Mortality LR50	Effects on reproduction
Tier 1 – laboratory	studies				N. C. S. J.
, 1995	MON 52276	Poecilus cupreus	Laboratory	>10 L/ha	1
CP 10.3.2.1/003				(3600 g a.e./ha)	11 11 12 12 12 12 12 12 12 12
1995	MON 52276	Pardosa sp.	Laboratory	> 10 L/ha 🖉 🖉	
CP 10.3.2.1/004				(3600 g a.e./ha)	
Tier 2 – extended la	boratory and ageo	l residue			
, 2010	MON 52276	Typhlodromus	Extended	≥96,0 L/ha	ER ₅₀ ≥ 12 L/ha
CP 10.3.2.2/001		pyri	laboratory	(5760 g a.e./ha)	(4320 g a.e./ha)
			2D	e a	
					NOER = 8 L/ha
			Contraction of the second seco	Sec. 1	(2880 g a.e./ha)
2010	MON 52276	Aphidius	Extended 8	>16.0 L/ha	ER50 > 16 L/ha
CP 10.3.2.2/004		rhopalosiphi	laboratory	(5760 g a.e./ha)	(5760 g a.e./ha)
		le la			NOER≥16 L/ha
					(5760 g a.e./ha)
1999	MON 52276	Aphidius & S	Extended	>12.0 L/ha	ER50 > 12 L/ha
CP 10.3.2.2/005		Aphidius 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	laboratory 3D	(4320 g a.e./ha)	(4320 g a.e./ha)
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			NOER $\geq$ 12 L/ha
					(4320 g a.e./ha)
2010	MON 52276 🔬	Aleochara	Extended	> 12.0 L/ha	ER ₅₀ > 12 L/ha
CP 10.3.2.2/007	MON 52276 6	bilineata	laboratory	(4320 g a.e./ha)	(4320 g a.e./ha)
	. & & S	0			NOER $\geq$ 12 L/ha
					(4320 g a.e./ha)

a.e. glyphosate acid equivalents

Endpoints in **bold** are used for risk assessment . B. B. B.

There are no literature articles and peer-reviewed published data considered to be relevant and reliable or reliable with restrictions with regards to the impact of glyphosate or its relevant metabolites on non-target arthropods. Full literature evaluation is provided in document M-CA Section 9. A summary of previously evaluated peer reviewed literature from the RAR 2015 is also available in Annex M-CA 8-01 of the M-CA Section 8.

#### **Risk assessment for other non-target arthropods**

The table below summarises how the risk assessment for non-target arthropods considers all the proposed uses and the application rates presented in the GAP. The risk assessment presented here is shown by the grew shaded cells in the table, which represents the worst-case exposure to non-target arthropods and are selected based on the application rate, multiple application factor and the crop type for the proposed uses

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ion in the second secon of MON 52276. Thus, the conclusions of the risk assessment here are protective of all uses indicated by "X".

GAP number and summary of use	Application rate of glyphosate considered g/ha (28 day interval unless otherwise stated)									
	1 × 540	1 × 720	1 × 1080	2 × 720	1 × 1440	3 × 720	1 × 1800	2 × 1080	5	2 × 1800 × (90 days & apart)
Uses 1a-c: Applied to weeds; pre-sowing, pre-planting, pre- emergence of field crops.		х	Х		Х			L ^O	2 2011 Way	
Uses 2 a-c: Applied to weeds; post-harvest, pre-sowing, pre- planting of field crops.		х	Х	х	Х	х		ofe ofe hibit	k No,	
Use 3 a-b: Applied to cereal volunteers; post-harvest, pre- sowing, pre-planting of field crops.	х					10 0 all all all all all all all all all				
Use 4 a-c: Applied to weeds (post-emergence) below trees in orchards.		х	Х	х	X	nin nin K	I Ter	Х	х	
Use 5 a-c: Applied to weeds (post-emergence) below vines in vineyards			х	X	XON	No on		Х	х	
Use 6 a-b: Applied to weeds (post-emergence) in field crops BBCH < 20		х	х	Conter Conte	10 JOLNO					
Use 7 a-b: Applied to weeds (post-emergence) around railroad tracks			March Charles				Х			Х
Use 8 and 9: Applied to invasive species (post- emergence) in agricultural and non-agricultural areas		05					х			
	ne he broom	Control Print	X							

#### Table 10.3.2-3: Risk assessment strategy for terrestrial non-target arthropods

X = this use is covered by the application rate indicated Grey shaded cells: risk assessment presented.

For the non-target arthropod field assessment; crops that maybe present at time of application to target weeds and the relevant application rates shown in the table above are considered. The in-field and off field assessment results are presented below according to the uses described in the table above and grouped as 23 follows:

- in field crops; covering GAP uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c. .
- in orchards/vineyards; covering GAP uses 4 a-c, 5 a-c.
- around Pailroad tracks; covering GAP uses 7 a-b.
- . in agricultural and non-agricultural areas to control invasive species; covering GAP uses 8 and 9. Ş

The sevaluation of the risk for non-target arthropods was performed in accordance with the recommendations of the "Guidance Document on Terrestrial Ecotoxicology", as provided by the Commission Services (SANCO/10329/2002 rev.2 (final), October 17, 2002), and in consideration of the recommendations of the guidance document ESCORT 2³⁴.

Where multiple applications per season are applicable, a multiple application factor is applied to the risks assessment, considering an application interval of 28 days. Therefore, the MAF is based on a  $DT_{50}$  of 2.8 days for decline of residues on leaf surfaces in a grass residues study, which is considered to cover decline on broadleaf plant foliage. This DT₅₀ is supported by Ebeling & Wang  $(2018)^{35}$ , who evaluated the residue dissipation of 30 active substances (including glyphosate) on grasses / cereals (177 trials) and nongrass herbs (101 trials). No significant difference between residue dissipation on grasses / cereals and nongrass herbs was found. In addition, in the EFSA Conclusion for glyphosate (2015)³⁶ (EPSA Journal 2015;13(11):4302) the DT₅₀ of 2.8 days was used to determine a calculated 21-day TWA of 0.49, that was applied to refine the risk to the medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba S. Shi and his palumbus).

The principal route of non-target terrestrial plant exposure is via spray drift away from the applied areas. Currently, estimation of spray drift deposition is based on the values given by Rautmann (2001). These values apply to  $90^{\text{th}}$  percentile conditions. According to ESCORT 2 and Raumann (2001) the estimated spray drift deposition for field crops (% of in-field target deposition) downwind of a sprayed (ground directed application) to a bare soil surface (without interception by vegetation) representing a field crop situation at distances of 1, 5 and 10 meters from the target area, are 277, 057 and 0.29 %.

Applications using high boom or blast sprayer applicators associated with for example, 'over the top' applications in perennial crops, are not a use on the proposed GAP table. The assessment does therefore only consider low boom – ground directed applications. The stated percentage drift values are for field crop drift values used for all crops according to recommendations of the Guidance Document on Terrestrial Ecotoxicology (2002) and are based on Rautmann (2001).

An assessment considering the Tier 2 extended laboratory studies for T. pyri and A. rhopalosiphi is provided below. The extended laboratory studies provide more realistic test conditions to assess the toxicity of MON 52276 on the indicator species using plant substrates in 2-dimentional (T.pyri) or 3-dimentional (A. rhopalosiphi) study designs.

The in-field risk assessment is presented below for the use of MON 52276 in field crops, orchards, vineyards, railroad tracks and agricultural non-agricultural areas for the control of invasive species.

Clark of the state ³⁴ Candolf MP, Barrett KL, Campbell PJ, Forster R, Grandy N, Huet MC, Lewis G, Oomen PA, Schmuck R and Vogt H (eds) (2004): Guidance document on regulatory testing and risk assessment procedures for plant protection products with non-target arthropods. From the ESCORT 2 workshop. SETAC, Pensacola, 46 p

Beling, M., Wang, M. Dissipation of Plant Protection Products from Foliage. Environmental Toxicology and Chemistry (2018). Wiley Online Library.

Conclusion on the peer review of the pesticide risk assessment of the active substance glyphosate (2015). European Food Safety Authority (EFSA), Parma, Italy.

## distribution, eotobolion Table 10.3.2-4: In-field HQs for non-target arthropods (T. pyri and A. rhopalosiphi; Tier 2) exposed to MON 52276 in field crops (Uses: 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c) - considering downward ground-directed spray

Crop scenario	Application pattern	Test species	ER50 [g a.e./ha]	MAF ¹	PER _{in-field} ² [g a.e./ha]	PERin-field below rate with \$ 50% effect \$
Field crops	1 × 540 g a.e./ha	T. pyri	> 4320	1 (foliar)/ 1 (soil)	540 (foliar)/ 540 (soil)	yes (foliar)/ yes (soil)
_		A. rhopalosiphi	> 5760		In Mall	yes (foliar)/ yes (soil)
	1 × 720 g a.e./ha	T. pyri	> 4320	1 (foliar)/ 1 (soil)	720 (foliar)/ 720 (soil) >	yes (foliar)/ yes (soil)
		A. rhopalosiphi	> 5760			yes (foliar)/ yes (soil)
	3 × 720 g a.e./ha	T. pyri	> 4320	1 (foliar)/ 1 (soil)	720 (Poliar)/ 720 (soil)	yes (foliar)/ yes (soil)
		A. rhopalosiphi	> 5760	Sec. Sec. Sec. Sec. Sec. Sec. Sec. Sec.	720 (soil)	yes (foliar)/ yes (soil)
	2 × 1080 g a.e./ha	T. pyri	> 4320	1 (foliar)/ A (soil)	1080 (foliar)/ 1080 (soil)	yes (foliar)/ yes (soil)
		A. rhopalosiphi	> 5760			yes (foliar)/ yes (soil)

a.e. glyphosate acid equivalents PER: Predicted environmental rate ¹ MAF = 1.00 (considering at least a 28 day interval and a DT₅(51 28 days)

² PER (g a.e./ha) based on drift rate (%) at 1 m from the application area considering downward ground directed spray Jor Jor

## , ²°, Table 10.3.2-5: In-field HQs for non-target arthropods (T. pyri and A. rhopalosiphi; Tier 2) exposed to MON 52276 in Orchards (Uses: 4 a-c) - considering downward ground-directed spray

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Crop scenario	Application pattern	Test species	ER50 [g a.e./ha]	MAF ¹	PER _{in-field} ² [g a.e./ha]	$\begin{array}{l} PER_{in-field} \ below \\ rate \ with \leq 50\% \\ effect? \end{array}$
Stone and pome fruit, Fruit crops 2 × 1	1 × 720 g a.e./ha	T. T. pyri	> 4320	1 (foliar)/ 1 (soil) 1 (foliar)/ 1 (soil)	360 (foliar)/ 360 (soil)	yes (foliar)/ yes (soil)
		* A: rhopalosiphi	> 5760			yes (foliar)/ yes (soil)
	2 × 1440 g	T. pyri	> 4320		1440 (foliar)/ 1440 (soil)	yes (foliar)/ yes (soil)
	a.e.Aa	A. rhopalosiphi	> 5760			yes (foliar)/ yes (soil)

a.e. glyphosate acid equivalents

PER: Predicted environmental rate

 1  MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days)

² PER (g a.e. hapbased on drift rate of 2.77 % at 1 m from the application area considering downward ground directed spray

#### Table 10.3.2-6: In-field HQs for non-target arthropods (T. pyri and A. rhopalosiphi; Tier 2) exposed , in the second second to MON 52276 in Vineyards (Uses: 5 a-c) - considering downward ground-directed spray

scenario	Application pattern	Test species	ER50 [g a.e./ha]	MAF ¹	PER _{in-field} ² [g a.e./ha]	PERin-field below rate with £ 50% effect?
Table and 1 wine	1 × 1080 g a.e./ha	T. pyri	> 4320	1 (foliar)/ 1 (soil)	540 (foliar)/ 540 (soil)	yes (foliar)/ yes (soil)
grapes	-	A. rhopalosiphi	> 5760		Show all	yes (foliar)/ yes (soil)
2	2 × 1440 g a.e./ha	T. pyri	> 4320	1 (foliar)/ 1 (soil)	1440 (fəliar)/ 1440 (soil)	yes (foliar)/ yes (soil)
	-	A. rhopalosiphi	> 5760			yes (foliar)/ yes (soil)

 1  MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days)

eloie, 10101 ² PER (g a.e./ha) based on drift rate of 2.77 % at 1 m from the application area considering downward ground directed spray

,illing Table 10.3.2-7: In-field HQs for non-target arthropods (T pyri and A. rhopalosiphi; Tier 2) exposed to MON 52276 in railroad tracks (Uses: 7 a-c) - considering downward ground-directed spray 6

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Crop scenario	Application pattern	Test species	ER to f	MAF ¹	PER _{in-field} ² [g a.e./ha]	PER _{in-field} below rate with ≤ 50% effect?
Field crops (Railroad	1 × 1800 g a.e./ha	T. pyri	4320 <u>4</u> 320	1 (foliar)/ 1 (soil)	1800 (foliar)/ 1800 (soil)	yes (foliar)/ yes (soil)
racks)		A. rhopalosiphi	رژ > 5760			yes (foliar)/ yes (soil)
	2 × 1800 g a.e./ha	T. pyrice	> 4320	1 (foliar)/ 1 (soil)	1800 (foliar)/ 1800 (soil)	yes (foliar)/ yes (soil)
		A. Propalosiphi	> 5760			yes (foliar)/ yes (soil)

a.e. glyphosate acid equivalents PER: Predicted environmental rate MAF = 1.00 (considering at Leasta 28 day interval and a DT₅₀ of 2.8 days)

² PER (g a.e./ha) based on drift rate of 2.77 % at 1 m from the application area considering downward ground directed spray

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Table 10.3.2-8: In-field HQs for non-target arthropods (T. pyri and A. rhopalosiphi; Tier 2) exposed to MON 52276 for the control of invasive species (Uses: 8 and 9) - considering downward grounddirected spray

Crop scenario	Application pattern	Test species	ER50 [g a.e./ha]	MAF ¹	PER _{in-field} ² [g a.e./ha]	PERin-field below rate with \$50% effect?
Field crops	$1 \times 1800 \text{ g}$	T. pyri	> 4320	1 (foliar)/	1800(foliar)/	yes (foliar)/
(Invasive	a.e./ha			1 (soil)	1800 (soil)	yes (soil)
species		A. rhopalosiphi	> 5760			yes (foliar)/
control)						ر پر yes (soil)
PER: Predicted	acid equivalents l environmental rational equivalent	te st a 28 day interval ar	nd a DTm of 2.8 d	ave)		an.
		te of $2.77$ % at 1 m fr			ng den maridara	ind directed spray

a.e. glyphosate acid equivalents PER: Predicted environmental rate ¹ MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days) ² PER (g a.e./ha) based on drift rate of 2.77 % at 1 m from the application area considering downward ground directed spray 50

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The off-field risk assessment is presented below for the use of MON 52276 in field crops, orchards, vineyards, railroad tracks and agricultural/non-agricultural areas.

#### Table 10.3.2-9: Off-field HQs for non-target arthropods (T, pyr and A. rhopalosiphi; Tier 2) exposed to MON 52276 in field crops (Uses: 1 a-c, 2 a-c, 3 a-b, 6a-b, 10 a-c) - considering ie lei N.L.O downward ground-directed spray 8

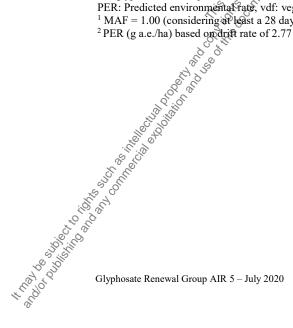
Crop scenario	Application pattern	Test species	ER50 [g a.e./ha]	MAF ¹ (foliar)	vdf	PER _{off-field} ² [g a.e./ha]	CF	corr. PER _{off-} field below rate with ≤ 50 % effect?
Field	$1\times540$ g a.e./ha	T. pyri	~4320	1	10	1.5	10	yes
crops		A. rhopalosiphis	Š~\$760		1	15		yes
	$1 \times 720$ g a.e./ha	T. pyri	©> 4320	1	10	1.99		yes
		A. rhopalosiphi	> 5760		1	19.9		yes
	$3 \times 720$ g a.e./ha	T. pyit	> 4320	1	10	1.99		yes
		A. Phopalosiphi	> 5760		1	19.9		yes
	2 × 1080 g	T. pyri	> 4320	1	10	2.99		yes
	a.e./ha	A. rhopalosiphi	> 5760		1	29.9		yes

a.e. glyphosate acid equivalents

PER: Predicted environmental rate, vdf: vegetation distribution factor; CF: correction factor

 1  MAF = 1.00 (considering a least a 28 day interval and a DT₅₀ of 2.8 days)

² PER (g a.e./ha) based or drift rate of 2.77 % at 1 m from the application area considering downward ground directed spray



## Table 10.3.2-10: Off-field HQs for non-target arthropods (*T. pyri* and *A. rhopalosiphi*; Tier 2) exposed to MON 52276 in orchards (Uses: 4 a-c) – considering downward ground-directed spray

Crop scenario	Application pattern	Test species	ER50 [g a.e./ha]	MAF ¹ (foliar)	vdf	PER _{off-field} ² [g a.e./ha]	CF	corr. PERoff- field below rate with ≤ 50% effect?
Stone and	1 × 720 g	T. pyri	> 4320	1	10	1.99	10	y yes
pome fruit, fruit crops	a.e./ha	A. rhopalosiphi	> 5760		1	19.9	N. C	S to yes
in une crops	2 × 1440 g	T. pyri	> 4320	1	10	3.98	No.	yes
	a.e./ha	A. rhopalosiphi	> 5760		1	39.8		yes

# a.e. glyphosate acid equivalents PER: Predicted environmental rate, vdf: vegetation distribution factor; CF: correction factor ¹ MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days) ² PER (g a.e./ha) based on drift rate of 2.77 % at 1 m from the application area considering downward ground directed spray **Table 10.3.2-11: Off-field HQs for non-target arthropods (***T. pyri* and *A. rhopalosiphi;* Tier 2) exposed to MON 52276 in vincovards (*Usaget 5 a.c.*) - correidering downward ground directed by the specific downward ground directed spray exposed to MON 52276 in vineyards (Uses: 5 a-c) - considering downward ground-directed spray

				j.S	5,5	.0		
Crop scenario	Application pattern	Test species	ER50 [g a.e./ha]	MACF 1 (foliar)	ر مراجع مرجع	PER _{off-field} ² [g a.e./ha]	CF	corr. PER _{off-field} below rate with ≤ 50 % effect?
Table and	1 × 1080 g	T. pyri	> 4320	ç î	10	8.66	10	yes
wine grapes	a.e./ha	A. rhopalosiphi	> 5760	MUM	1	86.6		yes
	2 × 1440 g	T. pyri	≥4320≤	1	10	3.98		yes
	a.e./ha	A. rhopalosiphi	5760		1	39.8		yes

a.e. glyphosate acid equivalents

PER: Predicted environmental rate, vdf: vegetation distribution factor; CF: correction factor

¹ MAF = 1.00 (considering at least a 28 day interval and a  $DT_{50}$  of 2.8 days)

² PER (g a.e./ha) based on drift rate of 2.77 % at 1 m from the application area considering downward ground directed spray With 100

#### Table 10.3.2-12: Off-field HQs for non-target arthropods (T. pyri and A. rhopalosiphi; Tier 2) exposed to MON 52276 in railgoad tracks (Uses 7a-c) - considering downward ground-directed , . . 5 1 and a contraction of the contr spray

	Crop scenario	Application pattern	S [©] Test species	ER50 [g a.e./ha]	MAF ¹ (foliar)	vdf	PER _{off-field} ² [g a.e./ha]	CF	corr. PER _{off-} field below rate with ≤ 50 % effect?
	Field crops	4 × 1800 g a.e./ha	T. pyri	> 4320	1	10	4.99	10	yes
	(Railroad	a.e./ha	A. rhopalosiphi	> 5760		1	49.9		yes
		2 × 1800 g	T. pyri	> 4320	1	10	4.99		yes
		a.e./ha	A. rhopalosiphi	> 5760		1	49.9		yes
11 11 10 10 10 10 10 10 10 10 10 10 10 1	PER Predicted ¹ MAF = 1.00 (c ² PER (g a.e./ha) Glyphosate Renew	environmental rat considering at leas ) based on drift ra /al Group AIR 5 – J	A. rhopalosiphi T. pyri A. rhopalosiphi e, vdf: vegetation di st a 28 day interval a te of 2.77 % at 1 m f	stribution facto nd a DT ₅₀ of 2 from the applic	or; CF: corr .8 days) ation area c	ection conside	factor ring downward Doc ID: 110054-1	ground c MCP10_G	lirected spray RG_Rev 1_Jul_2020

#### Table 10.3.2-13: Off-field HQs for non-target arthropods (*T. pyri* and *A. rhopalosiphi*; Tier 2) exposed to MON 52276 for the control of invasive species (Uses 8 and 9)) - considering downward 10,000 ground-directed spray

Crop scenario	Application pattern	Test species	ER50 [g a.e./ha]	MAF ¹ (foliar)	vdf	PER _{off-field} ² [g a.e./ha]	CF	corr. PER of field below rate with $\leq 50\%$ effect?
Field crops (Invasive	1 × 1800 g a.e./ha	T. pyri	> 4320	1	10	4.99	10 1/en	S & yes
species control)		A. rhopalosiphi	> 5760		1	49.9		yes

a.e. glyphosate acid equivalents

PER: Predicted environmental rate, vdf: vegetation distribution factor; CF: correction factor

 1  MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days)

² PER (g a.e./ha) based on drift rate of 2.77 % at 1 m from the application area considering downward ground directed spray 1%

Topological and the second ele Op For Aphidius rhopalosiphi and Typhlodromus pyri, the trigger value of HQ  $\leq 1$  demonstrates that no unacceptable effects are expected from the proposed uses of MON 52276 considering in-field or off-field habitats of field crops, orchards, vineyards, railroad tracks and agricultural/non-agricultural areas for the The Telling 900 JU control of invasive species. No further testing is required.

#### **Indirect Effects via trophic Interactions**

The ecotoxicology regulatory study database for the representative formulation (MON 52276) includes guideline studies and risk assessment methodology that was designed to assess potential direct and indirect effects on beneficial insect communities (ESCORT 2, 2000). For the Tier 1 NTA assessment, studies were conducted using ecologically important and highly sensitive indicator species of adverse effects (Table **10.3.2-1**). Then at Tier II (extended studies) additional levels of realism were introduced into the exposure scenario, by intrudcing exposure on leaf-based substrates. Specific protection goals (SPGs) for non-target arthropods (NTAs) were developed at the ESCORT 2 and 3, (2000 and 2010) workshops, with separate SPGs developed for athropods occurring in the crop / in-field and off the crop / off-field. SCORT 3 saw further distinction between in-field and off-field scenarios. It was considered practical by the experts during the ESCORT 3 workshop to make distinctions and recognize trade-offs between in-crop and off-crop and in-field and off-field area, given the differences in the socio-economic and ecological functions of these two distinct areas. This is consistent with the recommendation of the EFSA problem formulation workshop that was convened to prepare guidance that would inform the development of SPGs (EFSA, 2010).

The first SPG from the ESCORT workshop addresses in-crop applications, where the goal is to maintain pest control (i.e., activity of parasitoids and predators) and to also provide a food source for wildlife minimizing indirect effects through trophic interactions. In turn the aim here is to enable an in-crop NTA community to recover (Table 10.3.2-44 to Table 10.3.2-88).

The in-crop measurement endpoint and risk assessment procedures developed to achieve this SPG, allow for a maximum of a 50 % direct effect on individuals in-crop from a Tier 1 - 2 assessment approach. At the 1st tier lethality effects are considered, whilst at the second tier, impacts on reproduction are considered. The rationale for 50 % effect threshold for direct effects, is based on the principle that this level of effect would allow for in-field recovery via immigration of beneficial insects from the off-field areas to the infield areas, or from in-field / off-crop areas, where for example, a no spray buffer in-field / off-crop buffer is included, thereby enhancing recovery.

Biodiversity (10.3.2-133). The second SPG was derived to protect the off-crop NTA community, with the goal to maintain NTA biodiversity off-crop to facilitate in-field recovery of non-target arthropod species (Table 10.3.2-99 to Table

#### Scientific Literature that informs the NTA assessment

The scientific literature review conducted for the last Annex I renewal (submitted in 2012) that appears in the RAR (2015) contains an extensive review of ecotoxicological papers considered relevant but supplementary to the Annex I renewal.

These papers presented information that could not be relatable to an EU level ecotoxicological risk assessment, but that were considered in the previous dossier, where they were also evaluated by the previous RMS (UBA). A further evaluation of these reviewed literature has not been conducted. The previous literature review has been submitted as part of the Literature review requirements and is presented in Annex M-CA 8-01 of the document M-CA Section 8.

# Literature review for non-target arthropods from the previous Annex I (2012) submission.

In the area of arthropods other than bees, a total of 31 peer reviewed papers were submitted, with no paper considered relevant for use in risk assessment. The RMS (UBA) re-evaluated the submitted papers with 11 papers recognised as information having a low weight and a further 7 publications being considered as supportive information. In the evaluation of the literature from the previous Annex I submission, the RMS (UBA) indicated that

In the evaluation of the literature from the previous Annex I submission, the RMS (UBA) indicated that indirect effects on beneficial arthropod communities take place within treated areas and are principally due to vegetation changes subsequent to herbicide application. These vegetation changes, mainly decomposition / loss of plant cover, might result in a drastic reduction of the habitats of beneficial and other non-target arthropod communities and a loss of their refuges from predators. This would anyway be the case if a non-chemical means of weed control was applied.

The RMS (UBA) reviewed a multiyear study using pitfall trapping to collect mobile arthropod species on the soil surface, the combination of conservation tillage and herbicide treatment had less impact on biodiversity than conventional ploughing (Schier, 2006). The RMS (UBA) concluded that conservation tillage without the use of glyphosate is not practiced, due to the upcoming weed pressure on culture crops. Stating that it was not possible to identify the effects of glyphosate applications in the performed studies.

Arthropods in their natural environment can be exposed directly to pesticides after the application due to residues on food or due to contact with contaminated surfaces (such as plants, soil, surrounding substrate). The RMS (UBA) also stated that risk analysis is currently based on beneficial arthropods important for

The RMS (UBA) also stated that risk analysis is currently based on beneficial arthropods important for biological control of agronomic pests, through predation or parasitism, including beetles, mites, wasps and spiders. They indicated that test species were selected for practical reasons because of their utility in agricultural production and feasibility in experimental setups than on the basis of their ecological relevance.

The Notifiers indicate that the species selected for these tests are the representative species selected for testing according to Annex I data requirements. These same species are considered in the current 'arthropods other than bees' risk assessment, that includes impacts on survival and reproduction, that is considered relevant to assess the recovery potential of such populations in transient habitats such a field row crops

The RMS (UBA) highlighted that effects on different life stages and on other species, not considered in the traditional risk assessment, together with the indirect effects of herbicide treatment on the vegetation of their habitat, receive less attention even though they might have implications for the success of survival and reproduction.

In the current risk assessment - including the assessment of indirect effects via trophic interaction, the implications of the observed effects at the habitat and population level are considered. Notable from the previous RMS (UBA) review is the fact that there are few studies available on the indirect effects of glyphosate and also on conventional tillage weed control practices on terrestrial arthropod populations. This is still the case, but the assessment based on the direct effects' assessment is considered within the following indirect effects via trophic interaction assessment.

Glyphosate is considered a conservation tool that facilitates biodiversity. As stated by the previous RMS (UBA) following an assessment of a wide range of terrestrial invertebrate taxa showed variable responses in abundance and their diversity being largely a function of the degree of vegetation control (Guiseppe et al., 2006; Sullivan and Sullivan, 2002). It was also identified that populations of arthropods in areas where conservation tillage is practiced - of which glyphosate is typically used to enable, often have more beneficial insects and consequently diversity of other wildlife (Warburton and Klimstra, 1984).

Concerning the current literature review, there were no literature articles considered relevant to the 11, 00 00 11, 00 00 10, 00 GM ecotoxicological risk assessment for Annex I renewal.

A number of relevant but supplementary papers were identified, that discuss the selectivity of glyphosate based herbicides on a range of non-target arthropods such as Culicidae (Bara et al., 2014, Mohammed et al., 2016)), Chrysoperla externa (Castilhos et al., 2011, Pasini et al., 2018), Colorado potato beetle (Rainio et al., 2018), rose-grain aphids (Saska et al., (2016), Hymenopterans, Stecca et al., 2016), Bombyx mori (You et al., 2010 and Zhang et al., 2011) that all report impacts either directly in terms of mortality or indirectly via effects on reproduction or changes in life history traits. However, the observed findings are based on exposure of specific foliar predators following either an over the top application' under unrealistic exposure conditions, using glyphosate-based herbicides that are not the representative formulation for the Annex I renewal. The endpoints presented in these papers are not relatable to a test design that is used in EU level non-target arthropod risk assessment and were therefore considered supplementary to the HULL COLOR assessment. Please refer to the literature review for further information on the supplementary nature of these articles. illi, joh

#### Assessment

The following approach has been taken to assess potential indirect effects via trophic interactions, considers the proposed Specific Protection Goals drawn from the existing EU guidance and working documents, and the 2016 EFSA Guidance on developing protection goals for ecological risk assessments (ERA) for pesticides. The SPGs based on diffect effects assessment considering representative sensitive populations across the tested trophic levels. The brodiversity assessment, aimed to develop a flexible framework that informs the development of usk mitigation options to achieve the specific protection goals, that includes considering indirect effects via trophic interaction.

x° For example, reduced application rates relative to previous Annex I renewals, a reduced overall application volume of product on the land, and inclusion of no-spray buffer zones - a standard mitigation measure to protect non-target plant communities in off-target areas, which indirectly supports non-target arthropod biodiversity, by maintaining habitat and refuges for arthropods to reside in the off-field areas. S.

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Although for example, for crop inter row applications and for applications made to control actively growing weeds in perennial row crops, herbicide application will result in habitat losses and non-target arthropods will be displaced as the directs effects assessment, indicates that there would be a limited direct effect on arthropod populations. The would be the case if an alternate herbicide was applied or if the weeds were removed mechanically. Populations in off-target areas would not be impacted and movement of non-target arthropeds onto the developing crop or to areas adjacent to the application areas would occur.

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area. When defining SPGs for arthropods that reflects both direct and indirect effects, it is the responsibility of the risk assessors in the Member States to acknowledge existing protection goals and regulatory data requirements, to propose possible SPG options, and describe the possible environmental consequences of each option. The risk assessors within the Member States will need to propose realistic SPGs and exposure OMINO 39 assessment goals and the interrelationships between them in a clear and transparent manner.

The approach to the biodiversity assessment is to assess potential indirect effects via trophic interactions and their impact on biodiversity, by developing a flexible framework that informs the development of risk mitigation options to achieve the specific protection goals. 2

In the following table, the specific protection goals relevant to non-target arthropods are presented with the relationship between the SPGs, the direct effects study types, assessment and measurement endpoints. The assessment endpoint is an explicit expression of an environmental entity and the specific property of that entity to be protected. Measurement endpoints relates directly to the effects study endpoints.

A conclusion that a given data requirement has been satisfied, requires that an acceptable level of risk has been achieved (i.e. there is a protective margin of exposure or through a weight of evidence).

Based on the measurement endpoints from the study types, and the direct effects assessment presented above in this section, for in-field exposure, direct effects from glyphosate on NTAs are not anticipated. Due to the mode of action of glyphosate, an indirect effect on habitatin the in-field areas cannot be avoided. It is important to remember that this would also be the case if a non-chemical means of weed removal was 80°C e G 20 employed. Le la

Where there is crop present in the field at the time of application such as inter-row applications for weed control – or for example, applications made in orchards and vineyards where the applications are made in strips around the base of trees, populations of non-target arthropods will still be maintained in the unsprayed areas between the tree rows. For in-crop inter-row weed control spray scenarios, NTAs will still be present in to o on the crop.

The impact on NTA species in the off-crop? off-target areas will be supported by the required in-field no spray buffer area for the NTTPs, which will protect off-field populations of NTAs allowing for in-field recovery of populations either onto the developing crop or onto weed species developing from the seed bank.

The following table assessment in the strates that ecological function of beneficial NTAs both in-field / in crop and off-field / off-crop (off-target) will be sufficiently maintained to achieve the SPG for the non-target arthropods according to the protection goals as defined in the ESCORT 2 and 3, that sustains a food resource for other animals, primarily birds and mammals.

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Table 10.3.2-14: The relationship between Specific Protection Goals and associated assessment and -91.0 10 measurement endpoints for non-target arthropods (NTAs).

Specific Protection Goals ¹	Assessment Endpoints	Measurement Endpoints	Glyphosate Study Types
In-field Maintenance of ecological function of beneficial NTAs (i.e., pest control by parasitoids and predators), food source for wildlife, and effects not exceed the ability to recover. Off-field ¹ Maintenance of NTA biodiversity and the ability to support in-field recovery	Tier 1, at the maximum use rate (MUR) achieve an assessment factor of $\geq 2$ with mortality Tier 2, at the MUR no significant mortality and < 50 % effect on reproduction.	Survival (LR ₅₀ ) and if appropriate, assess reproduction effects	Primary: Typhlodronius pyri (predatory mice) and Aphidius rhopalosiphe (parasitic wasp) Secondary: O. laevigatus, C. carnea: C. septempunctata A. bilineata
NTA Biodiversity Assess	ment		

#### **NTA Biodiversity Assessment**

Following ESCORT3 risk assessment guidance there is low to negligible risk of unacceptable direct and indirect effects to NTA communities for the representative formulation. Risk mitigation measures required for protecting the off-crop NTTP community (e.g., in-field buffers) will be protective of off-crop NTA biodiversity. However, if additional risk mitigation measures are determined to be required, to mitigate indirect effects resulting from in-crop weed control on NTA communities, options to be considered by risk assessors and fisk managers within Member States are presented in Table 10.3.2-15. 3 Ś ð

¹ The off-crop area is defined as the area in-field that is not the crop. For NTA RA, the off-crop area is a default 1 meter distance between the last sprayed row of the crop and the edge of the in-field area.

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**Conclusion** Following ESCORT3 risk assessment guidance there is negligible risk of unacceptable direct and indirect effects to NTA communities for the representative formulation. Risk mitigation measures required for protecting the off-crop NTTP community (e.g., in-field buffers) will be protective of off-crop NTA biodiversity. The existing SPG for the incrop assessment has been designed to only allow for up to a transient 50 % effect on the NTA community and it allows for in-crop recovery to minimize the likelihood of indirect effects to birds and marinals through trophic interactions. The SPG for the off-crop assessment is protective of biodiversity based on spray-drift mitigations developed to protect the NTTP community. However, if additional risk mitigation measures are determined to be required, to mitigate indirect effects resulting from in-crop weed control on NTA communities, options to be considered by risk assessors and risk managers within Member States are presented in the following table.

3.5 e follow e follow Examples of the standard mitigation measures considered applicable at the EU level (MAgPIE, 2017) are presented in the following table. Many of these have been considered in the current dossier submission.

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## Table 10.3.2-15: Examples of standard mitigation measures as described in MAgPIE (2017) across the various Member States to mitigate effects of glyphosate on biodiversity.

Type of Mitigation	<b>Risk Mitigation</b>	Benefits	Glyphosate renewal dossier (2020)
Measure	Measure		J. S.
Restrictions or	Application rate,	Lower transfers to	Significant reductions (50 % in volume) in
modifications of	Application frequency,	groundwater and surface	newly proposed application rates 🖉
products' conditions	application timing,	water; Reduces exposure	compared with the representative use
of application	and interval between	of organisms in-crop and	presented in the 2012 renewal dossier.
**	applications	off-crop.	See ³⁷ Appendix 2 of the biodiversity
	**	*	document accompanying this submission.
			N O C
			Treated area restriction
			13. for the representative use GAPs:
			applying to only 50 % of the total area in
			orchard/vineyard area.
			14. maximum of 50 % of the total area
			for broad acre vegetable inter-row
			$15 \times A$ Invasive species control e.g. couch
			15. A Invasive species control e.g., couch grass maximum of 20 % of the cropland
			Aestended application intervals
		22	Strass maximum of 20 % of the cropland Sectended application intervals.
		Paduces avnound of	<b>Example 2</b> <b>Example 2</b> <b>Exam</b>
		5° 40	Configuration: 28 day interval between
		S.M.S	application. 20-day interval between
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	applications and no pre-harvest applications
A 1' /'			
Application	Spray drift reduction		Reduction of spray drift to the on-neid.
equipment	nozzles (SDRN),	organisms in-crop	9. Use 75 % drift reducing nozzles for pre-
with Spray Drift	shields,	(nrecision treatment) and	sowing/pre-planting in arable crops.
Reduction	Precision treatment, etc.	off-crop	10. Use of ground directed, shielded
Technology (SDRT)		off-crop	spray for band application in orchards /
		10 0 S	vineyards and broad-acre vegetable inter-
			row application.
Buffer zones	Non-sprayed zone at the	Reduces exposure of	Establishment of buffer zones:
	edge of a crop	organisms and off-crop	Buffer zones of varying size (depending on
		I	the type of SDRT) are required as protection
	5 00		for off-crop NTTP communities from spray
			drift.
	Non-sprayed zone at the edge of a crop		
L	K F K	1	1

For example in the current dossier;

- Reductions in maximum annual application rates of up to 50 % considered in this dossier are compared to the maximum rates applied for in the 2012 Annex I renewal dossier.
- volume of product being applied on a per hectare basis for certain uses, will reduce the total volume of product being applied to the landscape. For example, controlling actively growing weeds in vineyards, orchards where a reduced area, up to a maximum of 50 % of the total application area is proposed e.g. using strip or band applications. Applications on target weeds around the base of trees with leaving the area between tree rows unspraved with mechanical methods. Lineatio Leaving the art mechanical meth Biodiversity Assessment (TRR0000305).

2020) Glyphosate: Indirect effects via trophic interaction - A Practical Approach to

- The use of shielded or hooded sprayers, hand-held sprayers and drift reducing technologies, e.g. 75 % drift reducing nozzles are recommended for all applications made for the control of actively growing weeds when applied to control invasive species. These measures will further reduce the off-target exposure risk.
- For weed control on rail tracks, recommendations are made in the GAP table to use precision application equipment on spray trains, that detect and target spray directly onto unwanted plants, thereby reducing the amount of product being applied, whilst maintaining an acceptable level of safety on the railroad tracks.
- No spray buffer areas in-field (as compensation areas), are necessary to meet the specific protection goals for avoiding direct effects on non-target plants in off-target areas. This measure will in turn support non-target arthropod communities in off-field areas and reduces further, the potential for

indirect effects on bees through trophic interaction. considered where a local and specific mitigation need is identified. For example, in simplified landscapes or landscapes that are intensively managed, where typically there are limited refuge areas for insects, birds and mammals. Non-standard mitigation measures options could include for example, creation of off-target habitats, utilizing edge of field habitats and semi-field habitats that assist biodiversity by improving wildlife

connectivity. For further information on mitigation measures pleased refer to the supplementary information document titled 'Glyphosate: Indirect Effects via Trophic Interaction of A Practical Approach to Biodiversity Assessment.' (DOC No.) that accompanies this dossier submission.

References relied upon in the Indirect Effects via Frephic Interaction Discussion

ESCORT2. 2000. Guidance document on regulatory testing and risk assessment procedures for plant protection products with non-target arthropods. From the ESCORT 2 workshop (European Standard Characteristics Of non-target arthropod Regulatory Testing. Joint BART, EPPOCoE, OECD and IOBC workshop organised inn conjunction with Society of Environmental Toxicology and Chemistry (SETAC).and EC. Ed. Candolfi et al. (2000)

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CP 10.3.2.1 Standard laboratory testing for non-target arthropods

1. Information on the study

	- Contraction of the second se
Data point:	CP 10.3.2.1/001
Report author	
Report year	1995
Report title	Testing toxicity to beneficial arthropods. Cereal aphid parasitoid - Aphidius rhopalosiphi (De Stefani-Perez) / Imagines according to IOBC Guideline (Mead-Briggs 1992). Roundup Ultra
Report No	95 10 48 054
Document No	-
Guidelines followed in study	- بالمركبي المحافظ المحافظ المحافظ المحافظ ا
Deviations from current test guideline	 Deviations from current guideline IOBC (2000): Major: For mortality phase, 3 replicates were used in test item treatment groups and 1 in reference item, instead of 4 Minor: none
Previous evaluation	Yes, accepted in the RAR (2015)
GLP/Officially recognised testing facilities	Yes Strate
Acceptability/Reliability	Supportive
Category study in AIR 5 dossier (L docs)	Category 2b
2. Full summary Executive Summary	Supportive

2. Full summary Executive Summary The toxicity of MON 52276 to the parasitic wasp, *Aphidius rhopalosiphi* was tested with two day old wasps exposed to the equivalent of 10 L MON \$2276/ha applied in 200 L/ha water on glass plates. A control was prepared in parallel (deionized water only) and dimethoate product was used as a reference item 0.2 L/ha in 200 L/ha water.

Three replicate cages, each containing 10 wasps, (30 wasps per treatment in total) were used for the test item treatment and the control group, with a single replicate used for the reference item. Mortality and sublethal effects were recorded at 0.5, 2, 24 and 48 hours after application, following application and then drying of the test substance onto glass plates.

After 24 hours, 100 % of the wasps died after treatment with MON 52276 after 24 h of exposure. Therefore, the parasitisation efficiency of the exposed wasps was not evaluated. All validity criteria were met. As there was 100 % mortality during the exposure phase, a full set of endpoints for the study could not be

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I. MATERIALS AND METHODS

A. MATERIALS

Test material:

Test item: MON 52276 (Product name: Roundup Ultra)

Description: Not stated

080694 Lot/Batch #:

Glyphosate (isopropylamine salt) 360 g/L (31.0% according Purity:

Density: 1.1694 g/cm^3

Vehicle and/or positive control:

Test organisms:

Species: Cereal aphid parasitoid (Aphidius rhopalosiphi)

Reference item: Dimethoate product (dimethoate: 411.14 g/L)

Age: Approximately 2 days

to certificate)

Source: PK Nützlingszuchten, Welzheim, Germany

Diet/Food: Honey + water (1:2)

Acclimatisation: Not stated

Environmental conditions:

Temperature:

Photoperiod:

Relative humidity:

(S) OF THE 20-23 °C 58 – 77 % in the testing room 16 hours light? 8 hours darkness September 18th, 1995 to September 20th, 1995 1 Harris

boundary and

Experimental dates:

UNIC STREET **B. STUDY DESIGN AND METHODS**

in the second second **Experimental treatments:** The test solutions were sprayed onto the surface of glass plates using an automatic application cabin, in water volumes equivalent to spraying 200 L/ha deionized water as control, 10 L MON 52276/ha in 200 L/ha water (equivalent to 3.6 kg a c/ha) and 0.2 L Dimethoate product/ha in 200 L water/ha (reference substance). Plates were air dried in the laboratory for 2 - 3 hours and then with the sprayed surfaces innermost, 2 plates were put together with a square aluminium frame. Then 5 females and 5 males Aphidius wasps were introduced into each cage through holes in the frame sides which were closed after insect insertion. The honey solution was offered to the parasitoids with at cotton wool stopper in one hole of the frame. The test cages were set up in a climatic test room and connected over a water bottle with an aquarian pump for ventilation with humid air.

In the test, three represented to cages, each containing 10 wasps, were used for the test item treatment and the control. The reference item was tested in one replicate. Because of high mortality (100 %) of the parasitoids in the treated variant the experiment was finished 48 h after application.

Observations Mortality and sublethal effects were recorded 0.5, 2, 24 and 48 hours after application.

Statistical calculations: descriptive statistics.

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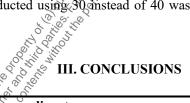
II. RESULTS AND DISCUSSION

A. FINDINGS

Table 10.3.2.1-1: Toxicity of MON 52276 to parasitic wasps (*Aphidius rhopalosiphi*) in a 48 h laboratory test

Test solutions	Replicates	2 h	24 h		48 th 100	
		Surviving wasps	Surviving wasps	Mortality %	Surviving wasps	Mortality %
Control: 200 L/ha	1	10	10	3.3	1990 J	6.7
deionized	2	10	9		1990 B	
	3	10	10		8 N	
	Σ	30	29	- 2	^{న్} న 28	-
Test substance: 10 L/ha	1	3	0	10.00 28	~~ -	-
MON 52276	2	3	0		-	
	3	4	0	19 10 10 10 10 10 10 10 10 10 10 10 10 10	-	
	Σ	10	0	J. S. E	-	-
Reference substance: 0.2	1	3	0	5 2100	-	-
L Dimethoate /ha	Σ	3	0 00 40	- 20	-	-
				iç i		

B. OBSERVATIONS No sublethal effects were observed. The mortality sinche control treatments did not exceed 10 % for 48 hours, the corrected mortality in the reference treatment was > 50 %. The test was stopped after 24 hours for test item treatment and no evaluation of reproduction was conducted for the control treatments. Therefore, the study is not reliable to be used in tisk assessment (as the study pre-dates the Mead-Briggs approach: the control was conducted using 30 instead of 40 wasps and no reproduction assessment was included).



Assessment and conclusion by applicant:

There was 100% mortality during the exposure phase at the rate tested (10 L MON 52276/ha) and therefore, no parasitisation efficiency data generated. Highly likely that the findings in the study may have been confounded by the wet sticky layer on the treated glass plates in the MON 52276 treatment group.

This study is therefore considered supportive and unreliable for use in the risk assessment.

Assessment and conclusion by RMS:

1. Information on the study

		2
Annex to Regulation 284/2013	MON 52276 M-CP, Section Page 303 of 5	<i>2</i> 0
1. Information on the stud	у	ion in the second second
Data point:	CP 10.3.2.1/002	- S
Report author		
Report year	1995	
Report title	1995 Testing toxicity to beneficial arthropods. Predacious mite - <i>Typhlodromus pyri</i> (Scheuten) according to IOBC Guideline	<u>,</u>
Report No	95 10 48 056	
Document No	-	
Guidelines followed in study	IOBC Guideline (Overmeer 1988 and Louis 1994).	
Deviations from current test guideline	Deviations compared to current IOBC guidelines (2000): Major:	
Previous evaluation	Yes, accepted in the RAR (2015)	
GLP/Officially recognised testing facilities	Yes	
Acceptability/Reliability	Supportive S	
Category study in AIR 5 dossier (L docs)	Category 2b	
 Full summary Executive Summary In the laboratory study the toyicit 	Supportive Category 2b k^{0}	

 Full summary
 Executive Summary
 In the laboratory study the toxicity of MON 52276 to the predatory mites, *Typhlodromus pyri* was tested. Freshly hatched mites were exposed to 10 L MON 52276/ha in 200 L/ha water on dried glass plates. In addition, an undosed control was tested (200, L/ha deionized water). Kelthane 50 (480 g dicofol/L) was used as a reference item 0.1 L/ha in 200 L/ha water.

The test was conducted with 6 replicates per test concentration; control and reference control each containing 10 mites. Mortality was recorded 1 and 4 days after application.

100 % of the wasps died in treatment with MON 52276 after 4 days of exposure. Validity criteria were met. However due to 100 % mortality, endpoints could not be properly determined. Therefore, study does not provide relevant endpoints

I. MATERIALS AND METHODS

A. MATERIALS

	1. Test material
	DOL
	2 Vakiala and/an
	2. Venicie and/or
4 10 CS	1. Test materials

\times '0'	
Test item:	MON 52276
Description:	Not stated
Lot/Batch #:	080694
Purity:	Glyphosate (isopropylamine salt) 360 g/L (31.0 % according to certificate)
Density:	1.1694 g/cm ³
nd/or positive control:	Reference item: Kelthane 50 (dicofol: 480 g/L)

3. Test organisms:

Annex to Regulation 284/2013	MON 52276 M-CP, Section 10 Page 304 of 553 Holder Predacious mite (<i>Typhlodromus pyri</i>) Approximately 1 day Holder PK Nützlingszuchten, Welzheim, Germany Holder Holder spider mites (<i>Tetranychus urticae</i>) and during the test polition Holder
3. Test organisms:	Citerio Citeri
Species:	Predacious mite (Typhlodromus pyri)
Age:	Approximately 1 day
Source:	PK Nützlingszuchten, Welzheim, Germany
Diet/Food:	spider mites (Tetranychus urticae) and during the test pollen
Acclimatisation:	Not stated
4. Environmental conditions:	
Temperature:	25 – 27 °C
Relative humidity:	72 - 78 %
Photoperiod:	spider mites (<i>Tetranychus urticae</i>) and during the test pollen Not stated 25 - 27 °C 72 - 78 % 16 hours light / 8 hours darkness

5. Experimental dates:

August 17th, 1995 to August 21st, 1995

B. STUDY DESIGN AND METHODS
1. Experimental treatments: Glass plates were sprayed with the determined water, test substance or reference substance. Test concentrations used ware 200° to the later. reference substance. Test concentrations used were 200° L/ha deionised water (control), 10 L MON 52276/ha in 200 L/ha water (test substance treatment) and 0.1 L Kelthane 50/ha in 200 L water/ha (reference substance). After air-drying at room temperature (about 60 minutes), glass plates were infested with young freshly hatched predacious mites, together with pollen for food supply. The test was conducted with 6 replicates for control for each test item rates and reference item, each replicate containing 10 mites. ð

2. Observations: Mortality was recorded 1 and 4 days after application

3. Statistical calculations: No statistical calculations performed.

II. RESULTS AND DISCUSSION

A. FINDINGS

Table 10.3.2.1-2: Toxicity of MON \$2276 to predatory mites (Typhlodromus pyri) in a 4 day Supa laboratory test ĥ.

Test concentration by	Mortality [%]	
St He A	1 d	4 d
Control: 200 L/ha deconised	5	10
Test substance: 10 L/he MON 52276 in 200 L/ha water	90	100
Reference substance: 0?1 L Kelthane 50 /ha in 200 L water/ha	100	

B. OBSERVATIONS

The final assessment was performed 4 days after the application, because of total mortality of the predacious ne mites, souther and a souther and a souther mites in the test variant. No sublethal effects were observed.

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III. CONCLUSIONS

Assessment and conclusion by applicant:

Under the conditions of the present test, MON 52276 applied at 10 L/ha in 200 L/ha water resulted in 100 % mortality of the predatory mites after 4 days of exposure. 04

The study is considered supportive and not sufficiently reliable to be used in risk assessment (as the study pre-dates the Blümel approach and the control was conducted using 60 instead of 100 mites and no reproduction assessment was included). 0.

Assessment and conclusion by RMS:

1. Information on the study

1. Information on the stud	
Data point:	CP 10.3.2.1/003
Report author	1995
Report year	1995
Report title	Testing toxicity to beneficial arthropods - Carabid beetle - Poecilus
	cupreus L. according to BBA Guideline VI, 23-2.1.8 (1991) ROUNDUP ULTRA
Report No	95 10 48 055 <u>المحمد المحمد المحم </u>
Document No	
Guidelines followed in study	BBA Guideline V\$, 23-2.1.8 (1991)
Deviations from current test guideline	Deviations from current guideline Heimbach <i>et al.</i> (2000): Major: - none Minor: - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before application in the - Beetles should be kept at least 7 days before applicati
Previous evaluation	Yes accepted RAR (2015)
GLP/Officially recognised & & & & & & & & & & & & & & & & & & &	y Des
Acceptability/Reliability	Valid
Category study in APR 5,5 dossier (L docs)	Category 2a

Sho 2. Full summary

Executive Summary

In the laboratory study, the toxicity of MON 52276 to the carabid beetle - *Poecilus cupreus* was tested. Adult carabid beetle were exposed to 10 L MON 52276/ha in 400 L/ha water on moistened quartz sand. In addition, an untreated control was tested (400 L/ha deionized water). Afugan was used as a toxic reference item (0.8 L/ha in 400 L/ha water).

In the test, five replicate cages, each containing 6 carabid beetles (3 females + 3 males) were used for each greatment group. Feeding, mortality and sublethal effects were recorded 2, 4 and 6 hours after application. Then 1, 2, 4, 7, 9, 11 and 14 days after application.

The mortalities in the control and in the MON 52276 treatments were 0 %. Consequently, the test fulfilled

the validity criterion (mortality in the control < 10 %). The feeding rate showed no differences in comparison with the control variant. No behavioural anomalies were observed. The relative decrease of beneficial effectivity calculated according to OVERMEER & VAN ZON (1982) was E = 1 %.

I. MATERIALS AND METHODS

A. MATERIALS

4 1 Test r

Test material:	». S. S.
Test item:	MON 52276 (ROUNDUP ULTRA SL)
Active substance	Glyphosate
Lot/Batch #:	MON 52276 (ROUNDUP ULTRA SL)
Purity:	31 % (Glyphosate (isopropylamine salt) 360 g/L)
Density:	1.1694 g/cm ³
Toxic reference:	1.1694 g/cm ³ Afugan
Test organism:	Carabid beetle - Poecilus cupreus L. Adults (7 weeks ofd)
Species:	Carabid beetle - Poecilus cubreus L.
Age:	Adults (7 weeks old by 5 50
Source:	laboratory rearing of BBA Braunschweig
Food:	Onion fly (Delia antiqua)
Acclimatisation:	3 days under laboratory conditions without food
Environmental conditions:	
Temperature:	18 × 2 p ° C
Photoperiod:	Je Je S
Light intensity	16 b approx. 1000 lux
Relative humidity	€ Test units: 54 − 82 %
Experimental dates:	7 August - 21 August 1995
B. STUDY DESIGN AND METHODS	
Even anime and all two atmospheres	

B. STU

Experimental treatments & S.

The test carabid beetles were kept for 3 days under laboratory conditions for acclimatisation. Three females and three males were placed into each test cage (cages of plastics: 18.3 cm × 13.6 cm × 6.4 cm) with moistened sand (250,g) covering the bottom without food. Immediately before the treatment the beetles were inspected, the ones which appear damaged were replaced by animals of the same sex. Then the sand was moistened with deionized water and fly pupae were added as food supply. The treatments were applied to the cages with the beetles in an automatic application cabin. The control treatment was sprayed with deionized untreated water, the test item treatment was sprayed with 10 L MON52276/ha solution and the toxic reference item was sprayed with 0.8 L Afungan/ha (equivalent to 235 g a.s./ha). After application the cages were incubated in an air condition room (20 °C, 16/8 h light/dark) for 14 days. After 1, 2, 4, 7 and 11 days food was changed (2 pupae/beetle) and sand was moistened.

°42 Observations

The sex of the adults was determined before the beginning of the test. The number of dead beetles, the purpose of fed puppe and any behavioural effects were assessed after 2, 4 and 6 hours, as well as 1, 2, 4, 7, 11 and 14 days after application.

Calculations

Contraction of the second seco The mortality of beetles was corrected following the formula of SCHNEIDER-ORELLI. The relative decrease of the beneficial effectivity was assessed by the formula of OVERMEER & VAN ZON. For evaluating the influence of the test substance on the test animals the results of the tests were rated according ² Or He OWNO to the four categories selected by the IOBC Working Group "Pesticides and beneficial organisms":

- 1 = harmless: E < 30 % reduction of beneficial effectivity
- 2 = slightly harmful: E = 30 79 % reduction of beneficial effectivity
- 3 = moderately harmful: E = 80 99 % reduction of beneficial effectivity
- -4 = harmful: E > 99 % reduction of beneficial effectivity

II. RESULTS AND DISCUSSION

A. FINDINGS

to the four categories - 1 = harmless: E < 3 - 2 = slightly harmful - 3 = moderately harm - 4 = harmful: E > 99 A. FINDINGS The results of the test	0 % reduction of 1: E = 30 - 79 % r nful: E = 80 - 99 % reduction of b II.	beneficial effe reduction of be % reduction o peneficial effec RESULTS AN	ctivity neficial effect f beneficial ef tivity	cides and ber ivity fectivity ION	eficial organi	ference ugan/ha)	
Table 10.3.2.1-3: Effects of the MON 52276 on adult mortality							
Time after		Control (untreated deionized water) (10 I		Test item (7) (10 L MON 52276/ha)		Toxic reference (0.8 L Afugan/ha)	
application	No. of dead	No. of dead	No. of dead		(0.8 L Af No. of dead	ugan/na) No. of dead	
	females	males	females	males	females	males	
2 hours	0	0	S Q L	0	0	0	
4 hours	0	0		0	0	0	
6 hours	0	0	8 30	0	0	0	
Day 1	0	0 5 4	5 O	0	0	0	
Day 2	0		0	0	15	15	
Day 4	0		0	0	0	0	
Day 7	0		0	0	0	0	
Day 11	0		0	0	0	0	
Day 14	0		0	0	0	0	
Total	0 2 2	S. 0	0	0	15	15	
Total in percentage 0 100							

Table 10.3.2.1-3: Effects of the MON 52276 on adult mortality

Initial number of female and male beetles: 15

No behavioural effects were assessed in the control and test item groups. Stilted legs, troubles of locomotion and dorsal position symptoms were recorded in the toxic reference group.

Glyphosate Renewal Group AIR 5 - July 2020

Time after application	Control (untreated deionized water)	Test item (10 L MON 52276/ha)	Toxic reference (0.8 L Afugan/ha)
	females + males	females + males	females + males
Day 1	50	50	25 5
Day 2	28	27	B C IO
Day 4	33	32	
Day 7	36	41	
Day 11	47	49	
Day 14	38	31	
Total	232	230	S 25
Fed pupae/beetle	7.7	7.7	o [©] 0.8
Fed pupae/group	232	230 0 5 5	25

Initial number of female and male beetles: 15 **B. OBSERVATIONS** The mortality in the control was 0 %. The test item MON 52276 was tested at a dose of 10 L/ha in 400 L/ha of water and caused 0 % mortality 6 S.S. of water and caused 0 % mortality. ð

lo Vo

The corrected mortality according to SCHNEIDER OREIGLI was 0%. The feeding rate showed no differences in comparison with the control variant. No behavioural anomalies were observed.

The relative decrease of beneficial effectivity calculated according to OVERMEER & VAN ZON (1982) was E = 1 %.

According to the study protocol based on BBA Guideline VI, 23-2.1.8 (1991), for the study to be valid, mortality in the control group should not exceed 10 %. Consequently, the test accomplished the validity criterion (mortality in the control < 10 %) 5

The following validity criteria according to the current laboratory method to test effects of plant protection products on the carabid beetle *Poechus cupreus* (Coleoptera: Carabidae) (Heimbach, 2000) were fulfilled:

- The control mortality must be < 6.7% taking into account 5 replicates \times 6 beetles (actual value: 0 %).
- The mortality in the toxic reference item should be 65 ± 35 % after 2 weeks (actual value: 100 %). e S

The following points deviated from the guideline:

- Beetles should be kept at least 7 days before application in the lab (no indication).
- One pupa per beeffe and per feeding occasion is recommended (2 were provided in this study)

8°.8 Taking into account 0% mortality in the control and 100 % mortality in the toxic reference (test organisms Hrado on the spectral of the s sensitive), these deviations are not expected to have any impact on the study integrity. This study is therefore considered as valid.

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III. CONCLUSIONS

Assessment and conclusion by applicant:

In a laboratory test to determine the effects of MON 52276 on the carabid beetles, *Poecilus cupreus* the LC₅₀ was higher than 10 L MON 52276/ha. MON 52276, applied at the rate of 10 L/ha, had no OF 12 8 adverse effects on the feeding performance. N.

\$ The study fulfilled the IOBC guideline validity criteria and is therefore considered valid and suitable to be used in the risk assessment. ~e

Assessment and conclusion by RMS:

1. Information on the stud	y 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
Data point	CP 10.3.2.1/004
Report author	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Report year	1995
Report title	Testing toxicity to beneficial arthropods - Spider - Pardosa spp. According to BBA Guideline (Proposal 1994) ROUNDUP ULTRA
Report No	95 10 48 053
Document No	- 20 5 6
Guidelines followed in study	BBA Guideline (Proposal 1994)
Deviations from current test guideline	 Deviations from current guideline Heimbach <i>et al.</i> (2000): Major: none Spiders should be kept at least 7 days before application in the dab (5 days in the study) Spiders should be weighed before test start (no indication) Minimum number of spider is 26 (20 in this study) 5 flies per feeding occasion for each spider is recommended (1 or 2 were provided in this study) Temperature rose above 20 ± 2 °C (23 °C in the study) Yes, accepted RAR (2015)
Previous evaluation 8 5 5	Yes, accepted RAR (2015)
testing facilities	Yes
Acceptability/Reliability	Valid
Category study in AIR 5 dossier (L docs)	Category 2a

2.

Executive Summary

Harve Su Age the laboratic were exposed to to control was test 400 L/ha water. Harve Gi-Gi-In the laboratory study, the toxicity of MON 52276 to the spider Pardosa spp was tested. Adult spiders were exposed to 10 L MON 52276/ha in 400 L/ha water on moistened quartz sand. In addition, an undosed control was tested (400 L/ha deionized water). Thiodan 35 EC was used as a reference item 0.085 L/ha in In the test, twenty replicate cages, each containing 1 spider (10 females + 10 males per treatment in total) were used for all the treatment groups. Feeding, mortality and sublethal effects were recorded 2, 4 and 6 hours after application. Then 1, 2, 3, 4, 7, 9, 11 and 14 days after application.

There was 0 % spider mortality in the control and in the test item treatments. Consequently, the test fulfilled the validity criterion (mortality in the control < 10 %). The feeding rate showed a low increase in comparison with the control variant. No behavioural anomalies were observed. (1982) The relative decrease of beneficial effectivity calculated according to OVERMEER & VAN ZON

Not the second of the second o was E = -4.5 %.

I. MATERIALS AND METHODS

A. MATERIALS

Test material:

20 20 X
MON 52276 (ROUNDUP ULTRA SE)
Glyphosate
Glyphosate
31 % (Glyphosate (isopropylamine salt) 360 g/L)
1.1694 g/cm ³
Thiodan 35 EC (endosulfan 34.4 % w/w)
AL AND
Linyphiid spider Pardosa spp
Adults
field population (Cunnersdorf/Paitzsch) - June 1995
Option fly (Delia antiqua), reared in the laboratory
S days under laboratory conditions $(20 \pm 2 \text{ °C})$ 20 – 23 °C
\$. ~ ~ * ~ ~ ~
20 – 23 °C
16 h
approx. 1000 lux
Test units: 74 – 85 %
3 July – 17 July 1995

B. STUDY DESIGN AND METHODS

Experimental treatments

The test spiders were kept for 5 days under laboratory conditions at $(20 \pm 2 \text{ °C})$ for acclimatisation. Three days before treatment one female or one male was placed into each test cage (cages of plastics: 11.5 cm × 11.5 cm \times 6.0 cm with moistened sand (148 ± 2 g) covering the bottom without food. The following species have been collected and identified: Pardosa Agricola, Pardosa agrestis and Pardosa lugubris. Immediately before the treatment the spiders were inspected, the ones which appear damaged were replaced by animals of the same sex and the sand was moistened with deionized water. The treatments were applied to the cages with the spiders in an automatic application cabin. The control treatment was sprayed with dejonized, the test item treatment was sprayed with 10 L MON 52276/ha solution and the toxic reference item was sprayed with 0.085 L Thiodan 35 EC/ha (equivalent to 30 g a.s./ha). Immediately after application Stwo onion flies (Delia antiqua) were added as food supply to each spider and the cages were closed with gauze covers. After a waiting period of 2 hours the cages were incubated in an air condition room (20 °C, 16/8 h light/dark) for 14 days. Every 1, 2 or 3 days food was changed and every 3 or 4 days the sand was

moistened.

Observations

The sex of the adults was determined before the beginning of the test. The species of the collected spider was determined on ten females and ten males for each treatment group. The number of dead spiders the number of fed flies and any behavioural effects were assessed after 2, 4 and 6 hours, as well as 1, 2, 3, 497, 9, 11 and 14 days after application. ð

Calculations The mortality of spiders was corrected following the formula of SCHNEIDER-ORELLS. The relative decrease of the beneficial effectivity was assessed by the formula of OVERMEER & VAN ZON. For evaluating the influence of the test substance on the test animals the results of the tests were rated according to the four categories selected by the IOBC Working Group "Pesticides and beneficial organisms": A COLORISA COLORIS COLOR Drohibiter

- 1 = harmless: E < 30 % reduction of beneficial effectivity
- 2 = slightly harmful: E = 30 79 % reduction of beneficial effectivity
- 3 = moderately harmful: E = 80 99 % reduction of beneficial effectivity 4 = harmful: E > 99 % reduction of beneficial effectivity A CONTRACT OF CONTRACT.

De la construction de la constru II. RESULTS AND DISCUSSION A Contraction of the second se

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A. FINDINGS

The results of the test are given in the following tables.

Time after application	Control (untreated deionized wate				Toxic reference (0.085 L Thiodan 35 EC/ha)	
	No. of dead females	No. of dead	No. of dead females	No. of dead males	No. of dead females	No. of dead males
2 hours	0		0	0	0	0
4 hours	0	6. 6. X	0	0	2	0
6 hours	0		0	0	1	1
Day 1	0.5.5	<u>م</u>	0	0	3	9
Day 2	O O S	0	0	0	3	0
Day 3		0	0	0	0	0
Day 4	THE OF	0	0	0	0	0
Day 7	ð 50 0	0	0	0	0	0
Day 9 🔊	5 0	0	0	0	0	0
Day 11	0	0	0	0	0	0
Day 11 Day 148	0	0	0	0	0	0
Total	0	0	0	0	9	10
otal in percentage	()	(0	9	5

Table 10.3.2.1-5: Effects of the MON 52276 on adult mortality

Glyphosate Renewal Group AIP -Nobehavioural effects were assessed in the control and test item groups. Stilted legs, troubles of locomotion

Time after application	Control (untreated deionized water)				Toxic reference (0.085 L Thiodan 35 EC/ha)	
	females	males	females	males	females	males
Day 1	16	12	17	15	1	A CONTRACT
Day 2	8	8	10	8	0	07,50
Day 3	7	7	10	9	0 🚴 🤆	ర్హ్ 0
Day 4	8	9	8	9	1 0 0	õ 0
Day 7	11	16	11	10	202	0
Day 9	8	10	9	10		0
Day 11	10	9	10	9	8° 5° 3 °	0
Day 14	8	10	9	9 0	\$ © 1	0
Total	75	81	84	79	رم [©] 7	0
Fed flies / spider	7.8		8	.2	0	.4
Fed flies / group	156		1	63 8 8 8	,	7
Number of tested spic						

Table 10.3.2.1-6: Effects of the MON 52276 on the feeding rate

Number of tested spiders: 10 **B. OBSERVATIONS** The mortality in the control was 0 %. The test item MON \$2276 was tested at a dose of 10 L/ha in 400 L/ha of water and caused 0 % mortality of water and caused 0 % mortality.

The corrected mortality according to SCHNEIDER QRELLI was 0 %. The feeding rate showed a low increase in comparison with the control variant. No behavioural anomalies were observed.

The relative decrease of beneficial effectivity calculated according to OVERMEER & VAN ZON (1982) was E = -4.5 %.

Consequently, the test accomplished the validity criterion (mortality in the control < 10 %). According to the study protocol based on BBA Guideline (Proposal 1994), for the study to be valid,

mortality in the control group should not exceed 10 %. This criterion was satisfied.

The following validity criteria according to the current laboratory method to test effects of plant protection products on spiders of the genus Pardosa (Aranea: Lycosidae) (Heimbach, 2000) were fulfilled:

- The control mortality must be < 3.9 % taking into account 20 replicates (actual value: 0 %),
- The mortality in the toxic reference item should be 65 ± 35 % after 2 weeks (actual value: 95 %) 8 8

The following points deviated from the guideline:

- Spiders should be kept at least 7 days before application in the lab (5 days in the study)
- Spiders should be weighed before test start (no indication)
- Minimum number of spiders is 26 in guideline (20 in this study)
- 5 flies per feeding occasion for each spider is recommended (1 or 2 were provided in this study)
- Temperature rose above 20 ± 2 °C (23 °C in the study)

Taking into account 0 % mortality in the control and 95 % mortality in the toxic reference (test organisms trado sensitive, these deviations are not expected to have any impact on the study integrity. This study is therefore considered valid.

in the second second

III. CONCLUSIONS

Assessment and conclusion by applicant:

In a laboratory test to determine the effects of MON 52276 on the spiders, *Pardosa*, the LC_{50} was higher. than 10 L MON 52276/ha. MON 52276, applied at the rate of 10 L/ha, had no adverse effects on the feeding performance.

The study fulfilled the IOBC guideline validity criteria and is therefore considered valid and suitable to ig) be used in the risk assessment. ø

Assessment and conclusion by RMS:

Extended laboratory testing, aged residue studies with non-target arthropods Droylight CP 10.3.2.2

1. Information on the study

Data point:	CP 10.3.2.2/001
Report author	
Report year	2010
Report title	An extended laboratory bioassay of the effects of fresh residues of MON 52276 on the predatory mite, <i>Typhlodromus pyri</i> (Acari: Phytoseiidae)
Report No	MON-09-3 5 5 5
Document No	MT-2009-404
Guidelines followed in study	Blümel et al. (2000). Laboratory residual contact test with the predatory mite <i>Typhlodromus pyri</i> Scheuten (Acari: Phytoseiidae) for regulatory testing of plant protection products
Deviations from current test guideline	Deviations from current guideline Blümel <i>et al.</i> (2000): Major: None Minor: - None
Previous evaluation	Yes, accepted RAR (2015)
GLP/Officially recognised testing facilities	Yes
Acceptability/Reliability	Valid
Category studyin AIR 5 dossier (L docs)	Category 2a
200 00 00 00 00 00	

Midilo, -fild Full summary 2.

replicates per test concentration, control and reference control each containing 20 mites. The 60 mites were exposed to 3, 6, 8, 12 and 16 L product/ha in 200 L water/ha on leaf discs of French beans (equivalent to 5760, 4320, 2880, 2160 and 1080 g a.e./ha). Afterwards, their survival was assessed after a 7-day period Glyphosate Renewal Group AIR 5 – July 2020

A check was then made for sub-lethal effects on reproduction. For this, mites were left in situ and the numbers of eggs produced per female were recorded over a further 7 day period. The mean number of eggs produced per female between 7-14 days after treatment (DAT), and the overall mean number of eggs produced per female over the 7-day period of assessment was calculated for each treatment. In addition, a control and a toxic reference substance (Dimethoate) were tested.

The 7-day LR₅₀ (median lethal rate) was higher than 16000 mL formulation/ha (nominally 5760 g a.e./ha). MON 52276 had no adverse effects on the reproductive performance of surviving mites up to and including a treatment rate of 8000 mL formulation/ha (nominally 2880 g a.e./ha).

I. MATERIALS AND METHODS

A. MATERIALS

Test material:

	MON 52276 (SL)
Description:	Yellow/amber fluid
Lot/Batch #:	A9B1207115
Purity:	Yellow/amber fluid A9B1207115 360 g/L glyphosate acid equivatent, nominal 372.9 ± 2.1 g/L glyphosate acid equivalent, measured
Vehicle and/or positive control:	BASF Perfektion EC (400 g/L dimethoate)
Test organisms:	
Species:	Predatory mite (Typhilodromus pyri)
Age:	less than 24 h old
Source:	In-house originally from PK. Niitzlingszuchten, Welzheim,
	Germany (pre-1995).
Diet/Food:	Mix of 3 pollen sources.
Acclimatisation:	culture maintained at 24 – 26 °C one week prior bioassay.
Environmental conditions:	
Tommorother	Nortality test: 25 – 26 °C
Temperature	Reproductive test: $25 - 27$ °C
Relative humidity:	Mortality test 49.6 – 79 %
Kelative augulaty.	Reproductive test: 63 – 79 %
Photoperiod:	16 hours light / 8 hours darkness
Light intensity	660 – 1230 lux
Experimental work dates:	19 October 2009 to 24 November 2009
2.68	

B. STUDY DESIGN AND METHODS

Experimental treatments: Leaf discs of French beans were treated with 3, 8, 12 and 16 L product/ha in 200 L water has (equivalent to 1080, 2160, 2880, 4320 and 5760 g a.e./ha), a water control and toxic reference tem. After the leaf discs had dried, they were placed into arenas with their treated surface facing , will untreated pollen for food. Their survival , will untreated pollen for food. Their surviv intensities were recorded at the start of assessments. Although the relative humidity fell below the intended range, this was for a period of less than two hours so was not therefore considered a deviation.

Observations: Mortality was recorded 1 and 7 days after application. The numbers of any *drowned*, *stuck* or *missing* mites were added to the number of dead mites found in each treatment to derive the overall mortality. Assessments of oviposition activities were carried out at 10, 13 and 14 DAT. Any eggs and nymphs present were recorded and then removed. The mean number of eggs produced per female between 7-14 days after treatment (DAT), and the overall mean number of eggs produced per female over the 7day period of assessment was calculated for each treatment group.

During the mortality phase, the temperatures ranged between 25 and 26 °C and the relative humidity ranged from 49.6 to 79 %. During the reproduction phase, the temperatures ranged between 25 and 27 C and the relative humidity ranged from 63 to 79 %. The photoperiod was 16 hours light per day between 600 and 1230 lux.

Statistical calculations: The percentage mortality was compared to the control using Fisher's Exact Test (error rate of $\alpha = 0.05$). For reproduction, the results were compared by one-way ANOVA and Dunnett's 000 Test.

Validity criteria according to Candolfi et al. (2000):

- y criteria according to Candolfi *et al.* (2000): The mortality in control group should not exceed 20 % on day 7 after test start.
- The cumulative mean number of eggs per female from day 7 -34 was \geq 4 eggs/female •
- The cumulative mortality of the reference item on day 7 should be between 50 and 100 %.

II. RESULTS AND DISCUSSION

FINDINGS A.

A. FINDINGS <u>Mortality</u> Table 10.3.2.2-1: Toxicity of MON 52276 to predatory mites (*Typhlodromus pyri*) in a 7 d 11,000 laboratory test

Test concentration [L/ha]	Mortality after 7 days ¹ [%] ර	Abbott corrected	Mean number of eggs per female ²	Effects on reproduction ³ [%]
Control	15 .		6.9	-
3	13 2	5 ¹⁷ 0	8.1	-17.4
6	18 8 11 1	4	4.2	39.1
8	23 2 2	9	5.9	14.5
12	<u>_</u> ~32	20	3.8 ⁴	44.9
16	<u> </u>	29	3.04	56.5

¹ Mortality in the individual test item treatments at 7 DAT was compared to that in the control using Fisher's Exact Test.

² Results for reproduction compared by one-way ANOVA and Dunnett's Test.

³ Change in numbers of eggs per female, relative to control (after Blümel et al., 2000). A positive value indicates a decrease and a negative value indicates an increase

⁴ Significantly different from the control.

1.00 1.00 1.00 **OBSERVATIONS** B.

The 7-day LR₅₀ is found to be higher than the maximum rate tested > 16 L MON 52276/ha (nominally 5760 gas. Ana) and the surrogate endpoint for reproduction was set to be $ER_{50} \ge 12000$ mL MON 52276/ha. The mean number of eggs produced per female was calculated to be 6.9 in the control. There were no significant effects in reproduction, compared to the control, at treatment rates up to and including 8 L MON 52275/ha (ANOVA, P > 0.05).

Reference test: Treatment with the reference item BASF Perfektion resulted in significant effects on reproduction (85 % Abbott corrected mortality).

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Validity criteria according to Candolfi *et al.* (2000) were fulfilled; as mortality in control group not $\frac{1}{\sqrt{2}}$ female from day 7 – 14 was > 4 eggs/female (cotto 1 – i own item on day 7 was between 50 and 100 % (actual value: 85 %).

The following points deviated from the guideline recommendations:

- ð The application for toxic reference was 30 mL product/ha instead of 9 - 15 mL/ ha recomprended.
- The application substrate was plant instead of glass.

These deviations are due to the extended test design and are not expected to have any negative impact on FL School Strange and in the second C) - CO the study validity.

III. CONCLUSIONS

Assessment and conclusion by applicant:

In an extended laboratory test to determine the effects of MON 522%6 on the predatory mite, Typhlodromus pyri, the 7-day LR₅₀ (median lethal rate) was higher than 16 Formulation/ha (nominally 5760 g a.e./ha) and the surrogate endpoint for reproduction was set to be $ER_{30} \ge 12$ L MON 52276/ha. MON 52276 had no adverse effects on the reproductive performance of surviving mites up to and including a treatment rate of 8000 mL formulation/ha (nominally 2880 ga.e./ha).

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The study is considered to be valid and suitable to be used for the risk assessment.

Assessment and conclusion by RMS:

	1. Information on the stud		
	Data point:	CP 10.3.2.2002	
	Report author		
	Report year	1999	
	Report title	An extended laboratory test to determine the effects of MON 52276 on the predatory mite, <i>Typhlodromus pyri</i> (Phytoseiidae)	
	Report No	MON-99-2	
	Document No	US-99-092	
	Guidelines followed in study	Barrett <i>et al.</i> (1994): Guidance document on regulatory testing procedures for pesticides with non-target arthropods.	
	Deviations from current test guideline	 Deviations compared to current guideline Blümel <i>et al.</i> (2000): Major: Control mortality exceeded the trigger of 20 % (24 %) Reproduction assessment conducted on untreated glass plates Assessments of fecundity between 7 and 14 days have not been conducted (3 times) Minor: none 	
	Previous evaluation	Yes, accepted RAR (2015)	
	GLP/Officially recognised testing facilities	Yes	
×	Acceptability/Reliability	Supportive	
	Category study in AIR 5 dossier (L docs)	Category 2b	
11 11 11 11 11 11 11 11 11 11 11 11 11	Glyphosate Renewal Group AIR 5 – July 2020	Doc ID: 110054-MCP10_GRG_Rev 1_Jul_2020	

1. Information on the study

MON 52276

2. **Full summary**

Executive Summary

In the laboratory study the toxicity of MON 52276 to the predatory mites, Typhlodromus pyri was tested 100 mites were exposed to 0.6, 3, 6 and 12 L product/ha in 200 L water/ha on leaves of potted French beans. Afterwards, the surviving females were put on untreated glass plates for the fecundity test, where the number of laid eggs was counted after another 7 days. In addition, a control and a toxic reference substance (Dimethoate 40) were tested.

The test was conducted with 5 replicates per test concentration, control and reference control each containing 20 mites. Mortality was recorded 7 days after application and the eggs counted 14 days after application.

At the concentration of 12 L test item/ha, 30 % and higher mortality was observed for for encentration I. MATERIALS AND METHODS Prohitied a. (6 L test item/ha), while no effects on fecundity were noticed.

A. MATERIALS	MON 52276 (EC) (C) $($
1. Test material:	S S H
Test item:	MON 52276 (EC)
Description:	Not stated
Lot/Batch #:	290598
Purity:	31 % w/w glyphosate acid, nominal
	30.9 % w/w glyphosate acid, measured
2. Vehicle and/or positive control:	BASF Dimethoate 40 (400 g/L dimethoate)
3. Test organisms:	5 X X
Species:	Predacious mite (Typhlodromus pyri)
	Approximately 4 days after eggs laying
Source	In house, originally from PK Nützlingszuchten, Welzheim,
	In-house, originally from PK Nützlingszuchten, Welzheim, Germany (pre-1998). Untreated broad bean pollen
DietFood	Untreated broad bean pollen
Acclimatisation:	Not stated
4. Environmental conditions of	
S Temperature:	Mortality test: $21 - 26$ °C
	Reproductive test: $22 - 26$ °C
Relative humidity:	Mortality test 43 – 61%
Relative humidity: Relative humidity: Definition Relative humidity: Control Light intensity	Reproductive test: $41 - 75 \%$
کَرْمُ Photoperiod:	16 hours light / 8 hours darkness
Light intensity	Mortality test: 2600 – 3400 lux
	Reproductive test: ~2600 lux
5. Experimental dates:	May 27 th , 1999 to June 16 th , 1999
× +	

B. STUDY DESIGN AND METHODS

1. Experimental treatments: 20 protonymphal mites (*Typhlodromus pyri*) were placed on leaves of potted French bean plants (*Phaseolus vulgaris*) which were treated with 0.6, 3, 6 and 12 L product/ha. The leaf 4,000 0,001 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,001 0,001 0,001 petioles were surrounded with a sticky gel barrier to prevent the mites from escaping. Also, a control and a toxic reference were tested. The test was conducted with 5 replicates per test concentration, control and

in the second second reference treatment each containing 20 mites. Surviving mites were transferred to untreated glass surfaces and the fecundity of these mites was assessed up to 14 days after treatment (thus, additional 7 days) by counting the produced eggs.

2. Observations: Mortality was recorded 7 days after application. Eggs were counted 14 days after treatment. 0

ð 3. Statistical calculations: The mortality was corrected with the control mortality using Abbott's correction (1925).

I. RESULTS AND DISCUSSION

A. FINDINGS

Mortality Table 10.3.2.2-2: Toxicity of MON 52267 to predatory mites (*Typhlodromus pyri*) in a 7 day laboratory test laboratory test Ś

Test concentration [L/ha]		after 7 days (Abbo	tt corrected mortality [%]
Control	2	4 5 20	-
0.6	1	9	0
3	4		21
6	5		36
12	S.	R. S	30
<u>Fecundity</u> Table 10.3.2.2-3: Toxicity of M day fecundity test		y mites (<i>Typhlodromus</i>	<i>pyri</i>) in the following
Test concentration	Number females	Number eggs/nymphs	Mean egg number/

Test concentration [L/ha]	Number females transferred 7 days	Number eggs/nymphs produced 14 days after treatment	Mean egg number/ female after 14 days
Control	42 42	174	4.1
0.6	రో 52	246	4.7
3	41	194	4.7
6 8 5 5	33	136	4.1
12 11 5	28	136	4.9

B. **OBSERVATIONS**

The test item resulted in ≥ 30 % mortality of *Typhlodromus pyri* when applied at concentration of 6 L/ha and higher. In the fecundity assessment, no dose-response relationship was observed.

Reference test: Treatment with the reference item BASF Dimethoate 40 resulted in significant effects on reproduction (100 %).

Walidity criteria according to Vogt et al. (2000) were not fulfilled; as mortality in control group slightly exceeded 20 % on day 7 after test start (24 %). The cumulative mean number of eggs per female from day \mathcal{F} 14 was \geq 4 eggs/female and the cumulative mortality of the reference item on day 7 was between 50 and 100 %.

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III. CONCLUSIONS

Assessment and conclusion by applicant:

Under the conditions of the present test, MON 52276 applied at concentrations of 6 L/ha in 200 L/ha water resulted in 30 % and more mortality of the predatory mites after 7 days of exposure. In the e Mileson and a start of the st A Contraction of the second se fecundity assessment, no dose-response relationship was observed.

The study is considered supportive and is not used in the risk assessment.

Assessment and conclusion by RMS:

1. Information on the study

	1. Information on the study	
	Data point:	CD 10 2 2 2/002
	Report author	CP 10.3.2.2/003
	Report year	1998
	Report title	Testing toxicity to beneficial arthropods - Predatory mite – <i>Typhlodomus pyri</i> (SCHELTEN) (extended laboratory test) according to IOBC Guideline (Ogner 1988)
	Report No	95 10 48 065
	Document No	-
	Guidelines followed in study	IOBC Guidetine (Oomen 1988), ESCORT Guidance Document (1994) Deviations from current guideline Blümel <i>et al.</i> (2000):
	Deviations from current test guideline	Major v a
	Previous evaluation	Yes, accepted RAR (2015)
	GLP/Officially recognised testing facilities	Yes
	AcceptabilityReliability	Supportive
	Category study in AIR 5 dossier (L. docs)	Category 2b
A CONTRACT OF CONTRACT.	Glyphosate Renewal Group AIR 5 – July 2020	Doc ID: 110054-MCP10_GRG_Rev 1_Jul_2020
4 (¹ 6 (¹) 6 (¹)	Gryphosate Kenewai Group AIK 5 – July 2020	Doc ID: 110034-MCP10_GKG_KeV 1_Jul_2020



MON 52276

2. **Full summary**

Executive Summary

In the laboratory study, the toxicity of MON 52276 to the predatory mite Typhlodromus pyri (SCHEUTEN) was tested. MON 52276 was evaluated in a test with three spray application rates of 3, 6 and 12 L test. item/ha. Leaves of potted vine plants, cultivated under field conditions without pesticide treatments were sprayed in an automatic application cabin once with untreated water, the test or reference substance at the stated concentrations. The test comprised 6 replicates per control, test item treatment and reference treatment with 10 predatory mites each. The number of living predatory mites were counted 1, 4, 8, 11, 13, 15 and 18 days after the application (from 8th day onward separated according to the sex), also behaviour recorded on days 8, 11, 13, 15 and 18. The number of laid eggs (with the exception of the 1st and 4th day) and the hatching rate of the mites as of day 10 were determined. The final assessment were performed 18 days after treatment. Three days later the last mites hatched were counted. 60

Exposure to dried spray deposits of MON 52276 on vine leaves resulted in low mortality at the dose of 3 L/ha and high mortality at 6 and 12 L/ha. There was no significant difference with controls in fecundity or fertility at 3 L/ha. At higher doses, the number of eggs produced by surviving female was either strongly reduced or not measured due to mortality. The test was considered valid as portality in the control group was 17 % and thus did not exceed the 20 % and the toxic reference product resulted in substantial and there is a second second unequivocal effects.

I. MATERIALS AND METHODS A. MATERIALS Test material: MON 52276 Test item: Glyphosate Active substance 270198 Lot/Batch #: Live City Dimethr Purity: 31 % (Glyphosate (isopropylamine salt) Density: 1.166 g/cm³ ی _خرem² Dimethoate EC 400 **Positive control: Test organism:** Species: Typhlodromus pyri (SCHEUTEN) Age: Source: Approx. 1 day old protonymphs MITOX Consultants (Kruislaan 320, 1098 Amsterdam, Netherland) – July 1998 Pollen (pine, birch) at each assessment day or more often if required **Environmental conditions:** 1 et of of the o Temperature: 21 – 28 °C Photoperiod: 16 h Light intensity approx. 1000 lux Relative humidity: Test units: 52 – 100 % Experies of the second **Experimental dates:** 16 July – 6 August 1998

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B. STUDY DESIGN AND METHODS

Experimental treatments

The test item MON 52276 was evaluated in a test with three spray application rates of 3, 6 and 12 L test item/ha. Leaves of potted vine plants, cultivated under field conditions without pesticide treatments were sprayed in an automatic application cabin once with untreated water, the test or reference substance at the stated concentrations. The test comprised 6 replicates per control, test item treatment and reference treatment with 10 predatory mites each. After air-drying of the spray deposits at room temperature about 1 hour and 2 hours at 12 L/ha, respectively) leaf discs ($\emptyset \sim 4$ cm) of the treated leaves were placed with the treated surface upwards in petri dishes (Ø 9 cm) on moistened cotton wool. Each leaf disc was lined with insect glue and infested with 10 protonymphs. Pollen was added as food supply. The test units were then placed in a climatic test room.

 placed in a climatic test room.

 Observations

 The number of living predatory mites were counted 1, 4, 8, 11, 13, 15 and 18 days after the application

 (from 8th day onward separated according to the sex), also behaviour recorded on days 8, 11, 13, 15 and 18. The number of laid eggs (with the exception of the 1st and 4th day) and the hatching rate of the eggs as of day 10 were determined. The final assessment were performed 18 days after treatment. Three days later the last mites hatched were counted. 11 or 4 COL

Statistical calculations

Toll In order to detect any significant differences the STUDENT-t-test was used (RATTE 1998). Jelle .

20CUT II. RESULTS AND DISCUSSION OMICE 010)

A. FINDINGS The effects of MON 52276 were tested at nominal rates equivalent to 3, 6 and 12 L/ha in 200 L/ha of water. 30 The results are summarised in the following table.

	Typhlodrom	us pyri (SCHEU	TEN)				
Exposure	Spray treat	Spray treatment					
Exposure		MON 52276					
Application	3 L/ha	6 L/ha	12 L/ha	100 mL/ha			
Corrected mortality (%)							
until day 8	18	84	89	100			
until day 18	36	86	88	100			
Fecundity (% relative to controls)	113	10	0	-			
Egg fertility (hatching rate)	97	(53)*	-	-			
(% relative to controls)							
Total effect E (%)	8	98	100	100			
according to OVERMEER & VAN ZON							

Table 10.3.2.2-4: Findings Typhlodromus pyr (SCHEUTEN), extended laboratory test

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(= 17%) uays after testing was started, 10 out of 60 predatory mites were recorded as dead in the control replicates (= 17%). Thus, the test accomplished the validity criterion (in the control variant: $\leq 20\%$ mortality). The toxic reference (Dimethoate EC 400) produced substantial and unequivocal effects (100% mortality with in Gluphoret. 7)

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1 day). This demonstrates that the test strain used was susceptible to pesticide treatments. The effects of MON 52276 were tested at nominal doses equivalent to 3, 6 and 12 L/ha in 200 L/ha of water.

Number of surviving predatory mites																	
Days after application	1	4	8		11		13		15		18 18 18 18 18		5				
	mites	mites	Ŷ	8	Σ	Ŷ	ð	Σ	9	Ő	Σ	9	6	Σ	100 100 100	No.	Σ
Control	60	58	37	18	55	36	18	54	35	17	52	34	17	510	ð3	17	50
MON 52276																	
3 L/ha	60	55	27	18	45	27	18	45	27	16	43	26 🖑	્રહ્ય	Â1	20	12	32
6 L/ha	60	18	6	3	9	5	2	7	5	2	7	500	101	7	5	2	7
12 L/ha	56	14	5	1	6	5	1	6	5	1	6 5	ર્ક ર્ડ ર	Ŷ	6	5	1	6
Dimethoate 400 EC																	
100 mL/ha 0																	
Table 10.3.2.2-6: Egg production of surviving females																	

Table 10.3.2.2-6: Egg production of surviving females

	Namber of eggs							
Days after application	11	13	ຈັ _ເ ລັ້ງສຳ5	18	total			
Control	32	49	5 81	45	207			
MON 52276								
3 L/ha	35	54 5	63	23	175			
6 L/ha	2		0	0	3			

In the reference variant and the highest dose test substance variant (12 L/ha), no eggs were laid. of the second 145

Table 10.3.2.2-7: Hatching rate of the eggs

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		Number of larva	umber of larvae					
Days after application	13 5	15	18	21	total			
Control	J. 24. 5	35	47	23	129			
MON 52276	N. S.							
3 L/ha	24	42	29	14	109			
5 L/ha	³ / ₂ ³ / ₂ ³ / ₂ ³ / ₁	0	0	0	1			
	il.							

Exposure to dried spray deposits of MON 52276 on vine leaves resulted in low mortality at the dose of 3 L/ha and high mortality at 6 and 12 L/ha. There was no significant difference with controls in fecundity or fertility at 3 C/ha. At higher doses, the number of eggs produced by surviving female was either strongly reduced or not measured due to mortality. The test was considered valid as mortality in the control group was 17% and thus did not exceed the 20% and the toxic reference product resulted in substantial and

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of the 12 L/ha treatment showed low damages at the leaf-edges already after 2 hours air-drying.

The following point deviated from the guideline:

- Temperature and humidity in the test room were for short periods of time above the (25 ± 2 °C) range (21 - 28 °C) and the 60 - 80 % range (53 - 100 %), respectively.
- Less than 100 mites per treatment were used (actual number: 60)

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- Test lasted 18 days long (14 days is required) •
- Dimethoate rate recommended between 9 and 15 mL/ha (100 mL/ha was used).

0.10 10 10 10 10 10 10 Taking into account these deviations, this study is therefore considered as supportive only

The validity criteria of the current guideline were fulfilled as:

- Olino. The control mortality did not exceed 20 % after 7 days of exposure (actual values: 8 % after 8 days and 17 % after 18 days)
- The mean mortality in the toxic reference item ranged between 50% and 100% after 7 days of • exposure (actual value: 100 % after 1 day). Nevertheless, the rate of toxic reference item was about 10 times the current recommended rate.
- The mean number of eggs per female at the end of the test is ≥ 4 eggs/female (actual value: 6.15) •

From the recorded data the mortality (in % corrected according to ABBOTT 1925), the fecundity (number of eggs per female) and the hatching rate were calculated.

III. CONCLUSIONS

Assessment and conclusion by applicant:

ji. il O The laboratory test to determine the effects of MQN 52276 on the predatory mite Typhlodromus pyri, resulted in low mortality at the dose of FL/ha and high mortality at 6 and 12 L/ha. There was no significant difference with controls in fecundity or fertility at 3 L/ha. All of the current validity criteria for this study design were satisfied in this test?

The study was considered supplemental in the 2015 RAR, due to the significant developments and changes in the risk assessment approach and strategy for terrestrial non-target arthropods since the evaluation of glyphosate in 2001 This study is no longer considered appropriate for a quantitative risk assessment according to current standards. Therefore, it is considered supportive.

Assessment and conclusion by RMS:

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Data point:	CP 10.3.2.2/004
Report author	
Report year	2010
Report title	A rate-response extended laboratory test to determine the effects of MON 52276 on the parasitic wasp, <i>Aphidius rhopalosiphi</i> (Hymenoptera, Braconidae)
Report No	MON-09-2
Document No	MT-2009-405
Guidelines followed in study	Mead-Briggs <i>et al.</i> (in press). An extended laboratory test for evaluating the effects of plant protection product on the parasitic wasp, <i>Aphidius rhopalosiphi</i> (De Stefani-Perez) (Hymenoptera, Braconidae).
Deviations from current test guideline	Deviations compared to current Mead-Briggs <i>et al.</i> (in press): Major: - none Minor: - none
Previous evaluation	Yes, accepted RAR (2015)
GLP/Officially recognised testing facilities	Yes
Acceptability/Reliability	Valid Strange
Category study in AIR 5 dossier (L docs)	Valid Strips

1. Information on the study

 Full summary
 Executive Summary
 In the extended laboratory study the toxicity of MON 52276 to the parasitic wasp, Aphidius rhopalosiphi was tested. Adult parasitic wasps approximately 48 h old were exposed in a definitive rate-response test to 4000, 6000, 8000, 12000 and 16000 and product/ha. In addition, a water control and a toxic reference (Perfekthion, 400 g/L dimethoate) were tested.

Five female wasps were exposed perfericate, with six replicates (i.e. a total of 30 wasps) prepared for each treatment. Mortality and repetitence effects were recorded within the 3 first hours, 24 and 48 hours after application. The parasitisation efficiency of surviving insects in the control and in treatment groups with ≤ 60 % corrected morality, by confining wasps individually over pots of untreated cereal plants, previously infested with cereal aphids. After 24 hours, wasps were removed and after a further 10 days, the Honological and a state of the number of mummies (parasitized aphids containing wasp pupae) that had developed was recorded. The validity criteria according to Mead-Briggs et al. (2010) are fulfilled.

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I. MATERIALS AND METHODS

A. MATERIALS

1. Test material:

Test item:	MON 52276

Appearance:	Yellow/amber fluid
Lot/Batch #:	A9B1207115
Purity:	Glyphosate (isopropylamine salt) 360 g/L 🔊 🛇
Density:	1.1683 g/cm ³ (at 20 °C \pm 0.5 °C)
2. Vehicle and/or positive control:	Perfekthion – BAS 152 11 I (dimethoate: 400 g/L)
3. Test organisms:	
Species:	Parasitic wasp (Aphidius rhopalosiphi)
Age:	Adults approximately 48 h old
Source:	In-house culture originally obtained from PK
	Nützlingszuchten, Welzheim, Germany
Diet/Food:	Solution of honey in water (1: 3 v/v)
4. Environmental conditions:	S S S
	Mortality phases 20 °C

4. Environmental conditions:

Temperature:	Mortality phases 20 °C Reproduction phase: 18 – 20 °C
Relative humidity:	
Photoperiod:	
Light intensity:	Mortality phase: 2030 lux
Light intensity.	Reproduction phase: 4290 lux
ork dates:	14 October 2009 to 09 November 2009

5. Experimental work

B. STUDY DESIGN AND METHODS 1. Experimental treatments: Following a preliminary range-finding test, MON 52276 was evaluated in a definitive rate-response test at five application rates, equivalent to 16000, 12000, 8000, 6000 and 4000 mL product/ha. These variants were compared to a control treatment of purified water and a toxic reference treatment of BASF Perfektion (nominally 400 g/L dimethoate) applied at a rate of 10 mL product/ha (nominally 4 g a.s./ha). Treatments were applied at a volume rate equivalent to 400 L spray solution/ha to pots of seedling barley. Once dry, the barley plants were enclosed within cylindrical, ventilated collars (clear acrylic cylinders with fine gauge mesh netting secured over the open end. Five female wasps were then confined in each arena, with six replicates (i.e. a total of 30 wasps) prepared for each treatment. To determine any significant sub-lethal effects on wasp reproduction, assessments were then carried out using the surviving insects from the control and the three highest treatment rates of the test item that resulted in < 60 % corrected mortality. Fifteen wasps from each treatment were confined individually over pots of untreated barles plants that had previously been infested with cereal aphids (Metopolophium dirhodum and Rhopalosiphum padi). The wasps were then removed from the plants after 24 h and the aphids and plants left for a further 10 days before the number of 'mummies' (parasitized aphids containing wasp pupae) that had developed was recorded.

2. Observations: Mortality of the wasps was recorded approximately 2, 24 and 48 h after treatment. The Sochaviour of the wasps was assessed during the first 3 h after treatment and also at 24 and 48 h after reatment, to determine whether there was any apparent repellence from the treated plants. The percentage mortality of the test insects over 48 h was calculated. For the reproduction assessments, the number of

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mummies produced per female found alive after the 24 h parasitisation period was determined. The temperature and relative humidity were recorded at hourly intervals using an electronic data logger for mortality phase. For reproduction phase, the temperature in the room was recorded using a minimum 7maximum mercury thermometer. Light levels were recorded at the start of each bioassay using an ELE Single Channel Light Measuring System. For the mortality-assessment phase of the definitive test, the room was maintained at 20 °C and 69 - 72 % RH, with lighting of 2030 lux provided for a 16 h photoperiod. For the reproduction-assessment phase the pots of seedlings and parasitoids were maintained at 18 - 20 °C, with a 16 h photoperiod (4290 lux).

The validity criteria according to this guideline are the following:

- The mortality in the control treatment should not exceed 10 %.
- 10mo The mortality in the control treatment should not exceed 10 %. protocol and should be based on the previous experience of the test laboratory. The corrected mortality should, however, be > 50 %.
- For the reproduction assessments, there should be a minimum mean value of 5.0 mummies per • female. Also, in the control treatment, no more than two of the surviving wasps should produce zero values.

3. Statistical calculations: ANOVA followed by Fisher's Exact test (2 = 0.05) for mortality. One-way ANOVA and Dunnett's Test as post hoc ($\alpha = 0.05$) for reproduction Argularly transformation (square root arcsine), then ANOVA and Dunnett's test (Fowler & Cohen, 1990; SPSS, 2008) for repellence.

A. FINDINGS

II. RESULTS AND DESCUSSION		
A. FINDINGS		
Table 10.3.2.2-8: Toxicity of MONextended laboratory test	52276 to parasitic wasps (A)	<i>phidius rhopalosiphi</i>) in a 48 h
Test rate [mL/ha]	Mortality [%]	Corrected mortality [%] ¹
Control	\$ 0	
4000	0	0
6000 5 5 5	0	0
8000	0	0
8000 5 6 5 12000 5 6 5	0 3.3	0 3.3

Derived using Abbott's formula :0°,0'

Reference test: Treatment with the reference item Perfekthion at a concentration of 10 mL/ha resulted in tradiciona a contractiona a contraction a contraction of the contracti 90 % mortality after 48 h of exposure.

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Table 10.3.2.2-9: Sublethal effects of MON 52276 to parasitic wasps (Aphidius rhopalosiphi) in a 48 h extended laboratory test (summary of wasp repellence assessments)

Test rate [mL/ha]		ps recorded to be settled on the ed plants
	Initial 3 h ¹	$24 h \& 48 h^2$ $300 s^{10} s^{10}$
Control	32.7	40.0
4000	22.0	28.3
6000	24.7	28.3
8000	26.0	à25.0 2
12000	20.7 *	27.8 27.8
16000	20.0 *	్ల్లో 2 8.3

¹ Data from assessments made during the initial 3 h after wasp introduction. Results for the individual test item treatments were compared by one-way ANOVA and Dunnett's Test. Values marked with asterisks differed significantly from the control (* P < 0.05).

² Data from assessments made at 24 h and 48 h after wasp introduction. Results for the individual test item treatments were compared by one-way ANOVA ($\alpha = 0.05$), but values for the test item treatments did not differ significantly from the control.

Reference test: Treatment with the reference item Perfekthion at a concentration of 10 mL/ha resulted in 1911. 1911. significant effects on reproduction after 48 h of exposure.

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Table 10.3.2.2-10: Toxicity of MON 52276 to the parasitisation capacity of Aphidius rhopalosiphi

0 2 3

Test rate [mL/ha]		Means number of mummies per female ²	% change in reproduction, relative to control ³
Control	5 5 4 °	21.4	-
8000	54	28.4*	-32.3
12000	J ³ 4 ³ 5 ¹ 14	30.6**	-43.0
16000	5 x x x 15	31.5**	-46.8
$1 \qquad n = number of formal a subscription of formal and the subscription of formal and the subscription of the subscription of$	C 11 N N N 1 C 11 1 1 1		

n = number of female wasps successfully assessed for their reproductive capacity.

The results for the test items treatments were compared to the control by one-way ANOVA and Dunnett's Test ($\alpha = 0.05$). Results that differed significantly from the control are indicated with asterisks; however, these were due to a significant increase in the number of mummies produced (* P < 0.05; ** P < 0.01).

Percentage effect on reproduction A negative value indicates an increase, relative to the control

ALL COL in the second second **B. OBSERVATIONS**

The following point deviated from the Mead-Briggs et al. (2010):

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Light intensity during mortality phase was 2030 lux, compared to 400 to 1200 lux requested by guideline No impact on the mortality and fecundity phases as the validity criteria were met.

The mortality in the control treatments did not exceed 10 %, the corrected mortality in the reference treatment was 50 %. In the control treatments, more than a minimum mean value of 5.0 mummies was LCE Trefore, t produced per female. No more than two of the surviving wasps of the control treatments did not reproduce. Therefore, the test is considered valid according to Mead-Briggs et al. (2010).

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III. CONCLUSIONS

Assessment and conclusion by applicant:

In an extended laboratory test to determine the effects of MON 52276 on the parasitic wasp, Aphidius rhopalosiphi, the 48-h LR₅₀ was higher than 16000 mL product/ha. MON 52276 had no adverse effects on the reproductive performance of surviving wasps up to and including a treatment rate of 16000 mL product/ha. ð 1. Offer

This study is considered to be valid and relevant for use in risk assessment.

Assessment and conclusion by RMS:

1. Information on the study

1. Information on the stud	y
Data point:	CP 10.3.2.2/005, CP 10.3.2.2/006 (Amenement)
Report author	So S
Report year	1999 ن ^{ان ا}
Report title	Testing toxicity to beneficial arthropods Cereal aphid parasitoid - Aphidius rhopalosiphi (PESTEFANI-PEREZ) (extended laboratory test) following the IOBC Guideline proposal (MEAD-BRIGGS 1994) MON 52276
Report No	98 10 48 066 5 ⁰ 5 ¹ 5 ⁰
Document No	- 5.8.0
Guidelines followed in study	IOBC Guideline (Proposal 1994). An extended laboratory test to evaluate the side effects of pesticides applied to plant material on adults of the applied parasitoid <i>Aphidius rhopalosiphi</i> (Hymenoptera: Braconidae)
Deviations from current test guideline	Deviations compared to current Mead-Briggs <i>et al.</i> (2010): Major: None Minor: For mortality phase, 4 replicates (5 wasps each) were used in test item treatment groups and 1 in reference item, instead of 6 replicates
Previous evaluation	Yes, accepted RAR (2015)
GLP/Officially recognised testing facilities	Yes
Acceptability/Reliability	Valid
Category study în AIR 5 dossier (L docs)	Category 2a

Full summary

Glyphosate Renewal Group AIR 5 – July 2007 Glyphosate Renewal Group AIR 5 – July 2007 Glyphosate Renewal Group AIR 5 – July 2007 Highlor Hi In the extended laboratory study the toxicity of MON 52276 to the parasitic wasps Aphidius rhopalosiphi was tested. Adult parasitic wasps approximately 48 h old were exposed to 3, 6 and 12 L test item/ha sprayed onto potted cereal plants and mortality and reproduction were assessed. In addition, a water control was Five female wasps were then confined in each of four arenas (i.e. a total of 20 wasps) prepared for each treatment. Mortality and sub-lethal effects were recorded 1, 2, 4, 24 and 48 hours after application. After 48 h, 14 surviving females from the control and the test item treated variants were confined in glass cylinders containing untreated potted wheat plants, infested with ~100 aphids (*Rhopalosiphum padi* L.) (10) assess the parasitisation capacity. The reduction of the beneficial effectivity of Aphidius rhopalosiphi was < 30 % in all variants. The behaviour of the wasps treated with the test item did not differ from the control. The number of mummies developed was recorded. All validity criteria according to Mead-Biggs *et al.* Contraction of Contra (2010) were fulfilled.

I. MATERIALS AND METHODS

A. MATERIALS

1. Test material:

	X 2 8
Test item:	MON 52276
Description:	Liquid, yellowish to brown
Lot/Batch #:	270198
Purity:	31 % Glyphosate acide to the second sec
Density:	1.166 g/cm ³ (at 20 $^{\circ}C = 0.5 ^{\circ}C$)
2. Vehicle and/or positive control:	Positive control: Dimethoate EC 400 (0.85 mL/ha)
3. Test organisms:	
	Antidian Versiti (DECTAEANU DEDEZ)

Species	Aphidius rhopalosiphi (DESTAFANI-PEREZ), cereal aphid
species.	Aphidius rhogalosiphi (DESTAFANI-PEREZ), cereal aphid parasitoid
Age:	Adults approximately 48 h old
Source:	PK Nützlingszuchten, 73642 Welzheim, Germany
Diet/Food:	Solution of honey in water (1:2 v/v), the wasps were not fed for
Ċ	12 - 318 h prior to exposure.
Acclimatisation:	Not stated

4. Environmental conditions:

Temperature: 1 19 – 22 °C Relative humidity: 65 - 84%Photoperiod: 16 hours light / 8 hours darkness Light intensity: ~1000 lux

5. Experimental dates:

B. STUDY DESIGN AND METHODS

1. Experimental treatments: MON 52276 was evaluated in a test at three application rates of 3, 6 and 12 L test item ha. These treatments were compared to a control treatment of deionised water and a toxic reference treatment of Dimethoate EC 400 applied at a rate of 0.85 mL product/ha. Potted wheat plants were sprayed with 25 % aqueous fructose and left to dry for 1 h, followed by application of the test items, applied in final water volumes equivalent to ~200 L spray solution/ha onto the plants surface. Once dry, the treated plants were put in glass cylinders and five female wasps were then confined in each arena, with Glyphont P left for a further 10 days before the number of mummies (parasitized aphids containing wasp pupae) that had developed, was recorded.

2. Observations: Mortality and behaviour of the wasps were recorded 1, 2, 4, 24 and 48 h after treatment. The number of parasitized aphids (aphid mummies) was recorded 10 days after the wasps were able to Tay eggs.

ð 3. Statistics: The parasitisation rate was calculated using Mead-Briggs (1992). According to Overmeer & CONTRACTION OF THE CONTRACTION O Van Zon (1982) the total effect "E" was calculated.

 II. RESULTS AND DISCUSSION
 II. RESULTS AND DISCUSSION

 A. FINDINGS
 II. RESULTS AND DISCUSSION

 Mortality
 II. RESULTS AND DISCUSSION

 Table 10.3.2.2-11: Toxicity of MON 52276 to parasitic wasps (*Aphidus Phopalosiphi*) in a 48 h extended laboratory test

 The service of the se 200 - 10 2011 0 2011 0 extended laboratory test

Mortality [%]		
4 h	24 h	48 h
0 ~ ~ ~ ~ ~	0	0
	0	15
	0	15
Chill Bo Man	0	25
	4 h 100 0 <td>S S S</td>	S S S

Effects on parasitisation capacity

, Hand Table 10.3.2.2-12: Toxicity of MON 52276 to the parasitisation capacity of Aphidius rhopalosiphi 0 8.0

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Test rate [L/ha]	∑ no. of females examined	Average no. of parasitized aphids per female after 11 days	Parasitisation rate relative to control [%]
Control	14	11.6	-
3 5 6 5	14	11.1	96
6.8.8	14	11.7	101
12 5 5	14	10.9	94

The total effect "E" is 18,7% for 3 L test item/ha, 14.3 % for 6 L test item/ha and 29.5 % for 12 L test item/ha

Reference test: Treatment with the reference item Dimethoate EC 400 at a concentration of 0.85 mL product/ha resulted in 80 % mortality after 48 h of exposure.

B. OBSERVATIONS

Still Still

The reduction of the beneficial effectivity of Aphidius rhopalosiphi was < 30 % in all variants. The behaviour of the wasps treated with the test item did not differ from the control.

Glyphoest B

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Contraction of the contraction o Braconidae) were fulfilled, as there was no mortality in control group and the mortality in the toxic reference was > 50 %, the number of mummies/female in the control was at least 5 and no more than 2 in the second se wasps produced no mummies.

III. CONCLUSIONS

Assessment and conclusion by applicant:

20° In conclusion, no significant mortality of Aphidius rhopalosiphi was observed after treatment with the maximum test rate of 12 L MON 52276/ha (< 30 %). The parasitisation rate showed no significant ion to line od and his changes compared to the control and the total effect was between 14.3 and 29.5 %This study is considered to be valid and relevant for use in risk assessment. 4

Assessment and conclusion by RMS:

1. Information on the study

1. Information on the stud	
Data point:	CP 10.3.2.2/007
Report author	
Report year	2010
Report title	An extended laboratory test to determine the effects of MON 52276 on the ground-active beetle, <i>Aleochara bilineata</i> (Coleoptera, Staphylinidae)
Report No	MON-09-4 & & &
Document No	MT-2009,403 5
Guidelines followed in study	Grimm <i>et al.</i> A test for evaluating the chronic effects of plant protection products on the rove beetle, <i>Aleochara bilineata</i> Gyll. (Coleoptera: Staphylinidae), under laboratory and extended laboratory conditions
Deviations from current test guideline	Deviations compared to current guideline IOBC (2000): Major: - none Minor: - none
Previous evaluation 8 5 5	Yes, accepted RAR (2015)
GLP/Officially recognised testing facilities	Yes
Acceptability/Reliability	Valid
Category study in AIR 5 dossier (L docs)	Category 2a

Full summary 25 Miley

Glyphosate Renewal Group AIR 5 – July 2020

were tested.

Cisting Ciston C Ten female and ten male beetles (i.e. a total of 20 beetles) were introduced in each testing arena, with four replicates prepared for each treatment. Assessments of the condition of the beetles were made at 1, 7 and 28 days after treatment (DAT). The parasitic success of their larval offspring was assessed by the provision of ca. 500 onion fly pupae (*Delia antiqua*) in each replicate box on three weekly occasions, i.e. at 7, 14 and 21 DAT. The original adult beetles were removed from the arenas at 28 DAT and the number of new adults (F1 progeny) that subsequently developed from the parasitized fly pupae was recorded over a further 46in the state of th day period. The validity criteria according to Grimm et al. (2000) are fulfilled.

I. MATERIALS AND METHODS

A. MATERIALS

1. Test material:	MON 52276
Description:	Yellow/amber-coloured liquid appearance
Lot/Batch #:	A9B1207115
Purity:	Glyphosate (glyphosate acid equivalent) 360 g/L
Density:	1.1683 g/cm^3 (at 20% $\pm 0.5 \text{ °C}$)
2. Vehicle and/or positive control:	Reference item: Cyren (chlorpyrifos: 480 g/L)
3. Test organisms:	A A A A A A A A A A A A A A A A A A A
Species:	
Age:	Physiologically 3 – 4 days old
Source:	Commercial supplier (De Groene Vlieg, Nieuwe Tonge, The Netherlands)
ć	Peters (approximately $0.2 - 0.5$ g) of raw minced beef for food every $1 - 3$ days, until the adult beetles were removed 28 days after treatment (DAT)
Acclimatisation	Not stated
4. Environmental conditions:	
Temperature:	19 – 21 °C
Relative humidity:	51 - 86 %
ری به می	16 hours light / 8 hours darkness
Photoperiod:	340 – 700 lux
5. Experimental work dates:	02 October 2009 to 02 January 2010

B. STUDY DESIGN AND METHODS

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1. Experimental treatments: MON 52276 was evaluated at three treatment rates, equivalent to 6000, 8000 and 12000 mc product/ha. These were compared to a water-treated control and a toxic reference treatment in each replicate box on three weekly occasions, i.e. at 7, 14 and 21 DAT. The original adult beetles were removed from the arenas at 28 DAT and the number of new adults (F1 progeny) that subsequently developed from the parasitized fly pupae was recorded over a further 46-day period.

2. Observations: Assessments of the condition of the beetles were made at 1, 7 and 28 days after treatment (DAT). Assessment of reproduction was conducted from 28 DAT for 46 days.

The temperature and relative humidity conditions were recorded at hourly intervals using an electronic data logger. Light intensities were recorded at the start of the assessments using an ELE Single Channel Light Measuring System. During the bioassay the temperature range recorded was 19 - 21 °C and the relative Oldie He S humidity range recorded was 51 - 86 %, with a 16 h photoperiod of 340 - 700 lux.

3. Statistical calculations: Fisher's Exact test (α = 0.05) for mortality, ANOVA (α = 0.05) for reproduction.
The validity criteria according to IOBC guideline were the following:
The average number of beetles emerging from parasitised fly pupae in the control treatment should be > 400 per replicate (nominally 26.7.9% of these neuroid 1).

- be > 400 per replicate (nominally 26.7 % of those provided). CH.
- The mean number of beetles emerging in the toxic reference treatment should be reduced by • the core > 50 %, relative to the control.

a regul II. RESULTS AND DISCUSSION

A. FINDINGS <u>Mortality</u> Table 10.3.2.2-13: Toxicity of MON 52276 to rove beeties (*Aleochara bilineata*) after 28 days in an extended laboratory test 2000 CUL MID extended laboratory test

Test rate [mL/ha]	Mortality (%)	Corrected mortality [%] ¹
Control	J. 32.5	
6000	38.8	9.3
8000	٥ الله ٢.5	22.2
12000	35.0	37.0
Derived using Abbott's formula		encontration of 240 and a data received

<u>Reference test:</u> Treatment with the reference item Cyren at a concentration of 240 g a.s./ha resulted in 100 % mortality after 28 d of exposure.

Reproduction effect

Table 10.3.2.2-14: Sublethal effects of MON 52276 to rove beetles (Aleochara bilineata) in an MC MC extended laboratory test (mean number of F₁ progeny)

Test rate [mL/ha]	Mean number of F ₁ progeny per arena ¹	Standard deviation	Effect on reproduction
Control	862.5	66.8	6
6000	706.3	84.6	18.1
8000	846.0	109.5	×-1.05 5
12000	778.0	102.6	5. 9 . 2. 5

¹ The numbers of progeny emerging in the control and test item treatments were compared by ANOVA, but treatment means did not differ significantly (P > 0.05). For the toxic reference treatment (where all values were zero), no statistical comparisons were made.

² The percentage change in numbers of F1 progeny, relative to the control was calculated using the formula: R = (1-(Rt/Rc))x100, where Rt and Rc are the numbers of offspring observed in the treatment and control groups respectively. Positive values indicate a decrease, relative to the control. il'o

elo. Reference test: Treatment with the reference item Cyren at a concentration of 240 g a.s./ha resulted in ALL CONTRACTOR 100 % effects on reproduction.

B. OBSERVATIONS

The following point deviated from the IOBC guideline:

Effects on reproduction. **SERVATIONS** lowing point deviated from the IOBC guideline: Minor deviations to the required range of 60 - 90 % relative humidity (actual values: 51 - 86 %). 3 de la construcción de la constru ð No impact on the study validity

The average number of beetles emerging from parasitized fly pupae in the control treatment was > 400 per replicate, and a minimum reduction of 50 % reproductive capacity was achieved in the reference item treatment when compared to the control. The validity criteria according to Grimm et al. (2000) are therefore fulfilled.

A HI CONCLUSIONS

Assessment and conclusion by applicant:

In an extended laboratory test to determine the effects of MON 52276 on the rove beetle (Aleochara *bilineata*), no significant effect on the parasitisation success of the beetles were observed up to and including the highest treatment rate of 12000 mL/ha. x° ò

This study is considered valid and relevant for use in the risk assessment.

HIND CONTRACT OF THE CONTRACT Assessment and conclusion by RMS:

Annex to Regulation 284/2013	MON 52276 M-CP, Section 1	0
-	Page 335 of 55.	3
1. Information on the stud	lv	
Data point:	CP 10.3.2.2/008	
Report author		
Report year	1999	(9)
Report title	A Laboratory Evaluation of the Effects of MON 52276 on the Green	_
Report the	Lacewing, Chrysoperla carnea	
Report No	MON-99-3	-
Document No	US-99-093	-
Guidelines followed in study	Bigler (1988)	
Deviations from current test	Deviation from the current guideline IOBC (2000)	1
guideline	Major: - The mean number of eggs per female/day was 7.9 (guideline: > 15)	
	- The mean number of eggs per female/day was 7.9 (guideline: > 15)	
	- The toxic reference item was applied at 0255 L product/ha (guideline: 0.04 L product /ha).	
	Minor:	
	- none	
Previous evaluation	Yes, accepted RAR (2015)	1
GLP/Officially recognised	Yes	1
testing facilities	C S S S	
Acceptability/Reliability	Yes, accepted RAR (2015)]
Category study in AIR 5 dossier (L docs)	Supportive Category 2b	
		_

1. Information on the study

 Full summary
 Executive Summary
 The effects of MON 52276 (nominally 35% w/w glyphosate acid) on the development and fecundity of Chrysoperla carnea were evaluated. The toxicity test was performed using three concentrations, 0.6, 6 and 12 L MON 52276/ha. A negative control group (tap water only) and a positive control (dimethoate only) were included in the test design. Exposure arenas were 7.5 cm² glass plates, sprayed with product using a Potter tower applicator and left to air-dry for approximately 1 h, before a single larva (2 - 3 days old) was added to each plate, contained within a cylinder (44 mm internal diameter x approx. 25 mm tall) covered in a mesh netting to prevent escape of the developing larva. UV sterilised Sitotroga sp. eggs were added ad libitum each day until larval pupation. There were 50 test units per treatment. After pupation, pupae were transferred into ventilated plastic boxes. Once hatched, the adult lacewings were counted and transferred to oviposition boxes. Pre-imaginal mortality was recorded daily. For the following 21 days, the fecundity was assessed by observing the number of eggs laid, the viability of the eggs and the numbers of hatched juveniles.

During the larval development stage, there was no significant mortality of Chrysoperla carnea observed at 6 L ne feen here been and and and a second and a second a rates up to 6 LMON 52275/ha. A significant pre-imaginal mortality was observed at 12 L MON 52275/ha. During the fecundity assessment no evidence of a dose-response relationship was found.

Glyphosate Renewal Group AIR 5 - July 2020

I. MATERIALS AND METHODS

A. MATERIALS

1. Test material:

Annex to Regulation 284/2013	MON 52276 (EC) Glyphosate acid 31.0 % w/w glyphosate acid (nominal) 30.9 % w/w glyphosate acid (measured) Herbicide 290598 BASF Dimethoate 40 (EC) Chrysoperla carnea Steph. (Neuoptera, Chrysopidae)
I. MA	ATERIALS AND METHODS
A. MATERIALS	
1. Test material:	
Test item:	MON 52276 (EC)
Active substance	Glyphosate acid
Active substance content	31.0 % w/w glyphosate acid (nominal)
	 31.0 % w/w glyphosate acid (nominal) 30.9 % w/w glyphosate acid (measured) Herbicide 290598 BASF Dimethoate 40 (EC) <i>Chrysoperla carnea</i> Steph. (Neuoptera, Chrysopidae) Larvae Eggs: Bioplanet, Cesena, Italy (commercial supplier) After delivery, the exception geopled to 0. 4 %C to delay.
Proposed use:	Herbicide
Lot/Batch #:	290598
2. Positive control:	BASE Dimetricale 40 (EC)
3. Test organism: Species:	Chrysonarla carrad Steph (New Intern Chrysonidae)
Age:	Larvae
Source:	Earvae
Egg treatment:	After delivery, the eggs were cooled to $0 - 4$ °C to delay
-66	After delivery, the eggs were cooled to $0 - 4$ °C to delay hatching. To encourage hatching, the eggs were placed for one day in
	To encourage hatching, the eggs were placed for one day in warmer conditions (14 – 19 °C) with a 16 h photoperiod of 640 lux. Afterwards the temperature was brought to 22 – 24 °C with 16 h light of 3180 lux in ventilated plastic boxes lined with a fibrous tissue.
Diet/ Food:	Larvae, UV-killed eggs of Sitotroga cerealella ad libitum
	Adults: artificial diet (powdered yeast mixed 1:1 with honey
	solution on a cotton wool pad, fresh water on a cotton wool
	ري pad
4. Environmental conditions:	
Temperature:	Test units: $21 - 25$ °C
	Adult maturation: $22 - 24$ °C
S Photoperiod:	16 h
& Light intensity	Test units: $3100 - 3140 \text{ lux}$
X: 6. 6	Adult maturation: 6690 lux
0 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Oviposition boxes: 6690 lux
ر Relative humidity:	Test units: 63 – 75 %
	Adult maturation: 65 – 88 %
5 Fur distant datas	Oviposition boxes: $57 - 99\%$
5. Experimental dates:	 After delivery, the eggs were cooled to 0 – 4 °C to delay hatching. To encourage batching, the eggs were placed for one day in warmer conditions (14 – 19 °C) with a 16 h photoperiod of 640 lux. Afterwards the temperature was brought to 22 – 24 °C with a 6 h light of 3180 lux in ventilated plastic boxes ince with a fibrous tissue. Larater, UV-killed eggs of <i>Sitotroga cerealella ad libitum</i> Adults artificial diet (powdered yeast mixed 1:1 with honey and made into a paste with water, a 1:2 – 1:3 honey/water solution on a cotton wool pad, fresh water on a cotton wool pad. Met units: 21 – 25 °C Adult maturation: 22 – 24 °C Oviposition boxes: 20 – 26 °C I6 h Test units: 3100 – 3140 lux Adult maturation: 6690 lux Oviposition boxes: 6690 lux Oviposition boxes: 57 – 99 % Adult maturation: 65 – 88 % Oviposition boxes: 57 – 99 % May 25th, 1999 to July 22nd, 1999 Dettr:10054-MCP10_GRG_rev1_ul_2020
Glyphosate Renewal Group AIR 5 – July 2020	Doc ID: 110054-MCP10_GRG_Rev 1_Jul_2020

B. STUDY DESIGN AND METHODS

1. Experimental treatments: The study encompassed three concentrations of 0.6, 6 and 12 L MON 52276/ha. In addition, *Chrysoperla carnea* were exposed to a toxic reference and a water control. The test item, as well as the toxic reference and the water control, were applied to square glass plates using a Potter Laboratory Spray Tower with a delivery rate equivalent to 200 L/ha at a spray pressure of 0,7 bar. One 2-3-day-old larva was put into a test arena along with a sufficient amount of Sitotroga eggs. The test arena is a treated glass plates covered with a perspex sheet with a 50-mm-diameter hole and an exact fitting acrylic cylinder. The cylinder was treated with polytetrafluoroethylene. A mesh with 0.5×0.5 mm netting was placed over each cylinder.

After pupation they were transferred on the treated glass plate into ventilated plastic boxes. After hatching, the adult Chrysoperla were counted and transferred to oviposition boxes. Once a week a sheet of fibrous material was placed under the lid of each box as a site for oviposition. The egg sheets were removed after 24 h for a period of 21 days and put into ventilated plastic pots were the eggs were assessed for viability and number of emerged larvae. Emerging larvae were removed daily.

2. Observations: The larvae were assessed daily for mortality, sub-lethal effects and pupation. The emerging 2nd generation larvae were counted daily. The sex of the adults was determined on dead individuals and at test end.
3. Calculations: The mortality of larval insects was corrected with the losses in the control using Abbott's

formula. The pre-imaginal mortality at each test concentration and the control were compared by Chi-square test. D

il. **II. RESULTS AND DISCUSSION**

A. FINDINGS The results of the test are depicted in the following tables.

	Concentration [L MON 52276/ha]	Number of Larvae tested	1 isects pupating [%]	Emerging as adults [%]	Pre-imaginal mortality [%]	Abbot-corrected pre-imaginal mortality [%]
				81	19	-
	0.6	885 \$ 0	76	72	28	11
	6	50	66	64	36	21
	12	48	35	33	67	59 ¹
	Dimethoate 40	[≫] 48	0	0	100	1001
16 10 10 10 10 10 10 10 10 10 10 10 10	0 (control) 0.6 6 12 Dimethoate 40 ¹ significant difference control 1 significant difference control 0 of the second of the					
1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,	Glyphosate Renewal Group A	IR 5 – July 2020		D	oc ID: 110054-MCP10	_GRG_Rev 1_Jul_2020

Concentration [L MON 52276/ha]	Mean number eggs/ female/ day	Mean percentage viability	Mean no. viable eggs/ female/ day	Change relative to s control
0 (control)	7.9	89	7.0	- 6.4
0.6	6.3	84	5.3	-24
6	9.6	85	8.2	2 ⁴ 17
12	6.3	89	5.6	
Dimethoate 40	-	-	-	10, - 10, -
B. OBSERVATION During the development				

Table 10.3.2.2-16: Egg production and viability assessment

B. OBSERVATIONS

(Drotochick) During the development no significant mortality of Chrysoperla carnea was observed up to and including 6 L MON 52275/ha. A significant pre-imaginal mortality was noticed at 12 L MON 52275/ha. During the fecundity assessment no evidence of a dose-response relationship was found

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According to the study protocol based on the method by Bigles (1988), for the study to be valid, preimaginal mortality in the control group would not exceed 30% and would be greater than 80% in the 10 200⁰⁵¹ positive control. These criteria were satisfied.

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6 The validity criteria according to the current laboratory method to test effects of plant protection products on larvae of Chrysoperla carnea (Neuroptera:Chrysopedae) (Vogt, 2000) state that maximum cumulative mortality in the control group (dead larvae, pupae and adults) must be ≤ 20 %, fecundity (mean number of eggs per female per day) must be ≥ 15 , fertility (mean hatching rate) must be ≥ 70 % and the mortality in the positive control group should be ≥ 50 %. Compared to these current criteria, three of the four criteria were satisfied. However, for control group foundity, the mean number of eggs per female per day, was lower than 15 (7.9), with a mean percentage viability of eggs in the control being high (89%). Despite the low level of control fecundity against the Vogt (2000) criteria, relatively, there was no significant reduction in fecundity at rates up to the 12 L/ha equivalent rate.



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Assessment and conclusion by applicant:

Ì ó MON 52276 did not affect the survival or fecundity of the green lacewing, Chrysoperla carnea, when applied at rates of 0.6 of 61 MON 52276/ha. At the maximum rate of 12 L MON 52276/ha, corrected mortality was 59 %, which exceeds the threshold of 30 % currently accepted for indicating a harmful treatment effect. However, the fecundity of the surviving insects at this dose rate was only reduced by 20 %, relative to the control. There was no apparent dose-response effect on the fecundity of surviving lacewings, so its was considered unlikely that the slight reduction in fecundity seen in the 12 L MON 52276/ha treatment rate was of biological significance.

This study is therefore, considered to be supportive and unreliable for use in risk assessment.

Assessment and conclusion by RMS:

and the

CP 10.3.2.3 Semi-field studies with non-target arthropods

The risk assessment presented for non-target arthropods indicates low risk for the proposed uses of MON 52276 when applied considering the GAP in field crops, orchards, vineyards and in agricultural/non 0000 1000 1000 inter interior agricultural areas for control of invasive species. Therefore, no further studies are required.

CP 10.3.2.4 Field studies with non-target arthropods

The risk assessment presented for non-target arthropods indicates low risk for the proposed uses of MON 52276 when applied considering the GAP in field crops, orchards, vineyards and in agricultural/nonagricultural areas for control of invasive species. Therefore, no further studies are required

CP 10.3.3 Other routes of exposure for non-target arthropods The risk assessment presented for non-target arthropods indicates low risk for the proposed uses of MON 52276 when applied considering the GAP in field crops, orchards, vineyards and in agricultural/nonagricultural areas for control of invasive species. Therefore, no further studies are required. 80

CP 10.4 Effects on Non-Target Soil Meso- and Macrofanna

Studies on effects of the representative formulation MON 52276 on soil organisms to fulfil the data requirements according to EU Regulation No 284/2013 are presented in the following.

Studies considering the toxicity of glyphosate, relevant metabolites and MON 52276 to soil meso- and macrofauna were assessed for their validity to current and relevant guidelines. The results of these studies demonstrate that glyphosate, glyphosate salts, AMPA and MON 52276 are all of low toxicity to soil 50 organisms.

Relevant and reliable studies for the risk assessment opersphere and relevant metabolites are summarised in the tables below. Details of the studies are summarised in the Document M-CA, Section 8, point 8.4.

1. J. Table 10.4-1: Endpoints and effect values for glyphosate relevant for the risk assessment for soil The stand organisms

Reference	Test item	Species	Test design/ GLP	NOEC (mg a.e./kg dry soil)
2009 CA 8.4.1/001	Glyphosate IPA salt	Eisenia fetida andrei	56 d, chronic	≥ 473
, 2009 CA 8.4.2.1/002	Glyphosate IPA salt	Hypoaspis aculeifer	10 % peat content Mixed into substrate 14 d, chronic	≥ 473
, 2010	Glyphosate IPA-salt	Folsomia candida	5 % peat content Mixed into substrate	587
CA 8.4.2.1/001			28 d, chronic 10 % peat content	

a.e. glyphosate acid equivalents

Endpoints in **bold** are used for risk assessment 10,033

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Table 10.4-28 Endpoints and effect values for AMPA relevant for the risk assessment for soil Uloi. organisms ð

	Reference	Test item	Species	Test design/ GLP	NOEC (mg/kg dry soil)
	, 2003 CAS 8.4.1/003	AMPA	Eisenia fetida fetida	Mixed into substrate 56 d, chronic 10 % peat content	131.9
4 4 1 1 1 1 1 1 1 1 1 1 1 1 1	Glyphosate Renewal Grou	ıp AIR 5 – July 2020		Doc ID: 110054-N	1CP10_GRG_Rev 1_Jul_2020

iogli,

Table 10.4-2: Endpoints and effect values for AMPA relevant for the risk assessment for soil organisms

Reference	Test item	Species	Test design/ GLP	NOEC (mg/kg dry soil)
, 2010 CA 8.4.2.1/004	AMPA	Hypoaspis aculeifer	Mixed into substrate 14 d, chronic 5 % peat content	≥ 320 6
2010 CA 8.4.2.1/003	AMPA	Folsomia candida	Mixed into substrate 28 d, chronic 5 % peat content	≥315 8 K

Endpoints in **bold** are used for risk assessment

A study with the representative product MON 52276 is available and has also been assessed for validity to current and relevant guidelines and is summarised in the following table. 10-00-00 10-00-00 10-00-00 to current and relevant guidelines and is summarised in the following table.

Table 10.4-3: Studies on the toxicity of MON 52276 to soil organisms

Annex point	Study reference	Study type	Test species	Status
CP 10.4.1.1	2020	Chronic	Eisenia öndrei A MON 52276	Valid

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Endpoints of studies for MON 52276 considered valid are shown in the table below.

Table 10.4-4: Endpoints: studies on toxicity of MON 52276 to soil organisms

Reference	Test item	Species the	Test design/ GLP	LC50 (mg a.e./kg dry soil)	NOEC (mg a.e./kg dry soil)
, 2020 CP 10.4.1.1/001	MON 52276	Èisenia fetida	Mixed into substrate 56 d, chronic 10 % peat content	-	≥ 38

a.e. glyphosate acid equivalents

the owner. The earthworm chronic study with MON 52276 shows a 'greater than' endpoint of \geq 38 mg a.e./kg dw soil. The endpoint with the active substance glyphosate is also a 'greater than' endpoint \geq 473 mg a.e./kg dw soil. Therefore, the risk assessment will be based on the higher endpoint for the active substance glyphosate of \geq 473 mg a.e./kg dw soil, as there is no significant difference in the toxicity exhibited by the product compared to the active substance to earthworms.

Studies with the representative formulation MON 52276 are not currently available for soil organisms other than earthworps. However, additional data for the risk assessment evaluating the toxicity of MON 52276 to Folsomia candida and Hypoaspis aculeifer are currently being generated. Low toxicity is expected based on the observed effects of MON 52276 to earthworms and also the effect of glyphosate IPA salt on Folsomia candida and Hypoaspis aculeifer.

Gurbert T

Still States

evaluated peer reviewed literature from the RAR 2015 is also available in Annex M-CA 8-01 of the document M-CA Section 8.

CP 10.4.1 Earthworms

Chronic earthworm toxicity studies have been conducted with glyphosate, the main metabolite AMPA and the state of the s the product MON 52276 and are considered in the risk assessment.

Risk assessment for soil organisms

The evaluation of the risk is performed in accordance with the recommendations of the "Guidance Document on Terrestrial Ecotoxicology", as provided by the Commission Services (SANCO/10329/2002 rev. 2 (final), October 17, 2002), and in consideration of the recommendations of the guidance document ESCORT 2.

The PEC_{soil} calculations considered the lowest and highest application rates for each of the uses presented in the GAP, a 0 % foliar interception, a soil depth of 5 cm, and a bulk deposity of 1.5 g/cm³. Where appropriate in addition to the worst case soil depth of 5 cm, a PEC_{soil} value was calculated for a 20 cm soil depth to account for tillage of the soil. A detailed description of PECsil calculations for glyphosate and its metabolite AMPA is provided in the Document M-CA, Section 7., %

Due to slow degradation of glyphosate and its metabolite AMPA in soil ($DT_{90} > 365$ d, field data) the accumulation potential of both substances needs to be considered. The PEC soil accumulation values for both glyphosate and AMPA are worst case at the 5 cm soil depth as expected due to lack of disturbance and dilution through tillage. Therefore, for this risk assessment, the TER values were determined for glyphosate and AMPA based on the ratio of the NOEC (chronic) values to the worst case accumulation PEC_{soil, accu} at a soil depth of 5 cm.

il. N The studies conducted with glyphosate, AMPA and MON 52276 were conducted in soils with 5 % or 10 % organic matter. However, as the log P_{ow} values for glyphosate and AMPA are < 2, there was no need to reduce the endpoints by a factor of 2 in order to account for the organic matter content of the artificial test с (soil.

The table below indicates how the risk assessment for soil organisms has covered all the proposed uses presented in the GAP. The risk assessment presented here is shown by the 'X' in the table, which represents Persidence of the second of th the worst case PEC_{soil} values selected based on the maximum application to soil per year and the crop type Hotophising and and on the state of the stat for the proposed uses of MON 52276.

Annex to Regulation 284/2013			MON 5	2276					P, Section 10 ge 342 of 553
Table 10.4.1-1: Risk assessi	nent s	trategy	for soil	organisn	ns				
GAP number and summary]	Maximu	m applic	ation to so	oil g/ha (p	er year u	nless of	therwise sta	ited)
of use	1 x 540	1 x 720	1 x 1440	1 x 1800	1 x 2160	1 x 2880	1 x 3600	1 x 540 (every 3 rd yr)	1 x 720 (every 3rd yr)
Uses 1a-c: Applied to weeds; pre-sowing, pre-planting, pre- emergence of field crops.		Х	Х						2.0
Uses 2 a-c: Applied to weeds; post-harvest, pre-sowing, pre- planting of field crops.		Х	Х		Х		60		
Use 3 a-b: Applied to cereal volunteers; post-harvest, pre- sowing, pre-planting of field crops.	Х					0000		S X	
se 4 a-c: Applied to weeds post emergence) below trees orchards.		Х	Х		K	S C C C	No N		
Use 5 a-c: Applied to weeds post emergence) below vines a vineyards		Х	Х		15 - 15 - 15 - 15 - 15 - 15 - 15 - 15 -	N W N			
se 6 a-b: Applied to weeds bost emergence) in field cops BBCH < 20		Х	Х	J.S.					
Jse 7 a-b: Applied to weeds post emergence) around ailroad tracks			ő	A CLARK CONTRACTOR			Х		
Jse 8 and 9: Applied to nvasive species, Giant logweed and Japanese knot veed (post emergence) in gricultural and non-		in the second		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
gricultural areas Uses 10 a-c: Applied to couch grass; post-harvest, pre- owing, pre-planting of field rops	Solo Solo		X						X

Table 10.4.1-1: Risk assessment strategy for soil organisms

X = this use is covered by the application rate given and PECsoil values are available in the Document M-CA, Section 7. the strange

The soil organisms risk as sessment results are presented according to the uses described in the table above grouped as follows: GAP uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c. and grouped as follows:

- •
- in orchards/vineyards; covering GAP uses 4 a-c, 5 a-c. •
- around railroad tracks; covering GAP uses 7 a-b. •
- in agricultural and non-agricultural areas to control of invasive species; covering GAP uses 8, 9. • sulting sultin

The resulting FER values are shown in the tables below.

Table 10.4.1-2: First-tier assessment of the chronic risk for earthworms due to the use of MON 52276 – field crops (Uses: 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c)

T / 1 1	18		E
Intended use	Field crops (1 × 2160 g	/ha)	J. L.
Product/active substance	NOEC (mg/kg dw)	PEC _{soil, accu} (mg/kg)	TER _{It} 1 June 1111.7 111.7 36.4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Glyphosate	473	4.236	111.7
AMPA	131.9	3.621	36.4
Intended use	Field crops (1 × 1440 g	/ha)	
Product/active substance	NOEC	PECsoil. accu	TER
at 1	(mg/kg dw)	(mg/kg)	10 01 0
Glyphosate	473	2.824	1.00.00
AMPA	131.9	2.414	54.6
Intended use	Field crops $(1 \times 720 \text{ g/H})$	ha)	9 8 1
Product/active substance	NOEC	PECsoil, accu	[©] TER _{lt} ¹
Glyphosate	(mg/kg dw) 473	<u>(mg/kg) へいろうろ</u>	335.0
AMPA	131.9	1.412	109.3
		1.207	107.3
Intended use	Field crops $(1 \times 540 \text{ g/l})$	na) (15 8 1)	TED 1
Product/active substance	NOEC (mg/kg dw)	PEC mil, accu	TER _{It} ¹
Glyphosate	(mg/kg dw) 473	1.059	446.6
AMPA	131.9	2.414 ha) PEC soil, accu (mg/kg) 1.412 1.207 ha) PEC soil, accu (mg/kg) 1.059 0.905	145.7
Intended use	Field crops $(1 \times 540 \text{ g/s})$	a. every 3 rd vear)	
Product/active substance	NOFC	PEC of and	TER _{it} ¹
I I GUUCH ACTIVE SUBSTAILE	(mg/kg dw)	(mg/kg)	1 1218)
Glyphosate	473	0.833	567.8
AMPA	131.9	0.500	263.8
Intended use	Field crops (k× 720 g/l	ha, every 3 rd year)	
Product/active substance	NOEC	PEC soil, accu (mg/kg)	TER _{lt} ¹
Glyphosate	473	1.111	425.7
AMPA	131.9 8	0.667	197.8
$\frac{1}{1}$ TFR: toxicity to exposure ratio =	Endroint PEC : given in m	a glyphosate acid equivalents/k	ra dw
Glyphosate Glyphosate AMPA Intended use Product/active substance Glyphosate AMPA Intended use Product/active substance Glyphosate AMPA ¹ TER: toxicity to exposure ratio = Control		ig grypnosate actu equivalents)	g uw.
44) (8 40 10 10 10 10 10 10 10 10 10 1			



Annex to Regulation 284/2013 Table 10.4.1-3: First-tier a		N 52276 ronic risk for earthworm	ns due to the use	M-CP, Section 10 Page 344 of 553 of	is the second second
MON 52276 – orchards ar	nd vineyards (Uses: 4	4 a-c, 5 a-c)			S.
Chronic effects on earthwor	ms				27
Intended use	Orchards/vineyards	(1 × 2880 g/ha)		JU LU	*
Product/active substance	NOEC (mg/kg dw)	PEC _{soil, accu} (mg/kg)	TER _{lt} ¹	Still Star	
Glyphosate	473	5.648	83.7	S. S.	
AMPA	131.9	4.828	27.3		
Intended use	Orchards/vineyards	(1 × 1440 g/ha)	<u>يَّ</u> ، رَ	L. L.	
Product/active substance	NOEC (mg/kg dw)	PEC _{soil. accu} (mg/kg)	TER _u ^{1,0} ,0	¢.	
Glyphosate	473	2.824	468.5		
AMPA	131.9	2.414	54.6		
Intended use	Orchards/vineyards	(1 × 720 g/ha)	No 2 2		
Product/active substance	NOEC (mg/kg dw)	PEC _{soil, accu}	TER _t ¹ 335.0 109.3		
Glyphosate	473	1.412 1.207	335.0		
AMPA	131.9	1.207	109.3		

Table 10.4.1-3: First-tier assessment of the chronic risk for earthworms due to the use of MON 52276 – orchards and vinevards (Uses: 4 a-c, 5 a-c)

¹ TER: toxicity to exposure ratio = Endpoint / PEC_{soil} given in mg glyphosate acidequivalents/kg dw. in the seal

Table 10.4.1-4: First-tier assessment of the chronic risk for earthworms due to the use of MON 52276 - post-emergence of weeds around railroad tracks (Uses: 7 a-b) 5.5.5

Chronic effects on earthwor		Still BO Shire		
Intended use	Railroad tracks (1 8	3600 g/ha)		
Product/active substance	NOEC (mg/kg dw)	PECsoil, accu (mg/kg)	TER _{lt} ¹	
Glyphosate	473	7.06	67.0	
AMPA	131.9	6.035	21.9	
Intended use	Railroad tracks (1 × 1	1800 g/ha)		
Product/active substance	NOEC (mg/kg.dw)	PECsoil, accu (mg/kg)	TER _{It} ¹	
Glyphosate	A78 20	3.53	134.0	
AMPA	× 13109	3.017	43.7	

¹ TER: toxicity to exposure ratio = Endpoint / PEC_{soil} given in mg glyphosate acid equivalents/kg dw.

Table 10.4.1-5: First-therassessment of the chronic risk for earthworms due to the use of MON 52276 - control of invasive species in agricultural and non-agricultural areas (Uses: 8 and 9) 00

	Chronic effects on earthworn	ns		
	Intended use	Control of invasive	species (1 × 1800 g/ha)	
	Product/active substance	NOEC	PEC soil, accu	TER _{It} ¹
		(mg/kg dw)	(mg/kg)	
	Glyphosate	473	3.53	134.0
	AMPA	131.9	3.017	43.7
	¹ TER: toxicity to exposure ratio =	Endpoint / PEC _{soil} given	in mg glyphosate acid equival	lents/kg dw.
	40,00% 41,00 10,00 1			
A PAC A CONTRACT OF CONTRACT.	9 Glyphosate Renewal Group AIR 5 – Ju	ıly 2020	Doc	ID: 110054-MCP10_GRG_Rev 1_Jul_2020

Contraction of the contraction o The TER values calculated using worst-case accumulation PECsoil accu values for glyphosate and its metabolite AMPA exceed the relevant trigger values (TER \geq 5), indicating that the risk to earthworms is A Tron the state of the state o acceptable following the proposed uses of MON 52276.

CP 10.4.1.1 Earthworms - sub-lethal effects

1. Information on the study

1. Information on the star	٠٠ پک نگ
Data point	CP 10.4.1.1/001
Report author	20.00 10.00 10.00
Report year	2020
Report title	MON 52276: Effects on survival, growth and reproduction of the earthworm <i>Eisenia andrei</i> tested in artificial soil
Report No	20 48 TEC 0028
Document No	BI-2019-0632
Guidelines followed in study	OECD 222 (2016), ISO 11268-2 (2012) 0
Deviations from current test guideline	Deviation from guideline OECD 222 (2016): Major: - none Minor: - none - none
Previous evaluation	No, not previously submitted
GLP/Officially recognised testing facilities	Yes Root Root
Acceptability/Reliability	Valia of the
Category study in AIR 5 dossier (L docs)	Category A C S
2. Full summary	Category A Contraction of the co
Executive Summary	
The effects of MON 52276 (36	glyphosate acid equivalent) on <i>Eisenia andrei</i> were tested in a

2. **Full summary**

Executive Summary

The effects of MON 52276 (360 g/c glyphosate acid equivalent) on Eisenia andrei were tested in a 56-days sublethal laboratory test according to OECD 222) with regard to the parameters mortality, behavioural and pathological synaptoms, body weight change and reproduction in OECD soil containing 10 % sphagnum peat. The test was conducted with nominal test concentrations of 11.7, 16.3, 22.9, 32.0, 44.8, 62.8, 87.9, 123 mg test item/kg soil dry weight, equivalent to 3.6, 5.0, 7.1, 9.9, 14, 19, 27, 38 mg a.e./kg soil dry weight, respectively. In addition, a control group was exposed to soil mixed with deionised water only.

After 56 days, the test item caused no mortality at any tested concentrations and control. No effects on behaviour (including feeding activity) of the worms were observed during the test. The test item caused no statistically significant change in biomass and in number of juveniles when compared to the control group. Therefore, No-Observed-Effect-Concentration (NOEC) for reproduction was determined to be \geq 38 mg Hrado opinicia and a strategic opinicial and a.e./kg soil dry weight, and the Lowest-Observed-Effect-Concentration (LOEC) was determined to be > 38 mg a.e./kg soil dry weight. All validity criteria according to the OECD guideline 222 were fulfilled.

Glyphosate Renewal Group AIR 5 - July 2020

I. MATERIALS AND METHODS

MATERIALS A.

1. Test material:	
Test item:	MON 52276
Description:	Yellow liquid
Lot/Batch #:	11511167 (manufacturing lot AZE200810A)
Purity:	360 g/L glyphosate acid equivalent (nominal) کر ک
	362 g/L glyphosate acid equivalent (analysed)
2. Vehicle and/or positive control:	MON 52276 Yellow liquid 11511167 (manufacturing lot AZE200810A) 360 g/L glyphosate acid equivalent (nominal) 362 g/L glyphosate acid equivalent (analysed) 362 g/L glyphosate acid equivalent (analysed) Maypon Flow (carbendazim, SC 500), tested in a separate study Earthworm (<i>Eisenia andrei</i> (BOUCHE, 1972)) Adults approx 4 months old with slitellum
3. Test organism:	
Species:	Earthworm (Eisenia andrei (BOUCHE, 1972))
Age:	Adults, approx. 4 months old with clitellum
Weight:	270 – 423 mg/worm
Source:	In-house rearing (originally from W. Neudorff GmbH KG, An der Mühle 3, 31860 Emmerthal, Germany)
Food:	Air-dried and finely ground horse manure
Acclimation period:	Approx. 24 hours in the artificial substrate
4. Environmental conditions:	S. S. S.
Temperature:	19.9 - 248 8 C 1
Photoperiod:	16 h light (630 Lux)/ 8 h dark
Soil pH:	5.99 -6.06 (test start); 5.74 – 5.83 (test termination)
Soil moisture content:	test start: $34.9 - 35.0$ (equivalent to $56.0 - 56.2$ % of WHC)
	testend: 34.3 – 34.8 (equivalent to 55.1 – 55.9 % of WHC)
	(difference between start and end of the test: max. 2.0 %)
5. Experimental work dates:	test start: 34.9 – 35.0 (equivalent to 56.0 – 56.2 % of WHC) test end: 34.3 – 34.8 (equivalent to 55.1 – 55.9 % of WHC) (difference between start and end of the test: max. 2.0 %) 2020-02-26 to 2020-04-22

5.00 (1) MUN STUDY DESIGN AND METHODS B.

1. Experimental treatments: A sublethal test was conducted with nominal test concentrations of 11.7, 16.3, 22.9, 32.0, 44.8, 62.8, 87.9, 123 mg test item/kg soil dry weight, equivalent to 3.6, 5.0, 7.1, 9.9, 14, 19, 27, 38 mg a.e./kg-soil dry weight, respectively. In addition, a control group was exposed to soil mixed with deionised water only. The test concentrations were prepared by dispersing an exact weighed amount of the test item in deionised water (stock solutions) and thereafter diluted to obtain different test concentrations, which were thoroughly mixed with the artificial soil, achieving desired test concentrations wHC. The a which is the containers which is the with a final continual water content of 40-60 % of WHC. The artificial soil substrate was composed of 10 % spharnum peat, 20 % kaolin clay, 69.5 % industrial quartz sand and 0.5 % calcium carbonate. Four replicate test containers (test item) and 8 replicate test containers (control) with 675 g soil (wet weight) were prepared for each treatment group. 10 adult earthworms were exposed per replicate for 56 days.

As a toxic reference, earthworms were exposed in a separate study to Maypon Flow (carbendazim, SC 500). The results are in line with the OECD requirements (53 and 99 % of reduction in the number of juveniles

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2. Observations: At test initiation, individual fresh weight, behavioural responses of earthworms and physico-chemical parameters of the artificial soil were recorded. Behavioural and pathological symptoms including feeding activity were observed on a weekly basis. Four weeks after test initiation, number of surviving adult earthworms and fresh weight of surviving adult earthworms per replicate were recorded. At test termination (8 weeks after test initiation), number of surviving juveniles per replicate, observation of behavioural/pathological symptoms and determination of physico-chemical parameters of the artificial soil , x O were observed.

3. Statistical calculations: The Williams-t-test was used to compare the control with the independent test item groups. For statistical evaluation of the biomass change, the changed mean fresh weight of surviving worms per replicate was used. The statistical analysis was performed with the software ForRat Professional A Contraction of the contraction 3.2.1 (Ratte 2015).

II. RESULTS AND DISCUSSION

A. **FINDINGS**

					00	2.0			
MON 52276 [mg a.e./kg soil d.w.]	Control	3.6	5.0	7.1	9.9	614	19	27	38
Mortality of adult worms after 4 weeks (%)	0	0	0	0		0	0	0	0
Mean biomass change (%)	27.9	26.2	28.2	29.1	27.7	28.9	25.6	28.4	26.6
Mean number of juveniles per replicate after 8 weeks	222.9	225.5	218.5	232.30	223.5	214.5	211.3	227.3	221.0
CV %	12.8	26.8	17.0	8.3	18.0	13.0	20.0	16.7	23.5
Change of reproduction compared to control (%)	-	101.2	198.0°.	\$ 104.2	100.3	96.2	94.8	102.0	99.2
EC ₁₀ / EC ₂₀		Not determined							
LOEC		> 38 mg a.e./kg soil d.w.							
NOEC			8	≥38 m	g a.e./kg s	oil d.w.			
a = acid equivalent		2. 1. 2							

A.	FINDINGS		Ş
Table	10.4.1.1-1	Sublethal effects of MON 52276 on earthworms	

a.e.= acid equivalent

OBSERVATION B.

North Charles St Qr Its Optimie Marine Mortality rates of 0 % were recorded in the test item treatment groups and in the control. No pathological symptoms and no effects on behaviour (including feeding activity) of the worms were observed during the test. The weight change of adult worms ranged between 25.6 and 29.1 % in the treated groups and 27.9 % in the control group The test item caused no statistically significant change in biomass compared to the control groups at any concentration tested. No statistically significant effects on the number of juveniles compared to the control group were found at any concentration tested. Due to the lack of a concentrationresponse relationship no reliable EC_x -calculation is possible. Therefore, no EC_{10} / EC_{20} -value can be reported. Therefore, NOEC for reproduction was determined to be ≥ 38 mg a.e./kg soil dry weight, and LOEC was determined to be > 38 mg a.e./kg soil dry weight.

222 are fulfilled as each replic superinter by the end of the test in the control (actual value: 12 over the initial 4 weeks of the test was ≤ 10 % in the control (actual value: 0 %). The validity criteria according to guideline OECD 222 are fulfilled as each replicate (containing 10 adults) has produced \geq 30 juveniles by the end of the test in the control (actual value: 222.9 juveniles), the coefficient of variation of reproduction was ≤ 30 % in the control (actual value: 12.8 %) and adult mortality

III. CONCLUSIONS

Assessment and conclusion by applicant:

The effects of glyphosate on mortality and reproduction of earthworms (Eisenia andrei) were assessed following application of MON 52276 under laboratory conditions and according to OECD 222.

Still Month The EC10 / EC20 of MON 52276 for earthworm reproduction could not be calculated due to lack of effects. The overall NOEC was determined to be \geq 38 mg a.e./kg dry soil, equivalent to 123 mg test item/kg dry soil. The overall LOEC was determined to be > 38 mg a.e./kg soil d.w.

The study is considered valid and is suitable for risk assessment purposes.

Assessment and conclusion by RMS:

111 100 00 00 00 00 CP 10.4.1.2 Earthworms – field studies The risk assessment presented for earthworms based on the technical material and the representative formulation, indicates a low-exposure risk to earthworms, for the proposed uses of MON 52276 when applied in accordance with the proposed GAP for uses in field crops, orchards, vineyards, railroad tracks and in agricultural/non-agricultural areas for the control of invasive species. Therefore, field studies with e. Of the earthworms are not required.

8

Effects on non-target soil meso- and macrofauna (other than earthworms) **CP 10.4.2**

Chronic toxicity studies have been conducted with glyphosate and the main metabolite AMPA, to assess the toxicity to Hypoaspis aculeifer and Folsonia condida. The relevant and reliable endpoints for use in risk assessment are summarised in Table 104-P and 10.4-2. 345

000 Risk assessment for soil meso- and macrofauna (other than earthworms)

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The risk assessment is based on the approach as described for earthworms above in Section 10.4.1, using the PEC_{soil.accu} values for glyphosate and its main metabolite AMPA, as provided in the Document M-CA, Section 7. The resulting TER values are presented below for the proposed uses of MON 52276 in field crops, orchards, vineyards, railroad tracks and agricultural and non-agricultural areas to control invasive species as detailed in Table 10.4.1-1 above.

Table 10.4.2-1: First-tier assessment of the chronic risk to Hypoaspis aculeifer from glyphosate and AMPA, considering uses in field crops (Uses: 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c)

66.07	- ·			
Chronic effects on Hypoaspis	s aculeifer			
Intended use	Field crops (1×21)	60 g/ha)		
Product/active substance	NOEC	PEC soil, accu	TER _{lt} ¹	
8 F	(mg/kg dw)	(mg/kg)		
Glyphosate &	473	4.236	111.7	
AMPA	320	3.621	88.4	
Intended use	Field crops (1 × 14	40 g/ha)		
Product/active substance	NOEC	PEC soil, accu	TER _{lt} ¹	
Sold Contraction	(mg/kg dw)	(mg/kg)		
Glyphosate	473	2.824	167.5	
ÂMPA	320	2.414	132.6	

Table 10.4.2-1: First-tier assessment of the chronic risk to Hypoaspis aculeifer from glyphosate and AMPA, considering uses in field crops (Uses: 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c)

nnex to Regulation 284/2013	MO	N 52276	M-CP, Sec
-			Page 349
			-
Fable 10 4 2 1. Find tion a	account of the shu	onio viele to Hunogenia a	aulaifan fuam alumhasata
Fable 10.4.2-1: First-tier a			
AMPA, considering uses i	n field crops (Uses: 1	<i>a-c, 2 a-c, 3 a-d, 6 a-d, 1</i>	<i>i v a-c)</i>
Chronic effects on <i>Hypoaspis</i>	aculeifer		
Intended use	Field crops (1×720)	g/ha)	
Product/active substance	NOEC	PECsoil, accu	TER _{it} ¹
i i ouuco uctive substance	(mg/kg dw)	(mg/kg)	TER _{it} ¹
Glyphosate	473	1.412	225.0
AMPA	320	1.207	265.1
Intended use	Field crops (1 × 540	g/ha)	265.1 265.1 TERIA: 0 2 446.6
Product/active substance	NOEC	PEC _{soil, accu}	TER
	(mg/kg dw)	(mg/kg)	en co. So
Glyphosate	473	1.059	446.65 8
AMPA	320	0.905	353.6 0
Intended use	Field crops (1 × 540	g/ha, every 3 rd year)	
Product/active substance	NOEC	PEC soil, accu	
	(mg/kg dw)	(mg/kg)	N. Q. Q.
Glyphosate	473	0.833	S S 567.8
AMPA	320	0.500	640.0
Intended use		g/ha, every 3 rd year)	de la companya de la comp
Product/active substance	NOEC	PEC soil, accu	TER _{lt} ¹
	(mg/kg dw)	(mg/kg)	
Glyphosate	473	1.111 6 8 6	425.7
AMPA	320	0.66	479.8

¹ TER: toxicity to exposure ratio = Endpoint / PEC_{soil} given in mg glyphosate and equivalents/kg dw. **Table 10.4.2-2: First-tier assessment of the chronic visk to** *Folsomia candida* from glyphosate and AMPA, considering uses field crops (Uses: 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c) Ś

		A. C.	
Chronic effects on Folsomia ca	Indida		
Intended use		/ha)	
Product/active substance	Field crops (1× 2160°g NOEC (mg/kg dav) 587 315 Eindel crops (1× 1440 g	PECsoil. accu	TER _{lt} ¹
	(mg/kg (tw))	(mg/kg)	
Glyphosate	587 5 5	4.236	138.6
AMPA	587 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	3.621	87.0
Intended use	Field crops (1 × 1440 g	/ha)	· · ·
Product/active substance	NOEC	PEC _{soil, accu}	TER _{lt} ¹
	(mg/kg dw)	(mg/kg)	
Glyphosate	\$87	2.824	207.9
AMPA	315	2.414	130.5
Intended use	∛Field crops (1 × 720 g/l	ha)	
Product/active substance	NOEC	PEC _{soil, accu}	TER _{lt} ¹
~` ⁱ 6 ⁰ 8 ⁰	(mg/kg dw)	(mg/kg)	
Glyphosate 8.8	587	1.412	415.7
AMPA స్ర	315	1.207	261.0
Intended use	Field crops (1 × 540 g/l	ha)	
Product/activesubstance	NOEC	PECsoil, accu	TER _{lt} ¹
	(mg/kg dw)	(mg/kg)	
Glyphosate	587	1.059	554.3
AMPA	315	0.905	348.1
Glyphosate	Field crops (1 × 540 g/	ha, every 3 rd year)	· · · · ·
Product active substance	NOEC	PEC _{soil, accu}	TER _{lt} ¹
S. C	(mg/kg dw)	(mg/kg)	
alyphosate	587	0.833	704.7
AMPA	315	0.500	630.0



Table 10.4.2-2: First-tier assessment of the chronic risk to Folsomia candida from glyphosate and AMPA, considering uses field crops (Uses: 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c)

Annex to Regulation 284/2013	MON	N 52276	M-CP, Section 10 Page 350 of 553
Table 10.4.2-2: First-tier a AMPA, considering uses f			M-CP, Section 10 Page 350 of 553 andida from glyphosate and
Chronic effects on <i>Folsomia</i> Intended use) g/ha, every 3 rd year)	
	Field crops (1 × 720 NOEC) g/ha, every 3 rd year) PECsoil, accu	TER ¹
Intended use	Field crops (1×720)		
Intended use Product/active substance	Field crops (1 × 720 NOEC	PEC soil, accu	
Intended use	Field crops (1 × 720 NOEC (mg/kg dw)	PECsoil, accu (mg/kg)	TER _{it} ¹

Table 10.4.2-3: First-tier assessment of the chronic risk to *Hypoaspis aculeifer* from glyphosate and AMPA, considering uses orchards and vinevards (Uses: 4 are and 5 a.c.)

		S.C.	e . S		
Chronic effects on Hypoaspis	aculeifer	× *	,°, , , , , , , , , , , , , , , , , , ,		
Intended use	Orchards/vinyards (1 ×	2880 g/ha)	Q		
Product/active substance	NOEC	PECsoil, accu	TER _{lt} ¹		
	(mg/kg dw)	PECsoil, accu (mg/kg) 5.648			
Glyphosate	473	5.648 8 3 5	83.7		
AMPA	320	4.828	66.3		
Intended use	Orchards/vinyards (1 × 1440 g/ha)				
Product/active substance	NOEC	PEC soil, accu	TER _{lt} ¹		
	(mg/kg dw)	(mg/kg)			
Glyphosate	473	2.824 2	167.5		
AMPA	320	2.444	132.6		
Intended use	Orchards/vinyards (1 ×	720 g/ha)			
Product/active substance	NOEC	PEC soil, accu	TER _{lt} ¹		
	(mg/kg dw)	(mg/kg)			
Glyphosate	473	1.412	335.0		
AMPA	320 5	1.207	265.1		

¹ TER: toxicity to exposure ratio = Endpoint / PEC_{soil} given in mg glyphosate acid equivalents/kg dw. Collog

Table 10.4.2-4: First-tier assessment of the chronic risk to *Folsomia candida* from glyphosate and AMPA, considering uses orchards and vineyards (Uses: 4 a-c and 5 a-c) S is is

Chronic effects on Folsomia can	And a the second s		
Intended use	Orchards/vinyards (1 × 28	80 g/ha)	
	NOEC (mg/kg dw)	PECsoil, accu (mg/kg)	TER _{lt} ¹
Glyphosate	587	5.648	103.9
AMPA SS	315	4.828	65.2
Intended use	Orchards/vinyards (1 × 14		
Product/active substance	NOEC	PECsoil, accu	TER _{lt} ¹
C N	(mg/kg dw)		
Glyphosate	587	2.824	207.9
AMPA E	315	2.414	130.5
Intended use	Orchards/vinyards (1 × 720	0 g/ha)	
Product/active substance	NOEC (mg/kg dw)	PECsoil, accu	TER _{lt} ¹
Glyphosate	587	1.412	415.7
AMPA	315	1.207	261.0
Glyphosate AMPA Intended use Product/active substance Glyphosate AMDA ¹ TER stoxicity to exposure ratio = Er	ndpoint / PEC _{soil} given in mg g	iyphosate acid equivalents/kg (aw.
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Table 10.4.2-5: First-tier assessment of the chronic risk to Hypoaspis aculeifer from glyphosate and AMPA, considering uses post emergence of weeds around railroad tracks (Uses: 7a-c)

	Railroad tracks $(1 \times 3600 \text{ g/ha})$				
Product/active substance	NOEC	PEC soil, accu	TER _{lt} ¹	10 10 10	
	(mg/kg dw)	(mg/kg)		1. S. S.	
Glyphosate	473	7.06	67.0	Nº O	
AMPA	320	6.035	53.0	2.6	
Intended use	Railroad tracks (1 × 1800 g/ha)				
Product/active substance	NOEC	PEC _{soil, accu}	(
	(mg/kg dw)	(mg/kg)	TERA C.		
Glyphosate	473	3.53	134.00 5		
AMPA	320	3.017	Q106.1 0		
TER: toxicity to exposure ratio =	Endpoint / PECsoil given	in mg glyphosate acid equival	ents/kg dw		

Table 10.4.2-6: First-tier assessment of the chronic risk to *Folsomia candida* from glyphosate and AMPA, considering uses post emergence of weeds around railroad tracks (Uses: 7a-c)

	8				
Chronic effects on Folsomia	candida			~* *	
Intended use	Railroad tracks	s (1 × 3600 g	g/ha)		
Product/active substance	NOEC		PEC soit, accu	TER _{lt} ¹	
	(mg/kg dw)		(mg/kg)		
Glyphosate	587		7.66 2 2	83.1	
AMPA	315	-	6.035	52.2	
Intended use	Railroad tracks	s (1 × 1800 j	g/ha)		
Product/active substance	NOEC	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	PEC soil, accu	TER _{lt} ¹	
	(mg/kg dw)		(mg/kg)		
Glyphosate	587		3.53	166.3	
AMPA	315	10 0 C	3.017	104.4	

¹ TER: toxicity to exposure ratio = Endpoint / PEC_{soil} given in mg glyphosate acid equivalents/kg dw.

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Table 10.4.2-7: First-tier assessment of the chronic risk to *Hypoaspis aculeifer* from glyphosate and AMPA, considering uses control of invasive species in agricultural and non-agricultural areas AD AL 000 Chistor. (Uses: 8 and 9)

	Chronic effects on <i>Hypoaspis</i> a	culeifer		
	Intended use	Control of invasive specie	es (1 × 1800 g/ha)	
	Product/active substance	NOEC	PEC soil, accu	TER _{it} ¹
	8.00	S (mg/kg dw)	(mg/kg)	
	Glyphosate	473	3.53	134.0
	AMPA	320.0	3.017	106.1
	Chronic effects on Hypoaspis of Intended use Product/active substance			
4 2010 2010 2010 2010 2010 2010 2010 201	Glyphosate Renewal Group AIR 5 – July	y 2020	Doc ID: 11	0054-MCP10_GRG_Rev 1_Jul_2020

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Table 10.4.2-8: First-tier assessment of the chronic risk to Folsomia candida from glyphosate and AMPA, considering uses control of invasive species in agricultural and non-agricultural areas (Uses: 8 and 9)

Intended use	Control of invasive	species (1 × 1800 g/ha)		0 10 10
Product/active substance	NOEC	PEC soil, accu	TER _{lt} ¹	S. S.
	(mg/kg dw)	(mg/kg)		ALL SO
Glyphosate	587	3.53	166.3	10%
AMPA	315	3.017	104.4	S. S.

eoline. The TER values calculated using worst-case PEC_{soil,accu} values for glyphosate and its metabolite AMPA, exceed the relevant trigger value (TER \geq 5), indicating that the risk to other non-target soil organisms is S.O. 000 acceptable following the proposed uses of MON 52276.

Indirect effects via Trophic Interactions guideline studies, designed to assess the potential long-term effects on the structure and function of soil organism communities. For the Tier 1 assessment, studies were conducted using ecologically important indicators of soil organism community structure and function (see Table 10.4.2-9). These studies include long-term reproduction studies using a representative earthworms a representative collembolan, and a representative predatory mite. Earthworms are tested because they play an important role as detritivores in soil communities. Collembola, which are the most abundant soil macro-organism, are also tested because they play an important role as detritivores and nutrient colling in soil organism communities. Predatory mites are important to the battery in that they provide information on potential impacts to food chain interactions and biological control within soil organism communities.

Soil organisms contribute to a wide range of essential ecosystem services important for the function of terrestrial ecosystems, acting as the primary driving agents of nutrient cycling and regulating the dynamics of soil organic matter formation and decomposition, soil carbon sequestration, and greenhouse gas 1. 0° 1. 0° emission. 0

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Soil macro-organisms modify soil physical structure and hydraulic properties that influence root growth, root function, and nutrient acquisition. Soil biodiversity is responsive to the management of cultivated systems (Schreck et al., 2012) Trivino-Tarrades et al. 2019). Cultivation drastically affects the soil environment and hence the organisms present and their number (Trivino-Tarrades et al. 2019; Brussaard et al. 2007). Conservation talage or minimal tillage generally have positive impacts on soil organism densities, diversity, and microbial content. No-till fields typically have significantly more beneficial insects, earthworms and earthworm diversity, higher organic matter and microbial content (Chan, 2001). 3,0,0

The following approach has been taken to assess potential indirect effects via trophic interactions, considers the proposed Specific Protection Goals drawn from the existing EU guidance and working documents, and the 2016 EFSA Guidance on developing protection goals for ecological risk assessments (ERA) for pesticides. The SPGs based on direct effects assessment considering representative sensitive populations across the tested trophic levels. The biodiversity assessment, aimed to develop a flexible framework that informs the development of risk mitigation options to achieve the specific protection goals, that includes considering indirect effects via trophic interaction. , e

For example, reduced application rates relative to previous Annex I renewals, a reduced overall application volume of product on the land, and inclusion of no-spray buffer zones - a standard mitigation measure to protect non-target plant communities in off-target areas, which indirectly supports soil macro-organisms Sellis Sellis Charles biodiversity, by maintaining soil structure and function in both in-field and off-field areas.

When defining SPGs for soil macro-organisms that reflects both direct and indirect effects, it is the responsibility of the risk assessors in the Member States to acknowledge existing protection goals and regulatory data requirements, to propose possible SPG options, and describe the possible environmental consequences of each option. The risk assessors within the Member States will need to propose realistic SPGs and exposure assessment goals and the interrelationships between them in a clear and transparent manner

Specific protection goal (SPGs) for soil organisms still need to be adopted. However, for the purpose of this biodiversity assessment, two SPGs have been developed that overall, are considered consistent with current ³⁸EFSA (2016) opinion on soil organisms and are likely be adopted in future EFSA guidance.

The first SPG is aimed at protecting the structure and function (e.g., detritivory) of soil macro-organism communities and the function of soil micro-organism communities. The second SPG is related to the first and is aimed at the protection of soil services (e.g., decomposition and cycling of organic matter and nutrients).

In the Annex 1 renewal, glyphosate and the representative formulation were shown to have low toxicity and an acceptably low long-term risk on the structure and function of soil macro-organisms, the functioning of soil micro-organism communities (– see next section for soil micro-organisms), and risk mitigations were required (EFSA, 2015a). This is further supported by the direct effects assessment for soil mesoorganisms as presented in this section above.

Scientific Literature that informs the Soil Organism Risk Assessment

Literature review for non-target soil organisms from the previous Annex I (2012) submission. The scientific literature review conducted for the last Annex I renewal (submitted in 2012) contains an extensive review of ecotoxicological papers considered relevant but supplementary to the Annex I renewal.

These papers presented information that could not be relatable to an EU level ecotoxicological risk assessment, but that were considered in the previous dossier as being supportive following re-evaluation by the previous RMS. A further evaluation of these literature papers according to the EFSA literature review approach used in this dossier has not been conducted. The previous literature review has been submitted as part of the Literature review requirements and is presented in Annex M-CA 8-01 of the M-CA Section 8.

The scientific literature review conducted for the last Annex I renewal (submitted in 2012) contains a review of ecotoxicological papers considered relevant to the area of soil macro-organisms and glyphosate. A total of 21 peer reviewed papers were submitted, with 5 citing studies focusing on earthworms and considered as supporting information for the risk assessment (Casabe *et al.*, 2007; . Correia *et al.*, 2012; Kaneda *et al.*, 2009; Verrel *et al.*, 2004 and Yasmin *et al.*, 2003). The full evaluation of these papers by the previous RMS (UBA) may be found in Annex M-CA 8-01 of the document M-CA Section 8.

The previous RMS (UBA) concluded on the submitted references, several points on acute exposure effects which are not considered relevant to the risk assessment as acute effects on soil organisms is now not a data requirement under Regulation (EC) No 1107/2009.

EFSA PPR Panel (EFSA Panel on Plant Protection Products and their Residues), Ockleford C, Adriaanse P, Berny P, Brock T,
 Diquesne S, Grilli S, Hernandez-Jerez AF, Bennekou SH, Klein M, Kuhl T, Laskowski R, Machera K, Pelkonen O, Pieper S,
 Stemmer M, Sundh I, Teodorovic I, Tiktak A, Topping CJ, Wolterink G, Craig P, de Jong F, Manachini B, Sousa P,
 Swarowsky K, Auteri D, Arena M and Rob S, 2017. Scientific Opinion addressing the state of the science on risk assessment of plant protection products for in-soil organisms. EFSA Journal 2017;15(2):4690, 225 pp. doi:10.2903/j. efsa.2017.4690

There were effects on reproduction examined by Casabe et al., (2007) and Yasmin et al., (2003) that considered commercial formulations other than the representative formulation, but it was concluded that these effects were not relevant at the population level in nature.

In a reproduction test with Eisenia fetida, conducted with the active substance glyphosate (Correia al., 2012), earthworms were maintained in treated soil and classified as alive after the evaluation period, but with bodyweight effects across all test concentrations. Moreover - morphological abnormalities like elevating the body, coiling, and curling were observed in all specimens exposed to the highest concentrations of glyphosate (1000 mg/kg). Further behavioural abnormalities were described in terms of reduced casting production (Kaneda et al., 2009), reduced cocoon viability, a reduction in the feeding activity (Casabé et al., 2007) or reduced body weight (Yasmin et al., 2006), However, the test rates were similar or above the one tested in the officially submitted studies, so that the outcome of the risk assessment for earthworm did not change.

In the current direct effects assessment, the results of a recent earthworp reproduction study were presented with worms exposed to the representative formulation (MON 52276) where there were no sublethal effects up to the maximum rate (1000 mg a.e./kg soil dw) tested, an either bodyweight effects at 28 days nor juvenile production at 56 days.

Concerning the current literature review, there were no literature articles that were considered relevant and reliable on soil meso-organisms, for use in the ecotoxicological risk assessment for Annex I renewal. There were 9 peer reviewed papers considered relevant but supplementary to the risk assessment for soil mesoorganisms (Correia et al., 2010, Dominguez et al., 2016, Gaupp-Berghausen et al., 2015, Jarmul-Pietraszczyk et al., 2015, Nathan et al., 2019, Pochron et al., 2019, Santos et al., 2012, Sihtmace et al., 2013 and Stellin et al., 2017). An 11th paper was found relevant and reliable (Von Merey et al., 2016). These data reviewed in this paper, exist in the regulatory bist of endpoints. They will not be considered further in this review as data from this paper is as a the presented risk assessment for soil meso-N. L organisms in this dossier.

Correia et al., (2010), performed an earth worm reproduction study using a Brazilian soil at test concentrations between 1 and 1000 mg/kg soft dw. This study did not present any data that could be used in an EU level risk assessment for renewal purposes and was therefore considered to be supplementary. In studies by Dominguez et al., 2016, Santo et al., 2012 and Santadino et al., 2014 despite being conducted according to recognised test guidelines, the validity of the studies could not be confirmed due to lack of critical information in the papers.

Concerning indirect effects that may inform on trophic interactions, the biological availability of glyphosate and AMPA in soil is considered relevant. In a comprehensive study of 317 European agricultural soils, glyphosate and AMPA were found in 21 and 42 % of the samples, respectively (Silva et al. 2018). Concentrations of glyphosate or AMPA rarely exceeded 0.5 mg a.e./kg of soil, and the highest level detected was 2.05 mg as kg. This maximum level of glyphosate detected is more than 2-times less than the predicted environmental soil concentration used for the standard glyphosate soil organism assessment, which considered a more transformer exposure scenario (i.e., the maximum use rate and maximum potential to build up in soil). See direct effects assessments for soil organisms above in this section.

Biodiversity Assessment

After a though literature search and considering all relevant guidance, the following approach is taken to assess potential indirect effects via trophic interactions and the impact on biodiversity, was to develop a flexible framework that informs the development of risk mitigation options to achieve the specific protection goals. In the Table 10.4.2-9, the specific protection goals relevant to soil meso-fauna are presented with the relationship between the SPGs, the direct effects study types, assessment and measurement endpoints. The assessment endpoint is an explicit expression of an environmental entity and S JON CONTRACTOR

the specific property of that entity to be protected. Measurement endpoints relates directly to the effects study endpoints.

A conclusion that a given data requirement has been satisfied, requires that an acceptable level of risk has been achieved (i.e. there is a protective margin of exposure or through a weight of evidence).

Based on the measurement endpoints from the study types, and the direct effects assessment presented above in this section, it is anticipated that for the proposed uses on the GAP table, that there will be no impacts on soil meso-organisms population (e.g. earthworms, collembola and hypoaspis) survival; growth and reproduction, which in turn meets the specific protection goal for soil meso-organisms

The Table 10.4.2-9 assessment illustrates that ecological diversity and function of soil meso-organisms within spray zones will be sufficiently maintained to achieve the SPG for this taxa group according to the protection goals as defined in the Terrestrial guidance document (SANCO/10329/2000) sustains a food resource for other animals, primarily birds and mammals within in -field areas, sustains soil structure and function that has a knock on effect of enabling soil function of soil microbial communities. This in turn helps to maintain the community structure within the soil.

Table 10.4.2-9. The relationship between Specific Protection Goals, assessment and measurement endpoints for soil macro- and micro-organisms from foliar applications.

		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Specific Protection Goals ¹	Assessment Endpoints	Measurement Endpoints	Glyphosate Study Types
Protection of structure (biodiversity) and function of soil macro- organism communities and function of soil micro-organism communities.	Structure and function of soil macro-organism communities Long-term effects on the function of soil micro- organism communities	Survival and reproduction N ² transformation rate $\leq 25 \%$ difference from control at $\geq 28$ days.	Earthworm chronic Collembola chronic Predatory mite chronic N-transformation rate
Protection of soil services (e.g., decomposition and cycling of organic matter and nutrients)	Long-term effects on the function of soil micro- organism communities (i.e., Nitrogen eyeling).	Survival and reproduction N-transformation rate $\leq 25 \%$ difference from control at $\geq 28$ days	

#### Soil Organism Biodiversity Assessment

Based on the direct effects assessment, there is low to negligible risk to the structure and function of soil organism populations and communities (EFSA, 2015a) and the likelihood of indirect effects soil organism biodiversity is also considered to be negligible.

¹ EFSA still needs to receive input from risk managers on the definition of specific protection goals being led by DG SANTE. In the draft Scientific Opinion addressing the state of the science on risk assessment of plant protection products for in-soil organisms1, negligible effects are considered to be  $\leq 10$  % and small effects are considered to be  $\leq 35$  %.

## Conclusion

Glyphosate is a critical tool to enable conservation tillage systems, which can greatly improve the abundance and biodiversity of soil organisms. There is negligible risk of direct effects to soil community biodiversity and supporting/regulating services related to soil processes. This conclusion is not changed after reviewing reported levels of glyphosate from soil monitoring studies (Silva *et al.* 2018). In addition, based on a review of the relevant and supportive literature, the likelihood of indirect effects soil organism biodiversity is also considered to be negligible.

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is in the second second However, if additional risk mitigation measures are determined to be required, to mitigate indirect effects resulting from in-crop weed control on soil meso-organism populations, there are standard mitigation measure options that may be considered by risk assessors and risk managers within Member States.

Examples of the standard mitigation measures considered applicable at the EU level (MAgPIE, 2017) are presented in the Table 10.4.2-10. Many of these have been considered in the current dossier submission

#### ð Table 10.4.2-10: Examples of standard mitigation measures as described in MAgPIE (2017) across the various Member States to mitigate effects of glyphosate on biodiversity. ø

			S S S
	Risk Mitigation Measure		Glyphosate renewal dossier (2020)
modifications of products' conditions of application	Application rate, Application frequency, application timing, and interval between applications	groundwater and surface water; Reduces exposure of organisms in-crop and off-crop.	<ul> <li>Significant reductions (50 % in volume) in newly proposed application rates compared with the representative use presented in the 2012 renewal dossier.</li> <li>See ³⁹Appendix 2 of the biodiversity document accompanying this submission.</li> <li>Freated area restriction 16. for the representative use GAPs: applying to only 50 % of the total area in orchard/vineyard area.</li> <li>17. maximum of 50 % of the total area for broad acre vegetable inter-row</li> <li>18. Invasive species control e.g., couch grass – maximum of 20 % of the cropland + extended application intervals.</li> <li>Limited frequency and timing of application: 28-day interval between applications and no pre-harvest</li> </ul>
equipment with Spray Drift Reduction Technology (SDRT)	nozzles (SDRN)	Reduces exposure of organisms in-crop (precision treatment) and off-crop	<ol> <li>Use 75 % drift reducing nozzles for pre-sowing/pre-planting in arable crops.</li> <li>Use of ground directed, shielded spray for band application in orchards /</li> </ol>
			vineyards and broad-acre vegetable inter-row application.
Burrer Zones	the edge of a crop	organisms and off-crop	<b>Establishment of buffer zones:</b> Buffer zones of varying size (depending on the type of SDRT) are required as protection for off-crop NTTP communities from spray drift.
Glyphosate Renewal Group	(2020) Gly (TRR0000305).	phosate: Indirect effects via	trophic interaction - A Practical Approach to
Glyphosate Renewal Group	AIR 5 – July 2020		Doc ID: 110054-MCP10_GRG_Rev 1_Jul_2020

For example, in the current dossier;

- Reductions in maximum annual application rates of up to 50 % considered in this dossier are compared to the maximum rates applied for in the 2012 Annex I renewal dossier.
  - In 2012, the maximum annual application rate was 4.32 kg/ha. 0
  - In the current dossier submission, the maximum annual application rate is 2.16 kg/ha 0

Reducing the total area being applied on a per hectare basis for certain uses, will reduce the total volume of product being applied to the landscape.

- For example, controlling actively growing weeds in vineyards, orchards where a reduced area, up to a maximum of 50 % of the total application area is proposed e.g using strip or band applications. Applications on target weeds, around the base of trees within tree rows, leaving the area between tree rows unsprayed, which is typically managed using mechanical methods.
- The use of shielded or hooded sprayers, hand-held sprayers and drift reducing technologies, e.g. 75 % drift reducing nozzles are recommended for all applications made for the control of actively growing weeds when applied to control invasive species. These measures will further reduce the off-target exposure risk.
- For weed control on railroad tracks, recommendations are made in the GAP table to use precision application equipment on spray trains, that detects, and targets spray directly onto unwanted plants, thereby reducing the amount of product being applied, what maintaining an acceptable level of safety on the railroad tracks.
- No spray buffer areas in-field (or compensation areas) are necessary to meet the specific protection goals for avoiding direct effects on non-target plants in off-target areas. This measure will in turn support non-target arthropod communities in off field areas and reduces further, the potential for indirect effects on bees through trophic interaction.

In addition to the standard mitigation measures, on-standard mitigation measures' could also be considered where a local and specific mitigation need is identified. For example, in simplified landscapes or landscapes that are intensively managed, where typically there are limited refuge areas for insects, birds and mammals. Non-standard mitigation measures options could include for example, creation of off-target habitats, utilizing edge of field habitats and semi-field habitats that assist biodiversity by improving wildlife connectivity.

2 2

For further information on mitigation measures pleased refer to the supplementary information document⁴⁰ titled 'Glyphosate: Indirect Effects via Trophic Interaction - A Practical Approach to Biodiversity Assessment.' that accompanies this dossier submission.

## Reference relied upon in the Indirect Effects via Trophic Interaction discussion

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Chan KY. 200 An overview of some tillage impacts on earthworm population abundance and diversity implications for functioning in soils. Soil and Tillage Research. 57:179–191.

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S, 2017. Scientific Opinion addressing the state of the science on risk assessment of plant protection products for in-soil organisms. EFSA Journal 2017;15(2):4690, 225 pp. doi:10.2903/j. efsa.2017.4690

Trivino-Tarradas P, Gomez-Ariza MR, Basch G, EJ Gonzalez-Sanchez. 2019. Sustainability Assessment O OF of Annual and Permanent Crops: The Inspia Model. Sustainability 11:738.

#### CP 10.4.2.1 Species level testing

Species level testing for the effects of MON 52276 on individual species other than those presented in the above assessment are not required, as an acceptable risk assessment - based on the soil organisms required according to the data requirements, has been presented. Additional species level testing is not therefore considered necessary for application of MON 52276 when applied in accordance with the proposed GAP, for use in field crops, orchards, vineyards, railroad tracks and in agricultural/non-agricultural areas for control of invasive species. 50

**CP 10.4.2.2 Higher tier testing** The risk assessment presented for soil organisms indicates an acceptable risk from glyphosate and AMPA, considering the GAP for use in field crops, orchards, vineyards, railfoad tracks and in agricultural/nonagricultural areas for control of invasive species, based on the soil organisms required according to the data requirements. Therefore, no further studies are required. Higher tight testing is not therefore considered necessary for application of MON 52276 when applied in accordance with the proposed GAP.

#### **CP 10.5** Effects on Soil Nitrogen Transformation

Relevant and reliable studies for the risk assessment of soft microflora from the active substance glyphosate and relevant metabolites are summarised in the tables below, presenting the most sensitive endpoints. Details of the studies are summarised in the Document M-CA, Section 8, point 8.5.

#### Table 10.5-1: Endpoints and effect values for glyphosate relevant for the risk assessment for soil microflora

Reference	Test item	Species		NOEC (mg a.e./kg dry soil)
, 2014 CA 8.5/001	Glyphosate acid	N-mineralisation	28 d, aerobic	≥ 33.1

a.e. glyphosate acid equivalents

Selling Selling

Endpoint in **bold** is used for risk assessment K 0 31

#### Q; Table 10.5-2: Endpoints and effect values for AMPA relevant for the risk assessment for soil 1000 Or and, microflora

Reference	Test item	Species		NOEC (mg/kg dry soil)
2019 CA 8.5/004	AMPA	N-mineralisation	56 d, aerobic	≥160

Endpoint in bold is used for risk assessment. Seli, Se hereit in the second se

Studies on effects of the representative formulation MON 52276 on soil microflora to fulfil the data requirements according to EU Regulation No 284/2013 are presented in the following.

A study with the representative product MON 52276 is available and was also assessed for validity to current and relevant guidelines and is summarised in the following table. A study summary for the study is Dello Color presented in this section below.

#### Table 10.5-3: Studies on the toxicity of MON 52276 to soil microflora

Table 10.5-3: Studies on the toxicity of MON 52276 to soil microflora						
tudy reference	Study type	Substance	Status			
2012	Nitrogen cycle, Carbon cycle, 28 d	MON 52276	Valid Jo S			
	• 	2012 Nitrogen cycle,	2012 Nitrogen cycle, MON 52276			

Endpoints of studies considered valid with the representative product MON 522% are shown in the table below. In order to make a direct comparison of toxicity between studies conducted with MON 52276 and those conducted with IPA salt, glyphosate technical and glyphosate acid, the endpoints from all these studies have been converted to acid equivalents (a.e.). This conversion has been made by the acid equivalent ×° purity of the test item stated in the reports.

## Table 10.5-4: Endpoints: studies on toxicity of MON 52276 to soil microflora

Reference	Test item	Test design	NOEC (kg a.e./ha)
2012 CP 10.5/001	MON 52276	N- mineralisation 28 d 8≥ 28.84	≥ 21.63

a.e. glyphosate acid equivalents

The study with MON 52276 shows a 'greater than' endpoint of  $\geq 21.63$  mg a.e./kg dry soil. The endpoint with the active substance glyphosate is also a "greater than' endpoint of  $\geq 33.1$  mg a.e./kg dry soil. Therefore, the risk assessment will be based on the higher endpoint for the active substance glyphosate of  $\geq$  33.1 mg a.e./kg dry soil, as there is no significant difference in the toxicity exhibited by the product compared to the active substance to soil microflora.

There are no literature articles and peep reviewed published data considered to be relevant and reliable or reliable with restrictions with regards to the impact of glyphosate or its relevant metabolites on soil microflora. Full literature evaluation is provided in document M-CA Section 9. A summary of previously evaluated peer reviewed literature from the RAR 2015 is also available in Annex M-CA 8-01 of the , % % 80^{CC} M-CA Section 8.

#### S **Risk assessment for Soil Nitrogen Transformation**

The evaluation of the recommendations of the "Guidance Document on Terrestrial Ecotoxicology", as provided by the Commission Services (SANCO/10329/2002 rev. 2 (final), Qetaber 17, 2002), and in consideration of the recommendations of the guidance document 10, 2 ESCORT 2.

The PECoil calculations considered the lowest and highest application rates for each of the uses presented in the SAP, a 0 % foliar interception, a soil depth of 5 cm, and a bulk density of 1.5 g/cm³. Where appropriate in addition to the worst case soil depth of 5 cm, a PEC_{soil} value was calculated for a 20 cm soil  $_{\rm events}$  in a 20 cm soil  $_{\rm events}$  accumulation of glyphosate and its metabolite AMPA in soil (DT₉₀ > 365 d, field data) the accumulation potential of both substances needs to be considered. The PEC_{soil} accumulation values for both  $_{\rm events}$  Glyphosate B

Oli Notifici glyphosate and AMPA are worst case at the 5 cm soil depth as expected due to lack of disturbance and dilution through tillage. Therefore, the risk assessment was determined for glyphosate and AMPA based on the worst case accumulation  $\text{PEC}_{\text{soil, accu}}$  at a soil depth of 5 cm compared with the maximum  $\mathbb{S}^{\times}$ concentration where effects  $\leq 25$  % was observed in the study.

The table below indicates how the risk assessment for soil microflora has covered all the proposed uses presented in the GAP. The risk assessment presented here is shown by the 'X' in the table, which represents the worst case PEC_{soil} values selected based on the maximum application to soil per year and the crop type for the proposed uses of MON 52276. 10, C 10, C 11, C :2

Table 10.5-5: Risk assessme							00	2010 100 100 100 100 100 100 100 100 100	
GAP number and summary	Maximum application to soil g/ha (per year unless otherwise stated)								
of use	1 x 540		1 x 1440			1 x 2880	5 1 X 3600	⁶ 1 x 540 (every 3 rd yr)	1 x 720 (every 3 rd yr)
Uses 1a-c: Applied to weeds; pre-sowing, pre-planting, pre- emergence of <b>field crops.</b>		Х	Х		· 7	96, 49,0 19,0 4,0,0,4 9,0,0,4 0,4,0,4 0,4,0,4 1,0,0 0,4,0,4 1,0,0 0,4,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,00000000	°,		
<b>Uses 2 a-c:</b> Applied to weeds; post-harvest, pre-sowing, pre-planting of <b>field crops.</b>		Х	Х		X	G CULL			
Use 3 a-b: Applied to cereal volunteers; post-harvest, pre- sowing, pre-planting of field crops.	Х			S) S) S) S) S) S) S) S) S) S) S) S) S) S				Х	
Use 4 a-c: Applied to weeds (post emergence) below trees in orchards.		Х	6		0				
Use 5 a-c: Applied to weeds (post emergence) below vines in vineyards		X		5		Х			
Use 6 a-b: Applied to weeds (post emergence) in field crops BBCH < 20		X							
Use 7 a-b: Applied to weeds (post emergence) around railroad tracks	10 Dr 000	Martin Control		Х			Х		
crops BBCH < 20 Use 7 a-b: Applied to weeds (post emergence) around railroad tracks Use 8 and 9: Applied to invasive species, Giant hogweed and Japanese knot weed (post emergence) in agricultural and non agricultural areas Uses 10 a-c: Applied to couch grass; post-harvest, pre- sowing, pre-planting of field crops	19(10) 10 19(10) 10 19(10) 10 19(10)			X					
Uses 10 a-c: Applied to couch grass; post-harvest, pre- sowing, pre-planting of field crops		Х	Х						Х

#### Table 10.5-5: Risk assessment strategy for soil microflora

X = this use is covered by the application rate given and PEC_{soil} values are available in the Document M-CA, Section 7.

The soll microflora risk assessment results are presented according to the uses described in the table above and grouped as follows:

- S in field crops; covering GAP uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c.
  - Sin orchards/vineyards; covering GAP uses 4 a-c, 5 a-c.
- S. around railroad tracks; covering GAP uses 7 a-b.
  - in agricultural and non-agricultural areas to control invasive species; covering GAP uses 8 and 9.

Sellis Sellis Children (19),

#### Table 10.5-6: Assessment of the risk for effects on nitrogen transformation due to the use of MON 52276 – field crops (Uses: 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c)

Annex to Regulation 284/2013	MON 52276		M-CP, Section 10 Page 361 of 553 low. ne use of
The resulting assessment of th	ne risk for nitrogen transformation i	s shown in the tables bel	low.
	the risk for effects on nitrogen tr Uses: 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a		ne use of
Nitrogen transformation			1. 0 . E
Intended use	Field crops $(1 \times 2160 \text{ g/ha})$		Rist
Product/active substance	Max. conc. with effects $\leq 25 \%$ (mg/kg)	PEC soil, accu	Rist &
		(mg/kg)	
Glyphosate AMPA	≥ 33.1 ≥ 160	4.236 3.621	yes Yes
Intended use	Field crops $(1 \times 1440 \text{ g/ha})$	3.021	Tyes
Product/active substance	Max. conc. with effects $\leq 25$ %	PECsoil, accu	Risk
	(mg/kg)	PEC _{soil, accu}	acceptable?
Glyphosate	≥ 33.1	2.824	yes
AMPA	≥ 160	2.414 0 0 0	yes
Intended use	Field crops $(1 \times 720 \text{ g/ha})$		
Product/active substance	Max. conc. with effects $\leq 25 \%$	PEC soil, aceu	Risk
	(mg/kg)	(mg/kg)	acceptable?
Glyphosate		1412 17412	yes
AMPA Intended use	$\geq 160$ Field crops (1 × 540 g/ha)	<u>\$1,207</u>	yes
Product/active substance	Max conc with effects $< 25\%$		Risk
Trouter active substance	Max. conc. with effects ≤ 25% (mg/kg)	PECsoil, accu	acceptable?
Glyphosate	≥ 33.1 0 5 5 0	(mg/kg) 1.059	ves
AMPA	≥ 33.1 ≥ 160	0.905	yes
Intended use	Field crops $(1 \times 540 \text{ g/ha}, \text{every } 3^{\text{rd}})$		J
Product/active substance	Max agen with freets 25.0/	PECsoil, accu	Risk
	(mg/kg)	(mg/kg)	acceptable?
Glyphosate	≥ 33.1	0.833	yes
AMPA	$\geq 160$ Field crops (1 × 720 g/ha, every 3 rd )	0.500	yes
Intended use	Field crops $(1 \times 720 \text{ g/ha, every } 3^{rd})$		Diale
Product/active substance	Max court, with effects ≤ 25 % (mg/kg)	PEC _{soil} , accu	Risk acceptable?
Clymbogata	(11(8) () () () () () () () () () () () () ()	(mg/kg)	•
Glyphosate	<u>≥</u> 33.1 °	1.111 0.667	yes yes
Glyphosate AMPA 			
ج Glyphosate Renewal Group AIR 5 – July	2020	Doc ID: 110054-MCP10_	_GRG_Rev 1_Jul_2020

Table 10.5-7: Assessment of the risk for effects on nitrogen transformation due to the use of
MON 52276 – orchards and vineyards (Uses: 4 a-c and 5 a-c)

Intended use	Orchards/vineyards (1 × 2880 g/ha)	)	\$	
Product/active substance	Max. conc. with effects ≤ 25 % (mg/kg)	PECsoil, accu (mg/kg)	Risk acceptable?	
Glyphosate	≥ 33.1	5.648	yes S &	
AMPA	≥160	4.828	yes ??	
Intended use	Orchards/vineyards (1 × 1440 g/ha)		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Product/active substance	Max. conc. with effects $\leq 25 \%$ (mg/kg)	PECsoil, accu	Risk acceptable?	
Glyphosate	≥ 33.1	2.824	§ yes	
AMPA	≥ 160	2.414	yes	
Intended use	Orchards/vineyards (1 × 720 g/ha)	PEC soil aver 2 4		
Product/active substance	Max. conc. with effects ≤ 25 % (mg/kg)	PEC _{soil, acting of the soil, acting of the soil, acting of the soil of the so}	Risk acceptable?	
Glyphosate	≥ 33.1	1.412 5 5	yes	
AMPA	≥ 160	1.207 5	yes	

Table 10.5-8: Assessment of the risk for effects on nitrogen transformation due to the use of MON 52276 – post emergence of weeds around railroad tracks (Uses: 7a-c) 30 D.

Nitrogen transformation	S S S	•				
Intended use	Railroad tracks (1 × 3600 g/ha)	Railroad tracks (1 × 3600 g/ha)				
Product/active substance	Max. conc. with effects \$25%	PECsoil, accu	Risk			
	(mg/kg)	(mg/kg)	acceptable?			
Glyphosate	≥ 33.1	7.06	yes			
AMPA	≥ 160	6.035	yes			
Intended use	Railroad tracks (1 × 1800 g/ha)					
Product/active substance	Max. conc. with effects $\leq 25$ %	PECsoil, accu	Risk			
	(mg/kg)	(mg/kg)	acceptable?			
Glyphosate	≥ 33,4 ,	3.53	yes			
AMPA	≥ 160/1 1	3.017	yes			

Table 10.5-9: Assessment of the risk for effects on nitrogen transformation due to the use of MON 52276 - control of invasive species in agricultural and non-agricultural areas (Uses: 8 and 9) 800

Nitrogen transformation			
Intended use	Control of invasive species $(1 \times 18)$	00 g/ha)	
Product/active substance	Max. conc. with effects ≤ 25 % (mg/kg)	PEC _{soil, accu} (mg/kg)	Risk acceptable?
Glyphosate	≥ 33.1	3.53	yes
AMPA St	≥ 160	3.017	yes

100 total No effects on nitrogen transformation were observed from the maximum expected concentrations of slyte any de glyphosate and AMPA to the soil. It can be concluded that proposed uses of MON 52276 will not cause any detrimental effect to soil microflora.

#### **Indirect Effects via Trophic Interactions**

As stated in the EFSA 2017 Scientific opinion addressing the state of the science on risk assessment of plant protection products for in-soil organisms, general protection goals are stated in the Europeans legislation, but are not precisely defined. A precise definition is considered crucial for designing appropriate risk assessment schemes. Different groups of soil organisms have been identified as providers of important ecosystem services in the soil ecosystem. In the biodiversity position paper submitted with this submission, specific protection goals have been developed that consider the six dimensions, namely ecological entity, attribute, magnitude of effects, temporal scale of effect, spatial scale of effect and degree of certainty. SPGs are proposed for both in-field and off-field areas. Due to the specific traits and short generation times, it has been possible to study internal recovery of microbial populations or communities after PRP exposure. It has been demonstrated that microbial communities do recover quickly from effects at both the structural in the second se 1 and With and functional levels of the microbial community (EFSA (2017).

The ecotoxicology dataset for glyphosate and AMPA includes a battery of OECD guideline studies, designed to assess potential long-term effects on the structure and function of soft organism communities. The presented direct effects assessment in this section of the dossier, demonstrates that ecological function and therefore regulation of essential nutrients within the soil microbial community is not lost following exposure to glyphosate at application rates that are considerably higher than those proposed on the GAP table. With max application per annum also being substantially reduced compared to the previous Annex I renewal (2017), the overall burden of product on the land is also reduced. For both the in-field and off-field j) K areas.

For soil microbes Tier 1 direct effects assessments, studies were conducted using ecologically important indicators of soil organism community function (see Table 40.5(10)). Soil microbes in combination with other soil organisms contribute to a wide range of essential services that are important for the function of terrestrial ecosystems by acting as the primary driving agents of nutrient cycling, decomposition, soil carbon sequestration, and greenhouse gas emission As stated for the soil meso-organisms, conservation tillage or minimal tillage generally have positive impacts on soil organism densities, diversity, and also microbial content. No-till fields typically have significantly higher organic matter and microbial content (Chan, 2001).

The following approach has been taken to assess potential indirect effects via trophic interactions, considers the proposed Specific Protection Goals drawn from the existing EU guidance and working documents, and the 2016 EFSA Guidance on developing protection goals for ecological risk assessments (ERA) for pesticides. The SPGs based on diffect effects assessment considering representative sensitive populations across the tested trophic levels. The biodiversity assessment, aimed to develop a flexible framework that informs the development of tisk mitigation options to achieve the specific protection goals, that includes considering indirect effects via trophic interaction. For example, reduced application rates relative to previous Annex I renewals, a reduced overall application volume of product on the land, and inclusion of no-spray buffer zones as a standard mitigation measure to protect soil communities in off-target areas, which indirectly supports biodiversity by maintaining soil community function and structure, providing a substrate for habitat creation that provides refuge and food resource for other organisms in off-target areas. Therefore, where an acceptable direct effects risk assessment is concluded upon after incorporation of standard mitigation measures to reduce off-target movement via drift coupled with the other standard mitigation measures that are being applied, is considered protective of indirect effects occurring outside of the target area?

Specific protection goals (SPGs) for soil microbes still need to be adopted. However, for the purpose of this biodiversity assessment, two SPGs have been developed that overall are consistent with current EFSA guidance and what will likely be adopted in future EFSA guidance. The first SPG is aimed at protecting the function of soil micro-organism communities. The second SPG is related to the first and is aimed at the protection of soil services (e.g., decomposition and cycling of organic and nutrients) in which soil microbes play a critical role.

In the previous Annex 1 renewal, glyphosate and the representative formulation were shown to have low toxicity and negligible risk of long-term effects to the functioning of soil micro-organism communities, and no risk mitigations were required (EFSA, 2015a).

#### Scientific Literature that informs the soil organism assessment

Ownot Literature review for non-target soil organisms from the previous Annex I (2012) submission. The scientific literature review conducted for the last Annex I renewal (submitted in 2012) contains a review of ecotoxicological papers considered relevant to the area of soil non-target micro-organisms Out of 99 papers submitted, 21 papers were described in detail in the dossier. The RMS (UBA) re-evaluated the papers and mostly dealt with the rhizobia of glyphosate resistance crops and were therefore not relatable to an EU level ecotoxicological risk assessment. There were 28 papers considered to be informative with a low weight, with 18 papers considered to be supportive to the risk assessment and one publication considered critical with a high weight of evidence for use in risk assessment. The single study was conducted according to the recognised test guidelines (OECD 216 and 217) with glyphosate applied at the field rate of 4.5 mg/kg soil and also at a 5-fold factor higher (22.5 mg/kg soil). After 1, 7, 14 and 28 days incubation, soil respiration and nitrate formation rates did not significantly differ from the control soil.

The full evaluation of these papers by the previous RMS (UBA) may be found in Annex M-CA 8-01 of the J. S. document M-CA Section 8. The conclusions of the previous RMS (UBA) literature review included identifying effects on soil document M-CA Section 8.

functional diversity (Liphadzi, et al. 2005). Where there were repeated applications, desiccation led to significant increases of microbial biomass (Ruzkova et al., 2014) but reduced nitrate transformation rates. Some measured parameters were related as a function of time and site quality rather than pesticides application (Gomez et al., 2009), function of seasonality (Hart et al., 2009), function of habitat and land use (Busse et al., 2001), glyphosate as a source of P, CorsNafor soil bacteria (van Eerd et al., 2003), that correlated with increases in soil respiration (Accinest er al, 2002), increased microbial biomass (Lupwayi, N.Z., et al., 2004), increased rates of C- and N- mineralizations (Lancaster et al., 2006; Haney et al., 2000a, 2002b), which led to a shift in community structure (Ratcliff et al., 2006) from fungal dominance to an equal ratio of fungal and bacteria communities. However, since no significant effects to the function of the fungal and bacterial communities have been observed, then no unacceptable indirect effects to the microorganisms' communities are anticipated.

The RMS (UBA) concluded in 2015, that the soil microorganisms play an important role in soil fertility, by assuming key ecological functions like matter decomposition and nutrient cycling. They indicated that plant biodiversity, productivity and variability are strongly dependent on the association with microorganisms and fungi in the soil. They also stated that the soil microbial diversity is extremely difficult to measure and therefore the risk assessment is restricted to the measurement of impact of pesticides on soil functional diversity. Currently, the data requirements for PPP registration in the EU require only studies on nitrogen transformation rates in artificial or field collected soils.

The RMS (UBA) indicated that there was a need to consider both microbial diversity and composition when considering the impact of plant protection products on soil non-target micro-organisms. However, the current test guidelines do not provide for such a study and based on the currently available test guideline considered relevant for risk assessment purposes, the direct effects assessment demonstrates an acceptable risk t considering the effects on soil function (nitrogen transformation).

Concerning the literature review for the current dossier: There were no public domain literature papers in the field of soil microbes that were classified as being both relevant and reliable for use in the ecotoxicological risk assessment for soil micro-organisms. There were 17 papers considered to be relevant

Glyphonte B

in 21 and 42 % of the samples, respectively (Silva et al. 2018). Concentrations of glyphosate or AMPA rarely exceeded 0.5 mg a.e./kg of soil, and the highest level detected was 2.05 mg a.e./kg of soil. This maximum level of glyphosate detected is more than 2-times less than the predicted environmental soils concentration used for the standard glyphosate soil organism risk assessment, which considered a worstcase exposure scenario (i.e., the maximum current use rate in the GAP and maximum potential to build us in soil).

Soil microbial populations and their associated biochemical processes are critical to maintain soil health and quality. Soil microbial communities are highly complex and are often characterized by high microbial diversity (Tiedje et al. 1999). The occurrence and abundance of soil microorganisms are affected by 1) soil characteristics like tilth, organic matter, nutrient content, and moisture capacity, 2 typical physicochemical factors such as temperature, pH, and redox potential, and 3) soil management practices. Agricultural practices such as fertilization and cultivation may also have profound effects on soil microbial populations, species composition, colonization, and associated biochemical processes (Buckley and Schmidt, 2001, 2003). Consequently, significant variation in microbial populations is expected in agricultural fields. Minor changes in a single microbial species or group are difficult to measure in such a dynamic system and, moreover, the minor effects of such a change may be better assessed in more integrated measures such as soil fertility and carbon and nitrogen transformation.

The effects of glyphosate and glyphosate-based formulations on soit microorganisms have been extensively investigated (von Mérey et al., 2016; Cerdeira and Duke, 2010; Duke et al. 2012; Sullivan and Sullivan, 2000). Results of standardized tests with glyphosate formulations performed for submission to regulatory agencies indicate no long-term effects on two key functional endpoints, carbon (not a current data requirement) and nitrogen transformation, in soil even at tates that greatly exceed maximum use rates. In addition, independent researchers have reviewed numerous laboratory and field studies, investigating the effects of glyphosate on soil bacteria and fungi (Felsot 2001 Giesy et al., 2000). Although some laboratory tests have shown effects on nitrogen-fixing bacteria and soft fungi, effects are typically observed only under laboratory conditions and at glyphosate concentrations well above normal field application rates. Several researchers have concluded that it is difficult to extrapolate results from some laboratory studies to the natural soil environment (Estok et al., 1989; Wan et al., 1998; Busse et al., 2001).

Arbuscular mycorrhizal fungi are obligate symbionts that transfer mineral nutrients to their plant hosts (Harrison, 2005; Hata et al. 2010). The potential impact of glyphosate effects on arbuscular mycorrhizal fungi (AMF) colonization on glyphosate tolerant cultivars of cotton, corn and soybean grown in soil under greenhouse conditions has been evaluated (Savin et al. 2009; Knox et al. 2008; Lu et al. 2018). AMF colonization of roots was not affected by glyphosate, and neither were acid nor alkaline phosphatase soil enzyme activities. Additional research has shown that symbiosis of mycorrhiza, rhizobium, and soybean, no adverse effects of glyphosate was observed (Powell et al. 2009). Collectively, these studies indicate that effects of glyphosate on plants through effects on AMF are unlikely.

## Biodiversity Assessment

8 8

After the thorough literature search and considering the relevant guidance, the following approach was taken to assess potential indirect effects via trophic interactions and the impact on biodiversity. This was achieved by developing a flexible framework that informs the development of risk mitigation options to achieve the specific protection goals.

In the Table 10.5-10, the specific protection goals (as described above) relevant to soil microflora are presented with the relationship between the SPGs, the direct effects study types, assessment and measurement endpoints. The assessment endpoint is an explicit expression of an environmental entity and the specific property of that entity to be protected. Measurement endpoints relate directly to the effects

Chapter 1 A conclusion that a given data requirement has been satisfied, requires that an acceptable level of risk has Based on the measurement endpoints from the study types, and the direct effects assessment presented in this section, it is anticipated that for the proposed uses on the GAP table, that there will be no impacts on soil microbial populations in terms of nitrogen transformation and impacts on soil function, which based OW OW 3 on the data requirements, meets the specific protection goal for soil micro-organisms.

The Table 10.5-10 assessment illustrates that ecological diversity and function of soil microbes within spray zones will be sufficiently maintained to achieve the SPG for this taxa group according to the protection goals as defined in the Terrestrial guidance document (SANCO/10329/2000).

#### Table 10.5-10. The relationship between Specific Protection Goals, assessment and measurement (0)ii je je endpoints for soil micro-organisms from foliar applications.

Specific Protection	Assessment Endpoints	Measurement Endpoints	Study Types
Goals ¹			
Protection of function of soil micro-organism communities.	Long-term effects on the function of soil micro- organism communities	N-transformation rate $3$ $3$ $3$ $3$ $3$ $3$ $3$ $3$ $3$ $3$	N-transformation rate
Protection of soil	Long-term effects on the	N-transformation rate $\leq$	
services (e.g., cycling of	function of soil micro-	25 % difference from	
organic matter and	organism communities (i.e.,	control at $\geq 28$ days	
nutrients)	Nitrogen cycling).		

#### Soil micro-organism Biodiversity Assessment 8

Based on the direct effects assessment, there is low risk to functioning of soil microbial populations and communities (EFSA, 2015a) and the likelihood of indirect effects on soil function due to effects on microbial or bacterial biodiversity is considered low to negligible. 0 5

EFSA still needs to receive input from risk managers on the definition of specific protection goals being led by DG SANTE. In the draft Scientific Opinion addressing the state of the science on risk assessment of plant protection products for in-soil organisms, low to negligible effects are considered to be  $\leq 10\%$  and small effects are considered to be  $\leq 35\%$ .

Control in the second **Conclusion** Glyphosate is a critical to be enable conservation tillage systems, which can greatly improve the abundance and biodiversity of soil organisms. There is low risk of direct effects to soil community biodiversity and supporting regulating services related to soil processes. This conclusion is not changed after reviewing reported levels of glyphosate from soil monitoring studies. In addition, based on a review of the literature, the bic filos of indirect effects soil organism biodiversity is also considered to be low.

However, if additional risk mitigation measures are determined to be required, to mitigate indirect effects resulting from incrop weed control on soil microbial populations, there are standard mitigation measure options that may be considered by risk assessors and risk managers within Member States.

Examples of the standard mitigation measures considered applicable at the EU level (MAgPIE, 2017) are CSSC CONTRACTION C AL CONTRACTION OF CON presented in the following table. Many of these have been considered in the current dossier submission.

## Table 10.5-11: Examples of standard mitigation measures as described in MAgPIE (2017) across the various Member States to mitigate effects of glyphosate on biodiversity.

Type of Mitigation	<b>Risk Mitigation</b>	Benefits	Glyphosate renewal dossier (2020)
Measure	Measure		
Restrictions or	Application rate,	Lower transfers to	Significant reductions (50 % in volume)
modifications of	Application frequency,	groundwater and surface	in newly proposed application rates 🖉
products' conditions	application timing,		compared with the representative use
of application	and interval between		presented in the 2012 renewal dosser.
	applications	off-crop.	See ⁴¹
			Appendix 2 of the biodiversity document
			accompanying this submission.
			\$ \$ 5 5 Y
			Treated area restriction
			19. for the representative use GAPs:
			applying to only 50 % of the total area in
			orchard/vineyard area.
			20. maximum of 50 % of the total
			area for broad acre vegetable inter-row
			21. Invasive species control e.g.,
			21. So Invasive species control e.g., couch grass – maximum of 20 % of the
			or o
			intervals.
		S.M.	
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Dimited frequency and timing of
			application: 28-day interval between
		5 5 5	applications and no pre-harvest
		Paduage stars	applications
Application	Spray drift reduction	Reduces exposure of	Reduction of spray drift to the off-field:
equipment	nozzles (SDRN),	organisms in-crop	13. Use 75 % drift reducing nozzles
with Spray Drift	shields,		for pre-sowing/pre-planting in arable
Reduction	Precision treatment	off-cron	crops.
Technology (SDRT)	etc.		14. Use of ground directed, shielded
85 ()			spray for band application in orchards /
			vineyards and broad-acre vegetable inter-
			row application.
Buffer zones	Non-sprayed zone at	Reduces exposure of	Establishment of buffer zones:
	the edge of a crop	organisms and off-crop	Buffer zones of varying size (depending on
			the type of SDRT) are required as
	ALL SOUTH		protection for off-crop NTTP communities
	Non-sprayed zone at a the edge of a crop the		from spray drift.
	2.2.2.		

- Reductions in maximum annual application rates of up to 50 % considered in this dossier are • In 2012, the maximum annual application rate was 4.32 kg/ha. compared to the maximum rates applied for in the 2012 Annex I renewal dossier.

 - In the current dossier submission, the maximum annual application rate is 2.16 kg/ha
- Reducing the total area being applied on a per hectare basis for certain uses, will reduce the total
- ...um annual application ra ...e maximum rates applied for in th ...e maximum annual application of on the current dossier submission, the ma: Reducing the total area being applied on a per hea working of product being applied to the landscape. For example, controlling actively growing area, up to a maximum of 50 % of the to band applications. Applications of Biodiversity Assessment (TRP) Glyphon For example, controlling actively growing weeds in vineyards, orchards where a reduced area, up to a maximum of 50 % of the total application area is proposed e.g. using strip or band applications. Applications on target weeds around the base of trees within tree rows,

(2020) Glyphosate: Indirect effects via trophic interaction - A Practical Approach to

leaving the area between tree rows unsprayed, which is typically managed using mechanical methods.

- The use of shielded or hooded sprayers, hand-held sprayers and drift reducing technologies, e.g. 75 % drift reducing nozzles are recommended for all applications made for the control of actively growing weeds when applied to control invasive species. These measures will further reduce the off-target exposure risk.
- For weed control on railroad tracks, recommendations are made in the GAP table to use precision application equipment on spray trains, that detects and targets spray directly onto unwatted plants, thereby reducing the amount of product being applied, whilst maintaining an acceptable level of safety on the railroad tracks.
- No spray buffer areas in-field (or compensation areas), are necessary to meet the specific protection goals for avoiding direct effects on non-target plants in off-target areas. This measure will in turn support non-target arthropod communities in off-field areas and reduce turthers the potential for indirect effects on bees through trophic interaction. \$ N

In addition to the standard mitigation measures, 'non-standard mitigation measures' could also be considered where a local and specific mitigation need is identified by the respective member states. For example, additional biodiversity conservation measures could be considered in simplified landscapes or landscapes that are intensively managed, where typically there are interfuge areas for insects, birds and mammals. These biodiversity conservation measures options could include for example, creation of habitats (in-field or off-field) and utilizing edge of field habitats and semi-field habitats that support biodiversity by improving wildlife connectivity.

For further information on mitigation measures please refer to the supplementary information document⁴² titled 'Glyphosate: Indirect Effects via Trophic Interaction - A Practical Approach to Biodiversity Assessment.' that accompanies this dossier submission. Ś

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		Sec. Sec. Sec. Sec. Sec. Sec. Sec. Sec.
Annex to Regulation 284/2013	MON 52276 M-CP, Section 10	
	Page 370 of 553	3 ₁ 8
1. Information on the study	y	,ilbition
Data point:	CP 10.5/001	36 ⁵
Report author		0
Report year	2012	
Report title	MON 52276: Effect on Soil Microbial Activity, Carbon and Nitrogen	1
-	Transformations	
Report No	Transformations	
Document No	СЕ-2011-0537	
Guidelines followed in study	OECD Guidelines 217 (2000) and 216 (2000)	
Deviations from current test	Deviations from the current guidelines OECD 216 (2000) and OECD 217 (2000): Major: - none Minor: - The changes in nitrate production was determined between each	
guideline	OECD 217 (2000):	
-	Major:	
	- none	
	Minor:	
	- The changes in nitrate production was determined between each	
	time point and not on the whole test from 0.28 days.	
	- The temperature dropped under 18°C for 4 hours.	
Previous evaluation	Yes, accepted in RAR (2015)	
GLP/Officially recognised	Yes	
testing facilities	Yes Valid	
Acceptability/Reliability	Valid State	
Category study in AIR 5	Category 2a	
dossier (L docs)	N. C.S	
	Yes Yes Valid Category 2a Valid Category 2a Valid V	
2. Full summary		
Executive Summary	S S S	

1. Information on the study

 Full summary
 Executive Summary
 The effects of MON 52276 on the carbon and mitrogen transformation pathways were assessed in a LUFA standard soil type 2.3. The transformation rates were determined in replicate soil samples treated with MON 52276 at rates of 18.8 and 94 mg MON \$2276/kg dry soil (equivalent to 1 and 5 × the initial Predicted Environmental Concentration for a rate of 12 MON 52276/ha) and compared to a control treatment of deionised water. The concentrations of 18.8 and 94 mg MON 52276/kg dry soil are equivalent to 5.768 and 28.84 mg glyphosate acid equivalent/kg dry soil. Substrate-induced (glucose) respiration measurements were made on Day 0, 7, 14 and 28 by measuring the carbon dioxide evolution over a 12-hour period. The products of the process of nitrification were extracted from the soil on Day 0, 7, 14 and 28 after treatment. As the difference in respiration rates between the treatment rates of MON 52276 (18.8 and 94 mg MON 52276/kg dry soil, equivalent to initial predicted environmental concentrations of 12 L/ha and 60 L/ha, respectively) and control is less than 25 % at Day 28, the test item can be evaluated as having no long-term influence on carbon transformation in soils. As the average rate of production of nitrate (mg/kg/day) from Dax 14 to Day 28 between the treatment rates of MON 52276 (18.8 and 94 mg Hrone Color of the MON 52276/kg dry soil and control is less than 25 % at Day 28, the test item can be evaluated as having no long term influence on nitrogen transformation in soils.



I. MATERIALS AND METHODS

A. MATERIALS

Test material:

Test item: MON 52276

Formulation type: Soluble concentrate (SL) Description: Not reported

Lot/Batch #: A9K0106104

Purity: 30.68 % or 358.8 g/L a.e. glyphosate

Deionised water control

Vehicle and/or positive control:

Test system:

in the constant of the second Soil Sandy loam soil "LUFA standard soil 23" (Batch number F2.34011) Source: LUFA-Speyer, Obere Langgasse 40, 67346 Speyer, Germany

ien of the second

Water holding capacity 35.6 % (g water/100 g dry soil)

pH: 7.5

Org. Carbon: 0.94 %

Microbial biomass: 1.91% to Corg.

Clay (< 0.002 mm): 8.7 % 27.6 %

Silt 0.002 – 0.050 mm):

Sand (0.050 – 2.0 mm): 63.7 %

Boot to the second seco 35 % (\pm 5 %) of MWHC at 20 ± 2 °C for 5 days Acclimation:

Environmental conditions:

Temperature: 20 ± 2 (except during 4 hours dropping to 17.93 °C)

pH: 7.5

Water content: 340% (± 5 %) of MWHC (actual achieved values: 38.9 %) Photoperford: 24 hours darkness

Experimental Dates: November 11 – December 15, 2011

B. STUDY DESIGN AND METHODS

Experimental treatments

Soil samples were back dosed with MON 52276 at nominal rates equivalent to 1 and 5 \times PEC_{plateau} (18.8 and 94 mg MON \$2276/kg dry soil, respectively). The concentrations of 18.8 and 94 mg MON 52276/kg dry soil are equivalent to 5.768 and 28.84 mg glyphosate acid equivalent/kg dry soil.

Five days before the start of the exposure phase, the soil moisture content was nominally adjusted to 35 % (\pm 5 %) of the MWHC. The soil was placed in the test cabinet in the dark at 20 \pm 2 °C. On the day of dosing, the moisture of the soil was adjusted to 40% (± 5%) of the MWHC with deionised water with the appropriate dose of test item. Three replicates were prepared for the control treatment (deionised water) and the test item treatments. For the nitrogen test each replicate contained 500 g (dry weight equivalent) of soil For the carbon test each replicate contained 1000 g (dry weight equivalent) of soil. Each replicate of soil was transferred to plastic test vessels (2 L). The test soil used in the carbon transformation test was amended with glucose at each sampling time point, to elicit a maximum respiratory response (8.0 mg glucose/g dry weight of soil). The test soil used in the nitrate transformation test was amended with lucerne (2.5 g of lucerne/500 g of soil) to the control and treatment groups on Day 0. The moisture content

3 Support

of soil samples was maintained during the test at 40 % of the maximum water holding capacity of the soil with a range of ± 5 %.

Observations

Soil microbial carbon respiration was measured for the individual respirometers from the Day 0 to Day 28. The mean concentrations of CO₂ (mg CO₂/kg/hour) were monitored over the 12-hour period and the mean respiration rates for the 12-hour period for each treatment at each time point were defined. ð Concentrations of nitrate (as TON) and ammonium were measured (mg/kg dry soil) from Day 020 Day 28. The nitrite values determined were not reported as the detected nitrite-N levels were all below 0.5 mg/L, and therefore considered not to have nitrite present in any of the extracted soil solutions. Changes in concentration of nitrate and nitrate transformation rates (mg/kg/day) over the duration of the study were All charter and a start of the measured. The changes in nitrate production from 0-7, 7-14 and 14-28 days were also determined.

Statistical calculations

Results were evaluated using Dunnett's two-tail test, $p \le 0.05$.

II. RESULTS AND DISCUSSION

A. FINDINGS

Table 10.5-12: Effects of MON 52276 on soil nitrogen transformation 0 2 2

Nitrogen concentration % deviation from control [mg/kg soil]					from control
Concentration in MON 52276	Control		g song © 94 mg/kg dws	18.8 mg/kg dws	94 mg/kg dws
Concentrations in glyphosate a.e.	Control	5.768 mg/kg dws	28.84 mg/kg dws	5.768 mg/kg dws	28.84 mg/kg dws
		Nitrat	te (NO3 ⁻)		
Day 0	22.4	5 2 4 .4	25.1	+8.93	+12.05
Day 7	0 4	0 2 2 0	0	-	-
From Day 0-7	-3.20	-3.48	-3.59	+8.84	+12.24
Day 14	25.8 Jul.	32.8	42.3	+27.13	+63.95
From Day 7 – 14	3.69	4.69	6.04	+27.14	+63.72
Day 28	11 353	84.5	95.7	+12.22	+27.09
From Day 14-28	3.54	3.69	3.81*	+4.31	+7.85
no.		Ammon	ium (NH4 ⁺)		
Day 0	5 10.3	10.7	11.2	+3.88	+8.74
Day 75	3.0	2.9	2.8	-3.33	-6.67
Day 14	1.6	1.6	1.6	0	0
Day 28	1.1	1.1	1.0	0	-9.09

* \lesssim Šignificantly different from control ($\alpha = 0.05$)

erzezza , erzeweight soil * Significantly different fron s Significantly different fron s

	CO2 [mg CO2/kg soil/h]			% deviation f	rom control	
Concentration in MON 52276	Control	18.8 mg/kg dws	94 mg/kg dws	18.8 mg/kg dws	94 mg/kg dws	
Concentrations in glyphosate a.e.	Control	5.768 mg/kg dws	28.84 mg/kg dws	5.768 mg/kg dws	28.84 mg/kg dws	
Day 0	16.08	16.16	17.24	+0.47	× + ۲.19	
Day 7	15.42	16.64	18.73	+7.97	€ e+21.52	
Day 14	15.42	16.93	18.77	+9.78	<u>ن</u> +21.71	
Day 28	16.49	17.15	18.90*	+3.96	+14.57	
dws: dry weight soil * = Significantly different from control (α = 0.05) - = inhibition, + = stimulation						
B. OBSERVATIO Statistical analysis	NS showed there	e was a significan	t difference (p	0.05) between the	treatment rate of	

Table 10.5-13: Effects of MON 52276 on soil microflo	ra respiration (carbon cycle)
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B. OBSERVATIONS

Statistical analysis showed there was a significant difference (p < 0.05) between the treatment rate of 94 mg MON 52276/kg dry soil and the control treatment for nitrate production from Day 14 to 28.

As the average rate of production of nitrate (mg/kg/day) from $Day_{1}A$ to Day 28 between the treatment rates of MON 52276 (18.8 and 94 mg MON 52276/kg dry soil, equivalent to 5.768 and 28.84 mg glyphosate acid equivalent/kg dry soil) and control is less than 25 % at Day 28, the test item can be evaluated as having no long term influence on nitrogen transformation in soils.

Statistical analysis showed there was a significant difference (p < 0.05) between the treatment rate of 94 mg MON 52276/kg dry soil and the control treatment for soil carbon transformations at Day 28.

As the difference in respiration rates between the treatment rates of MON 52276 (18.8 and 94 mg MON 52276/kg dry soil, equivalent to initial predicted environmental concentrations of 12 L/ha and 60 L/ha, respectively) and control is less than 25 % at Day 28, the test item can be evaluated as having no long-term influence on carbon transformation in soils.

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Validity criteria All validity criteria for the study were met for the study as the variation between replicate control treatments did not vary by more than ±15% at each sampling time point for nitrogen concentrations (actual values from -10.0 to 8.0 %) and for carbon transformation (actual values from -6.1 to 6.2 %). 50

III. CONCLUSIONS

Assessment and conclusion by applicant:

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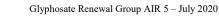
At soil conceptrations of 18.8 and 94 mg MON 52276/kg dry soil (equivalent to 5.768 and 28.84 mg glyphosate acid equivalent/kg dry soil), there were <25 % effect at Day 28 in nitrogen and carbon transformation, so MON 52276 is expected to have no long-term influence on the nitrogen and carbon transformation pathways in soils up to and including a test concentration 94 mg MON 52276 /kg dry soil.

The study is considered valid and is suitable for risk assessment purposes.

Assessment and conclusion by RMS:

Studies considering the toxicity of glyphosate to terrestrial non-target plants were assessed for their validity to current and relevant guidelines for MON 52276 and are presented in the following table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in the following table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either the monograph 2001 or the D to Table of the previously evaluated in either to Table of the previously evaluated in either to Table of table of table of table of table of table of Study summaries for all valid studies are presented in this section below.

Annex Stu point	udy Study typ	e Test species	Substance(s)	Status	Remark
CP 10.6.2/001 20	019 Seedling emergence	y of representative formu Test species Cucumis sativus Brassica napus Raphanus sativus Glycinimax Helianthus annuus Lycopersicon esculentum Zea mays Triticum aestivum Avena sativa Allium cepa Zea mays Avena sativa	$e \begin{bmatrix} MONE52276^{\circ} \\ 0 & 0 \\ $	Valid	
CP 10.6.2/002 20		Avena sativas Allium cepa Triticum aestivum Cucumis sativus Brassica napus Raphanus sativus Glycine max Helianthus annuus	MON 52276	Valid	with uncertaintie
CP 10.6.2/003 200	, Vegetative vigour 6 , vigour 7 , vigour 6 , vigour 7 , vigour 7	Beta vulgaris Raphanus rapistrum Lepidium sativum Pisum sativum Lolium perenne Triticum aestivum	MON 52276	Invalid	
CP 10.6.2/004	Comparison	Xanthium strumarium Zea mays	MON 52276 and AMPA	Supporti ve	



There are no literature articles and peer-reviewed published data considered to be relevant and reliable or reliable with restrictions with regards to the effects of glyphosate on non-target terrestrial plants. Full literature evaluation is provided in document M-CA Section 9. A summary of previously evaluated beer reviewed literature from the RAR 2015 is also available in Annex M-CA 8-01 of the M-CA Section 8 0

Endpoints of studies for the representative formulation MON 52276 considered valid are shown in the table below. The active substance (glyphosate, glyphosate salt or glyphosate acid) is less toxic than the 10° CO formulation and are therefore not presented below.

Reference	Test item	Species	Test design/ GLP	ER50 (g.a.e./ha)	NOER (g a.e./ha)
CP 10.6.2/001	MON 52276	Cucumis sativus	Seedling 🔗	>3610	≥ 3610
, 2019		Brassica napus	emergence,	(all tested	(all tested
		Raphanus sativus	21 d 💥 🖑	2 3910 (all tested species and all parameters)	species and al
		Glycine max		parameters)	parameters)
		Helianthus annuus	in the for		
		Lycopersicon	St for St		
		esculentum			
		Zea mays	2.8		
		Triticum aestivum			
		Avena sativa 🖉 🖉			
		esculentum Zea mays Triticum aestivum Avena sativa Allium cepa			
CP 10.6.2/002	MON 52276	Avena sativa Allium cepa Zea mays Avena sativa Allium cepa	Vegetative	28.4	< 20
, 2013		Avena sativa 🖉	vigour, 21 d	(cucumber,	(cucumber:
		Allium cepa		shoot length)	shoot length,
		Irnicum gestivum			shoot weight;
		Cucumis sativus			sunflower,
		Brassica napus			tomato: shoot
	1 Alexandress of the second se	Raphanus sativus			weight)
	A.	S Glycine max			
		Helianthus annuus			
		⁵ Lycopersicon			
	L & L	esulentum			
a.e.: acid equivalents	S S S	Glycine max Helianthus annuus Lycopersicon esulentum			
	No Ship				
	S. L. O				

Table 10.6-2: Endpoint: Toxicity of representative formulation MON	52276 to terrestrial non-
Table 10.6-2: Endpoint: Toxicity of representative formulation MONtarget higher plants	W.S.S.

Risk assessment for Terrestrial Non-Target Higher Plants

The table below summarises how the risk assessment for terrestrial non-target plants considers all the proposed uses and the application rates presented in the GAP. The risk assessment presented here is shown by the grey shaded cells in the table, which represents the worst case exposure to non-target plants and are selected based on the application rate, multiple application factor and the crop type for the proposed uses of MON 52276. Thus, the conclusions of the risk assessment here are protective of the other uses. However, Hrade of the second and the second a the risk assessment calculations for all the other uses shown by the X in the table are also provided for completeness in Annex M-CP 10-05.

Table 10.6-3: Risk assessment strategy	for terrestrial non-target plants
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Annex to Regulation 284/2013			MO	N 52276					Ν	1-CP, Section 10 Page 376 of 553	,0 ,
Table 10.6-3: Risk assessi GAP number and		nent strategy for terrestrial non-target plants Application rate considered (28 day internal unless otherwise stated)									o. istibilitio
summary of use	1 × 540 g/ha	1 × 720 g/ha	1 × 1080 g/ha	2 × 720 g/ha	1 × 1440 g/ha	3 × 720 g/ha	1 × 1800 g/ha	2 × 1080 g/ha ¹	2 × 1440 g/ha	2 × 1800 g/ha (90 days apart)	
Uses 1 a-c: Applied to weeds; pre-sowing, pre- planting, pre-emergence of field crops.		Х	X		х				4/ C) 3/6/50	170 7001	
Uses 2 a-c: Applied to weeds; post-harvest, pre- sowing, pre-planting of field crops.		Х	Х	х	х	Х	S.		0110000 000000000000000000000000000000	g/hay (90 (90 daay) (90 da	
Use 3 a-b: Applied to cereal volunteers; post-harvest, pre- sowing, pre-planting of field crops.	Х						101 01 01 01 01 01 01 01 01 01 01 01 01	20 00 20 00 20 00 20 00			
Use 4 a-c: Applied to weeds (post-emergence) below trees in orchards.		Х	Х	х	x	5 5 6	10/10/10/	Х	х		
Use 5 a-c: Applied to weeds (post-emergence) below vines in vineyards		Х	х	х	X	N UN		Х	х		
Use 6 a-b: Applied to weeds (post-emergence) in field crops BBCH < 20		Х	Х	100 001 001							
Use 7 a-b: Applied to weeds (post-emergence) around railroad tracks			NOT OF		0		X			х	
Use 8 and 9: Applied to invasive species (post- emergence) in agricultural and non-agricultural areas		Ì		55			х				
Uses 10 a-c: Applied to couch grass; post-harvest, pre-sowing, pre-planting of field crops	in of the	No 10 K OF									

X = this use is covered by the application rate indicated.

Grey shaded cells: risk assessment presented below, representing worst case exposure

¹ Due to the long spray interval of 28 days this use covers also the following possible application pattern: 2 × 1080 g a.s./ha plus 1 x 720 g a.s./ha (28 day interval between each application) 10HS D Sil. , 90°0'

Risk of exposure from metabolites

The major metabolite of glyphosate is AMPA, which does not have a comparable target activity as the parent active compound as it does not contain the functional moiety to cause the herbicidal action that glyphosate does (Sanco/221/2000 - rev 10) and will not impact the Shikimic acid pathway.

EC & based on moles/ha of AMPA/glyphosate and AMPA in the study were compared on molar basis and the factors of EC & based on moles/ha of AMPA/glyphosate were in the range of 3.4 to 86.8. These factors > 2 indicate that AMPA has herbicidal activity versus glyphosate in the range of 1.2 to 29 %, with 29 % being the effect of that her species hemp sesbania (*Sesbania exaltata*).

In conclusion, the herbicidal activity of AMPA is expected to be well below 50 % of the parent activity, therefore the potential for effects on non-target terrestrial plants from exposure to AMPA is considered covered by the risk assessment based on the parent molecule.

The risk assessment for non-target terrestrial plants are presented according to the uses described in the table above and grouped as follows:

- in field crops; covering GAP uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, 10 a-c. •
- in orchards/vineyards; covering GAP uses 4 a-c, 5 a-c. •
- around railroad tracks; covering GAP uses 7 a-b. •
- in agricultural and non-agricultural areas to control invasive species; covering GAP uses 8 and 9.

The application rates that are considered as a worst-case and covering all other application rates in the firsttier risk assessments are presented in grey shaded cells in the table above.

For all other application rates, the deterministic and probabilistic risk assessments for both endpoints are presented in Annex M-CP 10-05 of this document for completeness. 3

Where multiple applications per season are applicable, a multiple application factor is applied to the risk il of assessment, considering an application interval of 28 days.

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The risk assessment will be conducted based on FOCUS (2001) as stated in the currently adopted guidance SANCO/10329/2002 rev. 2, 'Directorate E. Food Safety: plant health, animal health and welfare, international questions. 2002. Guidance document on terrestrial Ecotoxicology under council directive 0, 11, S 91/414/EEC.' 39 pp. The principal route of non-target terrestrial plant exposure is via spray drift away from the applied areas.

Currently, estimation of spray drift deposition is based on the values given by Rautmann (2001). These values apply to 90th percentile conditions. According to FOCUS (2001), the estimated spray drift deposition for field crops (% of in-field target deposition) downwind of a sprayed (ground directed application) to a bare soil surface (without interception by vegetation) representing a field crop situation at distances of 1, 5 and 10 meters from the target area, are 2.75, 0.57 and 0.29 %.

Applications using high boom or blast sprayer applicators associated with for example, 'over the top' applications in perennial crops, are not a use on the proposed GAP table. The assessment does therefore only consider low boom – ground directed applications. The stated percentage drift values are for field crop drift values used for all crops according to recommendations of the Guidance Document on Terrestrial Ecotoxicology (2002) and are based on Rautmann (2001).

The risk assessment for effects on non-target plants is performed in a step-wise approach, first using a deterministic approach and then a probabilistic approach.

The guidance⁴³ states Probabilistic methods that make use of the species sensitivity distribution would be straightforward in this assessment step as data from 6 - 10 species are available. This approach requires that log-normal or another defined type of distribution has been shown to fit the data adequately. If the ER_{50} for less than 5 % of the species is above the highest predicted exposure level, the risk for terrestrial plants is assumed to be acceptable."

Deterministic Risk Assessment for Non-target Terrestrial Plants

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The deterministic approach is performed using the most sensitive endpoint from the vegetative vigour and seedling emergence studies. A Color

ight of the states of the stat Directorate E. Food Safety: plant health, animal health and welfare, international questions. 2002. Guidance document on terrestrial Ecotoxicology under council directive 91/414/EEC. 39 pp.

For vegetative vigour, the most sensitive endpoint is based on shoot fresh weight that achieved an $ER_{50} =$ 28.5 g a.e./ha (soybean).

For seedling emergence, there were no effects observed across 10 species tested and all measured parameters. The endpoint ER₅₀ was considered 'equal to or higher than' the highest application rate tested in the seedling emergence study (ER₅₀ \ge 3610 g a.e./ha).

ð The MAF is based on a DT_{50} of 2.8 days for decline of residues on leaf surfaces in a grass residues study, which is considered to cover decline on broadleaf plant foliage, which is supported by Ebeling & Wang (2018)⁴⁴, who evaluated the residue dissipation of 30 active substances (including glyphosate) on grasses / cereals (177 trials) and non-grass herbs (101 trials). No significant difference between residue dissipation on grasses / cereals and non-grass herbs was found. In addition, in the EFSA Conclusion for glyphosate (2015)⁴⁵ (EFSA Journal 2015;13(11):4302) the DT50 of 2.8 days was used to determine a calculated 21-day TWA of 0.19, that was applied to refine the risk to the medium herbovorous/granivorous 11 000 bird "pigeon" Wood pigeon (Columba palumbus). 000

Field Crops

Table 10.6-4: Deterministic assessment of the risk for non-target plants due to the use of MON 52276 - field crops considering downward ground directed spray

N. C. C.								
Crop scenario	Appl. Rate [g a.e./ha]	ER ₅₀ [g a.e./ha]	Drift [%] ූ	MAF	PER ² [g a.e./ha]	TER (criterion: TER≥5)		
Field Crops – GAP uses 1 a-c, 2 a-c, 3 a-b, 6 a-b, & 10 a-c								
Vegetative vigour								
All uses considering	3 x 720	28.5	£.77	1.00	19.9	1.43		
downward ground directed spray	2 x 1080		5.	1.00	29.9	0.95		
Seedling emergence	, A	JI JI ST		<u>.</u>				
All uses considering	3 x 720	3610	2.77	1.00	19.9	181		
downward ground directed spray	2 x 1080			1.00	29.9	121		

PER: Predicted environmental rate; TER toxicity to exposure ratio. TER values shown in **bold** fall below the relevant trigger. 1 MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days)

- Sinello har of the state of t tir ² PER (g a.e./ha) based on drift rate (%) of 2.77 % at 1 m from the application area considering downward ground directed spray

A COLOR OF C Ebeling, M., Wang, M. Dissipation of Plant Protection Products from Foliage. Environmental Toxicology and Chemistry (2018). Wiley Online Library.

Conclusion on the peer review of the pesticide risk assessment of the active substance glyphosate (2015). European Food Safety Authority (EFSA), Parma, Italy.

Orchards

Table 10.6-5: Deterministic assessment of the risk for non-target plants due to the use of MON 52276 – orchards considering downward ground directed spray

Crop scenario	Appl. Rate [g a.e./ha]	ER50 [g a.e./ha]	Drift [%]	MAF ¹	PER ² [g a.e./ha]	TER (criterion: TER≥5)
Orchards / vineyards	– GAP uses 4 a-c &	5 a-c				
Vegetative vigour						
All uses considering downward ground directed spray	2 x 1440	28.5	2.77	1.00	39.9	
Seedling emergence						
All uses considering downward ground directed spray	2 x 1440	3610	2.77	1.00	1, 39, 8 1, 39, 8 1, 1, 1, 1 1, 1, 1 1, 1 1	90.5

PER: Predicted environmental rate; TER: toxicity to exposure ratio. TER values shown in **bold** fall below the relevant trigger. ¹ MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days \mathcal{P}

² PER (g a.e./ha) based on drift rate (%) of 2.77 % at 1 m from the application area considering downward ground directed spray

Railroad tracks

Railroad tracks Table 10.6-6: Deterministic assessment of the risk for non-target plants due to the use of MON 52276 - railroad tracks considering downward ground directed spray

		A w a				
Crop scenario	Appl. Rate [g a.e./ha]	ER ₅₀ [g (a.e./ha]	Drift [%]	MAF ¹	PER ² [g a.e./ha]	TER (criterion: TER \geq 5)
Railroad tracks GAP	uses 7 a-b					
Vegetative vigour						
All uses considering downward ground directed spray	2 x 1800 5 5 5 5	28.5	2.77	1.00	49.86	0.57
Seedling emergence		-	-	-		
All uses considering of downward ground of directed spray	2 × 1800	3610	2.77	1.00	49.86	72.4

PER: Predicted environmental rate; TER: toxicity to exposure ratio. TER values shown in **bold** fall below the relevant trigger. HARDON CONTRACTOR OF CONTRACTO 1 MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days)

² PER (g a. Ana) based on drift rate (%) of 2.77 % at 1 m from the application area considering downward ground directed spray

Agricultural and non-agricultural area – Invasive species

Table 10.6-7: Deterministic assessment of the risk for non-target plants due to the use of MON 52276 - Agricultural and non-agricultural area - Invasive species considering downward ground directed spray

Crop scenario	Appl. Rate [g a.e./ha]	ER50 [g a.e./ha]	Drift [%]	MAF ¹	PER ² [g a.e./ha]	TER (criterion: TER≥ 5)
Agricultural and nor	 1-agricultural area – Ir		ies – use	es 8 & 9		3. C 20
Vegetative vigour					_ <	
All uses considering downward ground directed spray	2 x 1080	28.5	2.77	1.00	29.92	0.95
Seedling emergence						
All uses considering downward ground directed spray	2 x 1080	3610	2.77		17 29.92 17 29.92	121

PER: Predicted environmental rate; TER: toxicity to exposure ratio. TER values shown in **bold** fall below the relevant trigger. ¹ MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days)

² PER (g a.e./ha) based on drift rate (%) of 2.77 % at 1 m from the application area considering downward ground directed spray

Vegetative vigour Based on the vegetative vigour endpoint of 28.5 ga e./ha, a further refinement of the non-target terrestrial plant risk assessment is required, as all achieved TER values in the deterministic approach are below the trigger value of 5, based on the PER achieved considering deposition via drift (2.77 %) at 1 m from the CULIE CONTRACT 4 JUL application area. 00 Lion

A refined deterministic risk assessment based on the vegetative vigour endpoint is presented below based on the PER (g a.e./ha) achieved considering drift rates (%) at 5 and 10 m from the application area.

Seedling emergence Based on the seedling emergence endpoints, a further refinement of the non-target terrestrial plant risk assessment is not required, as all FER values in the deterministic approach exceed the trigger value of 5, based on the PER achieved considering deposition via drift at 1 m from the application area. , 900 mer

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Field Crops

Annex to Regulation 284/2013 MON 52276 M-CP, See Page 381 Field Crops Table 10.6-8: Deterministic assessment of the risk for non-target plants due to the use of MON 52276 – field crops considering downward ground directed spray							<i>2</i> 0
Crop scenario	Appl. Rate [g a.e./ha]	ER ₅₀ [g a.e./ha]	Drift [%]	MAF ¹	PER ² [g a.e./ha]	TER (criterion: TER≥\$)	
Field Crops – GAP	uses 1 a-c, 2 a-c,	3 a-b, 6 a-b	, & 10 a-c	<u>.</u>	<u>.</u>	Contraction of the second seco	
Vegetative vigour						2000 2000 2000 2000 2000	
All uses considering downward ground	3 x 720	28.5	0.57 – at 5 m	1.00	4.10	6.95 6.95	
directed spray	2 x 1080			1.00	6.16	4.63	
All uses considering downward ground directed spray	2 x 1080		0.29 – at 10 m	1.00	363 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	9.11	

PER: Predicted environmental rate; TER: toxicity to exposure ratio. TER values nown in bold fall below the relevant trigger. 1 MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days) ,0

² PER (g a.e./ha) based on drift rate (%) of 0.57 % at 5 m and 0.29 % at 10 m from the application area considering downward

Orchards

<u>Drchards</u> Table 10.6-9: Deterministic assessment of the risk for non-target plants due to the use of MON 52276 - orchards considering downward ground directed spray

		8			I V		
Crop scenario	Appl. Rate [g a.e./ha]	ER50 [g a.e./ha]	Driff [%]	MAF ¹	PER ² [g a.e./ha]	TER (criterion: TER≥5)	
Orchards / vineyards – GAP uses 4 a-c & 5 a-c							
Vegetative vigour							
All uses considering	2 x 1440	28.5	0.57 – at 5 m	1.00	8.21	3.47	
downward ground directed spray		1910- 140-	0.29 – at 10 m	1.00	4.18	6.82	

PER: Predicted environmental rate, TER: toxicity to exposure ratio. TER values shown in **bold** fall below the relevant trigger. 1 MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days)

the solo contract and contract ² PER (g a.e./ha) based on drift rate (%) of 0.57 % at 5 m and 0.29 % at 10 m from the application area considering downward ground directed spray

Railroad tracks

Table 10.6-10: Deterministic assessment of the risk for non-target plants due to the use of MON 52276 – railroad tracks considering downward ground directed spray

Crop scenario	Appl. Rate [g a.e./ha]	ER50 [g a.e./ha]	Drift [%]	MAF 1	PER ² [g a.e./ha]	TER (criterion: TER ≥5)	
Railroad tracks – use 7 a-c							
Vegetative vigour							
All uses	2 x 1800	28.5	0.57 – at 5 m	1.00	10.26	5°.5°.5 2.78	
considering downward ground directed spray			0.29 – at 10 m	1.00	5.22	5.46	

PER: Predicted environmental rate; TER: toxicity to exposure ratio. TER values shown in **bold** all below the relevant trigger. 1 MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days)

² PER (g a.e./ha) based on drift rate (%) of 0.57 % at 5 m and 0.29 % at 10 m from the application area considering downward the second ground directed spray

Agricultural and non-agricultural area – Invasive species

Agricultural and non-agricultural area – Invasive species Table 10.6-11: Deterministic assessment of the risk for non-target plants due to the use of MON 52276 - Agricultural and non-agricultural area - Invasive species considering downward or His 20 1 11 20 1 ground directed spray

Crop scenario	Appl. Rate [g a.e./ha]	ER50 [g a.e./ha]		MAF ¹	PER ² [g a.e./ha]	TER (criterion: TER \geq 5)
Agricultural and no Vegetative vigour	on-agricultural a	rea – Inva	sive species – us	es 8 & 9	<u> </u>	
All uses	2 x 1080	28.5	0.57 – at 5 m	1.00	6.16	4.63
considering downward ground directed spray	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NI CHON	0.29 – at 10 m	1.00	3.13	9.11

PER: Predicted environmental rate; FER: toxicity to exposure ratio. TER values shown in **bold** fall below the relevant trigger. 1 MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days)

² PER (g a.e./ha) based on distribute (%) of 0.57 % at 5 m and 0.29 % at 10 m from the application area considering downward S. S. S. ground directed spray .S

Vegetative vigour

Considering the TERs achieved based on drift depositions at 5 meters from the application area, acceptable risk assessments may be achieved considering single applications of MON 52276 at rates up to 1080 g a.e./ha and for applying up to three applications of 720 g a.e./ha, the achieved TER values exceed the trigger value of 5.

For multiple applications made at 1080 g a.e./ha and higher, an acceptable risk assessment is not achieved as all FER values are below the trigger value of 5. Therefore, a further refinement of the risk assessment is required.

Based on the vegetative vigour endpoint of 28.4 g a.e./ha, and considering deposition via drift at 10 m from the application area, an acceptable risk assessment for all proposed uses may be achieved considering a

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drift distance off-target of at least 10 meters, as all TER values are either equal to or exceed the trigger value of 5.

Risk reduction

To reduce off-target terrestrial plant exposure risk, risk mitigation measures may be implemented at Member State level as – for example, in-field spray buffer strips and / or usage of drift reducing technologies such as drift reducing spray nozzles. The different combinations of drift reducing technology available at Member State level can reduce the size of the in-field spray buffer strip considerably, as it is explained below.

Concerning in-field spray drift buffers, the deterministic risk assessment demonstrates that including an infield no-spray buffer of between 5 and 10 meters may achieve an acceptable risk assessment across all uses, if drift reducing technology is not available at Member State level. N)

If applying drift reducing technology, that may take the form of either an attended not type, that increases droplet size – thereby reducing off-target exposure risk, or the incorporation of shielded sprayers, which are stated on the GAP table, for applications made for the control of invasive species. Using shielded sprayers will substantially reduce the risk of non-target terrestrial plant exposure in off-target areas. Using alternate spray nozzle technology may also reduce the off-target drift eposition rates by 50 %, 75 % or even 90 %. For example, considering 2 x 1800 g a.e./ha, the corresponding PER value is 11.7 g a.e./ha, achieved at 5 meters from the application area (Table 10.6.2-6). An acceptable off-target risk to non-target terrestrial plants can be achieved using a 75 % drift reduction technology and would achieve an off-target PER value of 2.9 g a.e./ha, and a corresponding TER value of 98, that exceeds the trigger value of 5. 19 19

Refinement of Exposure Level Protective of 95 % of Species (HC5 evaluation)

In addition to a deterministic approach to the risk assessment, as indicated above, the probabilistic approach is also a suitable approach to calculate the risk for non-target plants and to achieve the protection goal, as multiple plant species are tested under similar laboratory condictions, allowing for uncertainity when extrapolating between species to be accounted for in the risk assessment.

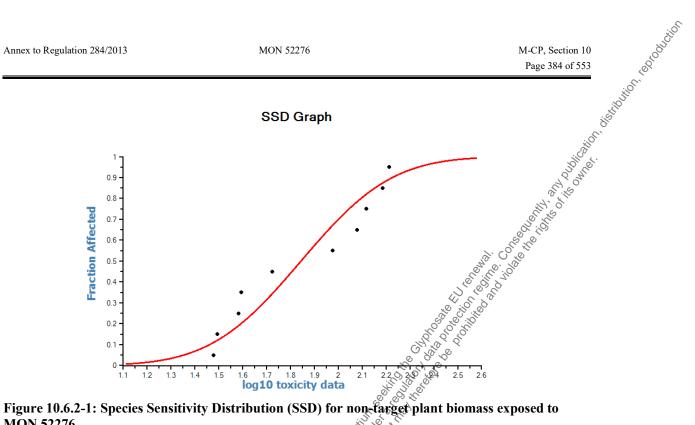
Probabilistic Risk Assessment for Non-target Terrestrial Plants

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The hazardous concentration for 5 % of the population (HC₅) is derived by establishing a species sensitivity distribution (SSD), using ETX v22 software from RIVM. Biomass is the relevant endpoint for a plant community assessment because ecosystem function is related to biomass production and consumption, processing of organic detritus and mineralizing organic compounds (Suter and Bartell, 1993; Solomon and Takacs, 2002), and it is the most sensitive endpoint in 9 out of 10 tested plant species, the shoot weight endpoint was used to derive the HC₅.

The data used to prepare the SSD for the HC5 derivation were the ER50 values for shoot weight for the 10 species tested in the vegetative vigor study. The goodness of fit of the SSD was acceptable, since all statistical tests indicated that the data is normally distributed, using three statistical tests (Anderson-Darling = 0.61, Kolmogorov, Smirnoff = 0.68, Cramer von Mises = 0.09). Correspondingly, the resulting HC₅ value was determined to be 21.6 g a.e./ha, based on biomass. Figure 10.6.2-1 shows a graph illustrating the A CONTRACT ON CONTRACT OF CONT species sensitivity distribution (SSD).

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Collins of the second MON 52276. Using the probabilistic approach (HC₅ = 21.6 g a.e./ha), the risk assessment is performed with a reduced

TER trigger value of 1 considered appropriate as > 6 species were tested (10 in total), i.e. if the predicted

 Field Crops
 Image: assessment based on the probabilistic approach, is presented below.

 Field Crops
 Image: assessment based on the probabilistic approach, is presented below.

 MON 52276 – field
 Image: assessment based on the probabilistic approach, is presented below.

 exposure rate (PER) does not exceed the HC5, the use of MON 32276 can be considered safe for non-target

Table 10.6-12: Probabilistic assessment of the risk for non-target plants due to the use of
MON 52276 – field crops considering downward ground directed spray

		S. S. S.	C ill				
		Appl. Rate	ÉR50 [g a.e./ha]	Drift [%]	MAF ¹	PER ² [g a.e./ha]	TER (criterion: TER≥1)
	Field Crops – GAP u	ses 1 a-c, 2 a-c, 3	a-b, 6 a-b, &	: 10 a-c			
	Vegetative vigour	2 2 J					
		200 000	21.6	2.77 – at 1 m	1.00	19.9	1.09
	downward ground directed spray	2 x 1080			1.00	29.9	0.72
	Contraction of the second seco	3 x 720	21.6	0.57 – at 5 m	1.00	4.10	5.27
	All uses considering downward ground directed spray	2 x 1080			1.00	6.16	3.51
	PER: Bedieted environmental rate; TER: toxicity to exposure ratio. TER values shown in bold fall below the relevant trigger. ¹ MAF = 1.00 (considering at least a 28 day interval and a DT ₅₀ of 2.8 days) ² PER g a.e./ha) based on drift rate (%) of 2.77 % at 1 m and 0.57 % at 5 m from the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray ⁴ Given the application area considering downward ground directed spray area considered spray area consider						
And Charles	Glyphosate Renewal Group A	AIR 5 – July 2020			Γ	Doc ID: 110054-N	/ICP10_GRG_Rev 1_Jul_2020

Table 10.6-13: Probabilistic assessment of the risk for non-target plants due to the use of MON 52276 - orchards considering downward ground directed spray

Annex to Regulation 284/20	13	MON :	52276			M-CP, Section 10 Page 385 of 553	20 20
<u>Orchards</u>							
Table 10.6-13: Pro MON 52276 – orch						the use of	5°. 5°.
Crop scenario	Appl. Rate [g a.e./ha]	ER50 [g a.e./ha]	Drift [%]	MAF ¹	PER ² [g a.e./ha]	TER (criterion: TER ≥ 1) & &	
Orchards / vineyards – GAP uses 4 a-c & 5 a-c							
Vegetative vigour					200		
All uses considering downward ground	2 x 1440	21.6	2.77 – at 1 m	1.00	39,9 50 6 5	1/7	
directed spray			0.57 – at 5 m	1.00	5 8 <u>.2</u> 2	2.63	

PER: Predicted environmental rate; TER: toxicity to exposure ratio. TER values show of bold fall below the relevant trigger. Ś S 1 MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days)

² PER (g a.e./ha) based on drift rate (%) of 2.77 % at 1 m and 0.57 % at 5 m from the application area considering downward ground directed spray

	Railroad tracks Table 10.6-14: Pro MON 52276 – rail	babilistic assess road tracks cons	ment of the	risk for non-	target p	lants due to ted spray	the use of
	Crop scenario	Appl. Rate [g a.e./ha]	ER50 [g a.e./ha]	Drift [%]	MAF ¹	PER ² [g a.e./ha]	TER (criterion: TER≥1)
	Railroad tracks GA	P uses 7 a-b		Ó			
	Vegetative vigour	2					
	All uses considering	2 x 1800	21.6	2.77 – at 1 m	1.00	49.9	0.43
	directed spray			0.57 – at 5 m	1.00	10.26	2.11
	ground directed spray						the use of TER (criterion: TER ≥ 1) 0.43 2.11 clow the relevant trigger. ea considering downward CP10_GRG_Rev 1_Jul_2020
10 10 10 10 10 10 10 10 10 10 10 10 10 1	Glyphosate Renewal Group	AIR 5 – July 2020			D	oc ID: 110054-M	CP10_GRG_Rev 1_Jul_2020

Agricultural and non-agricultural area – Invasive species

Table 10.6-15: Probabilistic assessment of the risk for non-target plants due to the use of MON 52276 – Agricultural and non-agricultural area – Invasive species considering downward ground directed spray

Crop scenario	Appl. Rate [g a.e./ha]	ER50 [g a.e./ha]	Drift [%]	MAF 1	PER ² [g a.e./ha]	TER (criterion: SER≥5)
Agricultural and non-agricultural area – Invasive species – uses 8 & 9						
Vegetative vigour						
0	2 x 1080	21.6	2.77 – at 1 m	1.00	29.9	0.72
downward ground directed spray			0.57 – at 5 m	1.00		4.63

PER: Predicted environmental rate; TER: toxicity to exposure ratio. TER values shown in the fall below the relevant trigger. 1 MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days) S Ś

² PER (g a.e./ha) based on drift rate (%) of 2.77 % at 1 m and 0.57 % at 5 m from the application area considering downward a could the of ground directed spray

Based on the probabilistic approach to the risk assessment, the achieved TER values based on deposition at 1 m from the application area (2.77 % drift) indicate an acceptable risk to non-target plants in off-field / target areas, for up to application rates of 3×720 g a.e./ha or lower.

Based on the deposition expected at 5 meters from the application area, based on the HC_5 value and a reduced trigger value, an acceptable risk assessment for all proposed uses is achievable. 11:00 her.

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Risk reduction

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As described for the deterministic risk assessment above, to reduce terrestrial plant exposure risk in offfield areas, risk mitigation measures may be implemented at Member State level - for example, in-field spray buffer strips and / or usage of drift reducing technologies such as drift reducing spray nozzles. The different combinations of drift reducing technology available at Member State level can reduce the size of the in-field spray buffer strip considerably, as it is explained below.

Concerning in-field spray drift buffers, the deterministic risk assessment demonstrates that including an infield no-spray buffer of between 5 and 10 meters may achieve an acceptable risk assessment across all uses, if drift reducing technology is not available at Member State level.

If applying drift reducing technology, that may take the form of either an alternate nozzle type, that increases droplet size thereby reducing off-target exposure risk, or the incorporation of shielded sprayers, which are stated on the GAP table, for applications made for the control of invasive species. Using shielded sprayers will substantially reduce the risk of non-target terrestrial plant exposure in off-target areas.

Using alternate spray nozzle technology may also reduce the off-target drift deposition rates. For example, considering 2 \$1800 g a.e./ha, the corresponding PER value is 11.7 g a.e./ha, achieved at 5 meters from the application area (Table 10.6.2-8). An acceptable off-target risk to non-target terrestrial plants can be achieved using a 75 % drift reduction technology and would achieve an off-target PER value of 2.9 g a.e./ha, and a corresponding TER value of 1.5 based on the HC_5 value, that exceeds the proposed trigger value of P

Lo level risk Further refinement of the EU level risk assessment for non-target terrestrial plants occurring in off-target

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The existing terrestrial ecotoxicology guidance⁴⁶ for NTTP assessments provides risk assessment methods for evaluating potential effects to NTTP communities outside the cropped area. Historically, protection of in-crop non-target plants / weeds has not been considered in ecological assessments for PPPs.

Therefore, a general protection goal, based on existing guidance, was derived to protect 95 % of the species 90 % of the time off-crop (Table 10.6.2-18). Based on the current assessment for the representative formulation, implementation of standard risk mitigation measures (e.g., in-field buffers, drift reduction technology nozzles, hooded / shielded sprayers) may be required to protect NTTP communities in off-target areas. (CP 10.6).

In the revision of the PPP data requirements (Annex to Commission Regulation (EC) No 284/2013), the former phrase "Non-target plants are non-crop plants located outside the treatment area" was deleted. As an outcome of this revision, an EFSA Scientific Opinion addressing the state of the science on risk assessment for NTTPs was developed that defined SPGs for off-field and in field and linking them to biodiversity. In the EFSA Scientific Opinion (2014), NTTPs were newly defined as "all plants growing outside fields, and those growing within fields that are not the intended pesticide target". The proposed general protection goal for NTTPs in the Scientific Opinion is to maintain the biodiversity of plant species in the agricultural area, including both the above- and belowground (seed back) diversity, and is linked to ecosystem services. Further, three Specific Protection Goals (SPGs) were defined: (1) protection of offfield NTTPs because they are drivers for nutrient cycling, water regulation, food web support, aesthetic values and genetic resources (biodiversity); (2) protection of in-field NTTPs because they are key drivers for food web support (primary production, provision of habitat and food for other non-target organisms, e.g. arthropods, birds), aesthetic values and genetic resources, and (3) protection of endangered plant species including rare arable weeds. However, the EFSA Scientific Opinion (2014) does not have the status of an official guidance document. The definition and selection of SPGs and exposure assessment goals (i.e., exposure in-crop versus off-crop) for NTTPs requires further discussion and decision making between risk assessors and risk managers (e.g., those of SCoPAFF she Standing Committee on Plants, Animals, Food and Feed, in which risk managers of EU Member states are represented). When defining SPGs for arable weeds and NTTPs, it is the responsibility of the fisk assessors in the Member States to acknowledge existing protection goals and regulatory data requirements, to propose possible SPG options, and describe the possible environmental consequences of each option. The risk assessors within the Member States will need to propose realistic SPGs and exposure assessment goals and the interrelationships between them in a clear S. Sollie and transparent manner. ð

Scientific Literature that informs the NTTP assessment

The scientific literature review conducted for the last Annex I renewal contains an extensive review of ecotoxicological papers considered relevant but supplementary to the Annex I renewal. The papers presented information that could not be relatable to an EU level ecotoxicological risk assessment, but that were considered in the previous dossier, where they were evaluated by previous RMS (UBA). A further evaluation of these literature papers according to the EFSA literature review approach used in this dossier has not been conducted. The previous literature review has been submitted as part of the Literature review requirements and is presented in Annex M-CA 8-01 of the document M-CA Section 8.

Literature review for non-target terrestrial plants from the previous Annex I (2012) submission.

In the area of non-target terrestrial plants, a total of 87 peer reviewed papers were submitted, from which a single paper (Boutin et al., (2010) that measured variability in phytotoxicity testing using crop and wild plant species) was rated with the category 'Klimisch 2". All remaining papers were not considered relevant to risk assessment. The RMS (UBA) also evaluated the submitted papers, with 27 papers identified as being supportive. The RMS (UBA) identified that most of the cited studies used formulated products and not the Gluphoest D active substance. An objective of the NTTP risk assessment by the UBA was to ensure that NTTPs will be harmed by unintended exposure via drift to the off-target / off-field area outside of the intended spray zones.

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The full evaluations of all 87 non-target terrestrial plant papers submitted as part of the peer reviewed literature review for the previous Annex I renewal (2012) are presented in Annex M-CA 8-01 of the e to M-CA Section 8.

M-CA Section 8. Current public domain literature review of published literature since the last dossier submission Recently, Koning et al. (2019) investigated the effects of mold-board plowing, chisel plowing, and glyphosate herbicide application on weed species density and diversity in agricultural fields. Their results showed that in-crop weed communities evolved over the years depending on the type and timing of treatment. However, overall biodiversity of the weed community, which is at the basis for any consideration of potential trophic interaction within the field boundaries, was not more negatively affected by one method compared to another. This is an important paper for the biodiversity assessment, because it demonstrates that conventional tillage weed control practices have a similar outcome as chemical weed control on in-

crop plant biodiversity. A follow up to the EFSA Scientific Opinion (2014) on NTTPs, Arts *et al.*, (2017) developed a proposal for three possible SPGs for arable weeds: maximal weed reduction, moderate weed reduction, and beneficial weed protection. The "maximal weed reduction" option allows for trade offs by allowing provisioning of the ecosystem service "crop production" as being of primary importance and considers all non-crop plants in the cropped area as weeds that are not protected. This option is consistent with the current NTTP guidance that only protects off-crop NTTP communities in line with the SANCO/10329/2002 rev 2 final 'Guidance document on Terrestrial Ecotoxicology under Council Directive \$1/414/EEC. Risk assessors and risk managers in the member states will need to consider the ecological consequences of this option in light of local properties of their agricultural landscapes. The "moderate weed reduction" option differs from the "maximal weed reduction option" in that it aims to support the presence of a moderate level of arable weeds in-crop to support ecosystem services provided by weeds in crop. These ecosystem services could provide supporting services such as provisioning habitat to invertebrates and food for farmland birds and cultural services such as protecting weeds of conservation concern. This option for "moderate weed control" would most practically be achieved by implementing non-spray crop areas along the field edges and/or at the corners of an agricultural field whilst the remaining in-crop area is maintained under 'maximal weed reduction'. The economic consequence of this option may be that the monetary value of the crop decreases due to competition of the crop with arable weed. In addition, where arable weeds are allowed to persist incrop, it is important to consider potential seed returns, which may increase the seed burden in subsequent crops. Alternatively, the non-sprayed or gareas can be replaced by vegetation other than the crops. Finally, the "beneficial weed protection" option is challenging because it would be difficult to maintain effective in-crop control of problem weeds while sustaining beneficial species at economically acceptable levels. In addition, because of the broad-spectrum nature of glyphosate, this option would not be feasible without using advanced forms of precision agriculture. ò

The current NTTP assessment provided in section 10.6 is highly protective of off-crop NTTP populations and communities based on the effects data used, the exposure assessment, and the risk assessment procedures. However, because of the broad spectrum of weed control that glyphosate offers, many uses (e.g., pre-planting uses, range-land restorations) will result in loss of the in-field weeds prior to tillage. Nonetheless, there are specific scenarios with orchards / vineyards, spot treatments, control of invasive species, and directed applications where only a portion of the weed biomass will be left untreated, minimizing the impact to birds adapted to farmlands from indirect effects through trophic interactions.

It is unclear the extent to which indirect effects of broad-spectrum herbicides impact farmland birds across the different geographies in the EU, in addition to the unknown magnitude of affect that habitat modification Build of the set of th from the risk mitigations discussed in the proceedings from the MAgPIE workshop (2013) and Arts et al. 2017.

Assessment

After a through literature review and considering all recent guidance, the following approach has been taken to assess potential indirect effects via trophic interactions considering the proposed Specific Protection Goals drawn from the existing EU guidance and working documents, and the 2016 EFSA Guidance on developing protection goals for ecological risk assessments (ERA) for pesticides. The SPGs were based on direct effects assessment considering representative sensitive populations across the tested trophic levels. The biodiversity assessment, aimed to develop a flexible framework that informs the development of risk mitigation options to achieve the specific protection goals, that includes mitigating against indirect effects via trophic interaction. For example, for NTTPs, the inclusion of no-spray buffer zones as a standard mitigation measure protects NTTP communities in off-target areas, which indirectly supports biodiversity by maintaining habitat as both a refuge and food source for other organisms in off-target areas. Therefore, where an acceptable direct effects risk assessment is concluded upon after incorporation of standard mitigation measures to reduce off-target movement via drift, this is considered protective of indirect effects occurring outside of the target area.

In the following table, the specific protection goals relevant to non-target/terrestrial plants are presented with the relationship between the SPGs, the direct effects study types, assessment and measurement endpoints. The assessment endpoint is an explicit expression of an environmental entity and the specific property of that entity to be protected. Measurement endpoints relate directly to the effects study endpoints.

A conclusion that a given data requirement has been satisfied requires that an acceptable level of risk has been achieved (i.e. there is a protective margin of exposure of through a weight of evidence). For NTTPs an acceptable direct effects assessment by including a standard mitigation measure e.g., no-spray buffer , 80 zone.

The direct effects assessment requires a no-spray buffer zone to reduce the possible exposure risk to plants occurring in off-target areas. This is considered to meet the proposed SPG. The relationship between study type, measured and assessed endpoints and the SPG are presented in Table 10.6.2-18.

Table 10.6-16: The relationship between specific protection goals and associated assessment and measurement endpoints for non-target terrestrial (NTTP) plants from off-crop spray drift. S. S

	10 20 2		
Specific Protection Goals ¹	Assessment Endpoints	Measurement Endpoints	Glyphosate Study Types
Negligible risk to off-field NTTP communities to support nutrient cycling, water regulation, food web, aesthetic values and genetic resources (biodiversity)	Protect 95 % of the populations in 90 % of the cases.	EC ₅₀ values for plant survival, height and weight.	Vegetative vigor Seedling emergence
measures (e.g. in field buff label to protect NTTP comm are considered to be require	effect assessment for the re- ers, drift reduction technol- nunities outside the croppe d by risk managers at the N	presentative formulation, stand ogy nozzles, hooded sprayers) d area. However, if additional Member States level, to mitigat	will be required on the risk mitigation measures e indirect effects resulting

from incrop weed control, risk mitigation options that maybe considered are presented in Table 8 of the (2020) Indirect effects via trophic interaction - A Practical Approach to

Biodiversity Assessment. (TRR0000305) presented with this document.

¹ Us assumed that the biodiversity is maintained when most of the plant populations will not be affected using plant protection Conclusion products. It is assumed that this goal can be reached when the plant populations are protected off-crop.

The existing terrestrial ecotoxicology guidance for NTTP assessments provides risk assessment methods for evaluating potential direct effects to NTTP communities outside the cropped area. Historically, protection of in-crop non-target plants / weeds has not been considered in ecological assessments for PPPs However, in the revision of the PPP data requirements, the former phrase "Non-target plants are non-crop plants located outside the treatment area" was deleted. As an outcome of this revision, an EFSA Scientifie Opinion (2014) was developed that defined SPGs for off-crop and in-crop NTTPs and linking them to biodiversity. In the Scientific Opinion (2014), NTTPs were newly defined as "all plants growing outside fields, and those growing within fields that are not the intended pesticide target"; though the Scientific Opinion (2014) does not have the status of an official guidance document. The derivation of SPGs for NTTPs requires further discussion and decision making between risk assessors and risk managers as well as risk mitigation options to address indirect effects. Holistically addressing potential indirect effects to birds and mammals by limiting in-crop weed control may be better handled through policies and programs outside the PPP framework. i)

Based on the current direct effect assessment for the representative formulation standard risk mitigation measures (e.g., in-field buffers, drift reduction technology nozzles, hooded sprayers) will be required on the label to protect NTTP communities outside the target area. However, it additional risk mitigation measures are required by risk managers at the Member State level, standard risk mitigation options are available at the EU level and are presented in the following table. Many of these have been considered in the current dossier submission.

Table 10.6-17: Examples of standard mitigation measures as described in MAgPIE (2017) across	
Table 10.6-17: Examples of standard mitigation measures as described in MAgPIE (2017) across the various Member States to mitigate effects of glyphosate on biodiversity.	

Type of Mitigation	Risk Mitigation	Benefits	Glyphosate renewal dossier (2020
Measure	Measure	El So M	
Restrictions or modifications of	Application rate, Application frequency,	groundwater and surface	Significant reductions (50 % in volu in newly proposed application rates compared with the representative use presented in the 2012 renewal dossier. See ⁴⁷ Appendix 2 of the biodiversity document accompanying this submission. Treated area restriction 22. for the representative use GA
	application timing, and interval between applications		 applying to only 50 % of the total are orchard/vineyard area. maximum of 50 % of the total area for broad acre vegetable inter-rec Invasive species control e.g., couch grass – maximum of 20 % of the cropland + extended application intervals.
Res DO	2		Limited frequency and timing of application: 28-day interval between applications and no pre-harvest applications
Application equipment School School S	Spray drift reduction nozzles (SDRN), shields,	Reduces exposure of organisms in-crop (precision treatment) and off-crop	Reduction of spray drift to the off-field15.Use 75 % drift reducing nozzl

(2020) Glyphosate: Indirect effects via trophic interaction - A Practical Approach to Biodiversity Assessment (TRR0000305).

Table 10.6-17: Examples of standard mitigation measures as described in MAgPIE (2017) across the various Member States to mitigate effects of glyphosate on biodiversity.

Type of Mitigation Measure	Risk Mitigation Measure	Benefits	Glyphosate renewal dossier (2020)
with Spray Drift	Precision treatment,		16. Use of ground directed, shielded
Reduction	etc.		spray for band application in orchards /
Technology (SDRT)			vineyards and broad-acre vegetable
			inter-row application.
Buffer zones	Non-sprayed zone at	Reduces exposure of	Establishment of buffer zones
	the edge of a crop	organisms and off-crop	Buffer zones of varying size (depending on
			the type of SDRT) are required as
			protection for off-crop NTTP communities
			from spray drift

References relied upon in Indirect effects via trophic interaction for Non-Target Terrestrial Plants discussion

Arts G, T Brock, I Roessink. 2017. Arable weeds and nontarget plants in prospective risk assessment for non-target plant: specific protection goals and exposure assessment goal options. Wageningen University.

Koning et al., 2019: Effects of management by glyphosate or that we weed vegetation in a field 80°C experiment. https://doi.org/10.1016/j.still.2018.10.012 20 G 1º

MAgPIE. 2013 Mitigating the Risks of Plant Protection, Products in the Environment. Eds A Alix, C Brown, E Capri, G Goerlitz, B Golla, K Knauer, V Laabs, Mackay, A Marchis, V Poulsen, EAlonso

CP 10.6.1

Summary of screening data Screening data is not considered to be required, since toxicity of MON 52276 to terrestrial non-target plants is adequately addressed within the framework of vegetative vigour and seedling emergence tests with 10 different representative plant species. Summaries of these studies are presented below. Darly. 112 OCT

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Internet of the order of the or CP 10.6.2 Testing on non-target plants

Summaries are provided here for all the studies.

		.8
Annex to Regulation 284/2013	MON 52276 M-CP, Section 10 Page 392 of 553	<i>2</i> 0
1. Information on the stud	ły	in the second se
Data point	CP 10.6.2/001	S.
Report author		D.
Report year	2019	
Report title	MON 52276: Effects on the Seedling Emergence and Growth of Jen Non-Target Terrestrial Plant Species under Greenhouse Conditions	
Report No	S19-03634	
Document No	EUR-2019-0233	
Guidelines followed in study	OECD Guideline 208 (2006)	
Deviations from current test guideline	Deviations from current test guideline OECD 208 (2006): Major: - none Minor: - No reference substance or historical data were mentioned in the report.	
Previous evaluation	No, not previously submitted.	
GLP/Officially recognised testing facilities	Yes Stat	
Acceptability/Reliability	Valid No No No	
Category study in AIR 5 dossier (L docs)	Category 1	
2. Full summary		
Executive Summary	conducted exposing six dicotyledonous (cucumber, oilseed rape, radish,	
A seeding emergence study was	conducted exposing six dicotyledonous (cucumber, oilseed rape, radish,	

1. Information on the study

2. Full summary Executive Summary A seedling emergence study was conducted exposing six dicotyledonous (cucumber, oilseed rape, radish, southean, sumflower and tometo) and four reference of the damage of the da soybean, sunflower and tomato) and four monocityledonous (corn, oat, wheat and onion) plant species to five nominal test concentrations of 0.12, 0.37, \$11, 3.33 and 10.00 L MON52276/ha (equivalent to 0.045, 0.134, 0.401, 1.203, and 3.610 kg glyphosate acid/ha). In addition, one negative control group (tap water) was tested. For each of the ten species, there were twenty seeds tested per treatment group.

Plants were assessed for seedling emergence, plant survival, growth stage, and phytotoxicity symptoms on days 7, 14 and 21 after 50 % of the seeds in the control had emerged in each species. The effects on plant shoot height and shoot dry weight were determined on day 21.

Compared to the control group, exposure of 10 plant species to MON 52276, resulted in no statistically significant differences in seedling emergence, mortality (survival), shoot heights and shoot dry weight, in any of the plant species tested. Therefore, the NOER is considered to be ≥ 10.00 L MON52276/ha (equivalent to ≥ 4.870 kg TPA salt/ha or to ≥ 3.610 kg glyphosate acid/ha), with the corresponding LOER, ER_{25} and ER_{50} for all parameters considered to be > 10.00 L MON52276/ha \ge 4.870 kg IPA salt/ha or to How of the part of \geq 3.610 kg glyphosate acid/ha).

The validity of the present study according to OECD guideline 208 was achieved.

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I MA	TERIALS AND METHODS MON 52276 (formulated product) Yellowish to brown liquid AZE200810A Glyphosate acid (361 g/L); glyphosate IPA salt (487, g/L) No 6 Dicotyledons: Cucumis sativus (cucumber), Brassica napus (oilseed rape), Raphanus sativus (radish), Glycine max
A. MATERIALS	
	io ^c
Test material:	in the second
Test item::	MON 52276 (formulated product)
Description:	Yellowish to brown liquid
Lot/Batch #:	AZE200810A
Purity:	Glyphosate acid (361 g/L); glyphosate IPA salt (487,g/L)
Vehicle and/or positive control:	No No
Test organism:	Le Contraction
	6 Dicotyledons: Cucumis sativus (cucumber), Brassica napus
Species:	(soybean), Helianthus annuus (sunflower), Lycopersicon esculentum (tomato)
	4 Monocotyledons: Zea mays (maize), Triticum aestivum
	(wheat), Avena sativa (oat), Allium cepa (onion)
	Battle: cucumber, maize, wheat and onion
	KWS: oilseed rape
Source:	Baywa: soybean
	Bringenheimer: sunflower
	Monsanto: tomato
	KWS: oilseed rape Hild: radish Baywa: soybean Bringenheimer: sunflower Monsanto: tonato
Environmental conditions:	
Temperature:	17.5 - 36.2 °C
Relative humidity:	41 82%
Photoperiod:	16 hours light/8 hours dark
Light intensity	596 µEs/m ²
Soil textural class	Sandy Loam (field collected) 67.28 % sand, 14.0 % silt, 18.72 % clay
Soilpy	8.48
Soil organic content:	0.80 %
Soil confluctivity:	0.351 mS/cm
Soil organic content: Soil conductivity: Experimental work dates: B. STUDY DESIGN Experimental treatments	17 May – 22 August 2019
8 8 8 2 4 4	
D STUDY DECICIÓN	
B. SIUDY DESIGN Experimental treatments	

Experimental treatments

Twenty seeds per treatment group and per species were sown into plastic pots (diameter of 15 cm and capacity 1.5 L) Seeds of six dicotyledonous and four monocotyledonous species were sown into sandyloam soil, with a pH of 8.48 and an organic carbon content of 0.80 %. For cucumber, oilseed rape, radish, soybean, sindower, tomato and maize, ten replicates (including 2 seeds each) were set up. For wheat, oat , tc .e replicat .gck-sprayer (Cc .e, y, 3:33, and 10.00 L actid ha). The track-spray tolerance of 10 % per ha. and onion, five replicates (including 4 seeds each) were set up. MON 52276 was applied on the soil surface with a track-sprayer (Company Schachtner, Ludwigsburg, Germany) at the rates of control (0), 0.12, 0.37, 1.1 \$ 333, and 10.00 L test item/ha (equivalent to 0.045, 0.134, 0.401, 1.203, and 3.610 kg glyphosate acid/ha). The track-sprayer was calibrated before the application to provide an output of 200 L with a

Observations

Following the application, seedling emergence assessment was carried out daily (until no more emergence) and mortality, phytotoxicity and growth stage were assessed at 7, 14 and 21 days after 50 % of the seedlings in the control had emerged. At test termination, assessment of shoot height and dry weight were carried out. Results were compared to the tap water treated control. Analysis of the fortified and test item rate solution (10.00 L test item/ha) were analysed by HPLC. Phytotoxicity assessments were made with a gradual rating (ranging from 0 to 100 %) to describe necrosis, chlorosis and other characteristics that could be treatment related. Shoot heights of above-ground vegetation was measured for each surviving plant from the soil surface to the apical tip (oilseed rape, radish, maize, wheat, oat and onion), or highest aerial part (cucumber, soybean, sunflower and tomato). Surviving plants were clipped at soil level on the last assessment day and dried at 60 °C for at least 48 hours. The shoot dry weight was determined per replicate. Test solutions were analysed for the concentrations of glyphosate, the active ingredient in MON 52276 using a liquid chromatography tandem mass spectrometry (LC-MS/MS) system.[®] The samples were collected from each test solution and control at application to the test systems for the definitive test.

Statistical calculations

Statistical calculations Statistical analysis of data was performed using the ToxRat Solutionseptogram (ToxRat[®] Professional Version 3.2.1). For determination of significant difference to the control, the significance level was set to $\alpha = 0.05$ for all tests. For seedling emergence and mortality data, when the monotonic rate-response is not evident a Bonferroni-Fisher-Test was performed. Shoot height and shoot dry weight data was tested for normality of data with the Shapiro-Wilk's test and for homoscedasticity with the Levene's test before performing the appropriate statistical test. Comparison between each rate of the test item assayed, with at least three replicates with surviving individuals and the relative control, was performed for all the plant species. For shoot height and shoot dry weight data, when normal distribution and homogeneity of variance of the data was obtained, and a monotonic rate-response was evident, Williams test ($\alpha = 0.05$) was performed. With the same conditions, where a monotonic rate-response was not evident, a Dunnett's test $(\alpha = 0.05)$ was performed. When normal distribution of the data was not obtained, Step-down Jonckheere-HOLLSON A Tepstra ($\alpha = 0.05$) or Multiple Sequentially Rejective U test after Bonferroni Holm ($\alpha = 0.05$) was performed. HIII SOCIAL SOCI

II. RESULTS AND DISCUSSION rd' Derties ALL CONTRACT

A. FINDINGS

The highest test item application solution served as a stock solution. For all lower application rates aliquots were taken and diluted in water. The stock solution was analysed and details are given below:

Table 10.6.2-1: Analytical	verification of the stock solution concentrations
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	Notifical concentration [[Acat item/ha]	Nominal concentration [g glyphosate acid/ha]	Nominal concentration [g glyphosate acid/L]	Determined concentration [g glyphosate acid/L]	% of the nominal
Control	5 0	0	< LOD	< LOD	-
Stock solution	§ 10	3610	18.05	15.3	85

LOD = 0.00300 g glyphosate/L = 30 % of the LOQ

LOQ = 0.0324 g test item/L (=0.0100 g glyphosate/L)

Table 10.6.2-2: Effects of MON 52276 after 21 days

Table 10.6.2-2: Ef	fects of MON	52276 after 2	1 days			M-CP, Section 10 Page 395 of 553
Crops	ops MON 52276 [L test item/ha]					
	Control	0.12	0.37	1.11	3.33	10
			Glyphosate ad	cid [kg a.s./ha]		10
	Control	0.045	0.134	0.401	1.203	3.610
		Mean seed	ling emergence	e [%]		3,010 ²²
Cucumber	95	95	95	100	95	çê û 95
Oilseed rape	85	95	90	95	95 8.0	× 100
Radish	85	80	75	75	15 5 5	90
Soybean	75	90	80	80	80 50	80
Sunflower	85	85	85	85	50 90 50 X	85
Tomato	100	100	95	100	\$ 5 95	100
Maize	100	100	95	95 100 1 95 10 1 85 10 1 100 100 1 100 100 100 100 100 100 100 100 100 100	° 100	100
Wheat	95	95	85	85 10 10	95	100
Oat	100	100	95	\$100 ×	95	100
Onion	85	85	100	100 J	100	90
	1	Me	an mortality	N C		T
Cucumber	0	0	0 500	8 0 8	0	0
Oilseed rape	0	0		0	0	0
Radish	0	0	A OF A	0	0	0
Soybean	0	0	L. S. G.	0	0	0
Sunflower	0	0		0	0	0
Tomato	0	0 1 5 05 5 05 5 5		0	0	0
Maize	0	100 C C	0	0	0	0
Wheat	0		0	0	0	0
Oat	0		0	0	0	0
Onion			hytotoxicity	Ū	0	0
Cucumber			0	0	0	0
Oilseed rape		0	0	0	0	0
Radish		0	0	0	0	0
Soybean		0	0	0	0	0
Sunflower	8 6 0	0	0	0	0	0
Tomato 5	<u> </u>	0	0	0	0	0
Maize	0	0	0	0	0	0
Wheat S	0	0	0	0	0	0
Oat Cat	0	0	0	0	0	0
Onion	0	0	0	0	0	0
Sec. Sec.		Inhibition	on shoot length	[%] ¹		1
à C 1		-9.04	-33.05	-35.31	-22.93	-26.96
Glyphosate Renewal Group		9.77	-6.54	-0.56	-0.08	-2.50
Radish		-0.45	4.23	2.0	6.68	7.57

Glyphosate Renewal Group AIR 5 – July 2020

Annex to Regulation 284.	/2013	МО	N 52276			Sec. Contraction of the second		
Table 10.6.2-2: E	ffects of MON	52276 after 21	days				n. istipiton and	
Crops		í.	S.,					
	Control	0.12	0.37	1.11	3.33	10	ו	
	Control 0.12 0.37 1.11 3.33 10 30 Glyphosate acid [kg a.s./ha] 30							
	Control	0.045	0.134	0.401	1.203	3.610		
Soybean		-12.46	-1.15	-10.2	-13.46	51,1:49		
Sunflower		5.47	-1.56	0.7	-0.31	چ [©] 0.20		
Tomato		-2.34	-10.23	-11.8	-6.68	<u></u> 14.14		
Maize		3.45	1.67	0.11	-2:0:11 1	-1.02		
Wheat		1.94	-5.69	1.75	470.79 8	4.4		
Oat		9.38	7.21	4.38	£ \$0, 0 2	-5.94		
Onion		2.5	8.94	5.33	ूरे ्री1.01	12.55		
		Inhibition	on dry weight [%] ¹	.0			
Cucumber		-0.78	-8.68	1.8 5	-12.91	-9.67		
Oilseed rape		2.86	9.99	3.69 V	6.59	9.19		
Radish		-2.3	-2.86	5.33 %] ¹ ¹ ¹ ¹ ¹ ¹ ¹ ¹	4.13	10.75		
Soybean		-17.05	-13.11		-16.92	-5.30		
Sunflower		-5.66	-13.150	8 -23.09	-28.28	-20.63		
Tomato		13.54	12.52	13.43	-6.84	-1.51		
Maize		3.14	Se0.57 &	3.15	-2.63	3.91		
Wheat		-1.91	5.90	-7.32	9.14	10.38		
Oat		13.26	jo ⁵ J.11	15.08	8.12	-15.62		
Onion		-13.54	-25.02	-21.70	-24.49	1.05		

not applicable

Table 10.6.2-3: 21-day NOER, LOER, ER25 and ER50 values for all parameter

		Endpoints [L MON57226/ha]					
Сгор	Seedling emerg	Seedling emergence/Mortality/Phytoxicity/Length/Dry weight					
	NOER	LOER	EC25/EC50				
Cucumber	5 <u>5</u> ≥ 10	> 10	> 10				
Oilseed ra		> 10	> 10				
Radish	≥10	> 10	> 10				
Soybean	≥10	> 10	> 10				
Sunflower		> 10	> 10				
Tomato	≥ 10	> 10	> 10				
Maize	≥ 10	> 10	> 10				
Wheat	≥ 10	> 10	> 10				
Oat	≥ 10	> 10	> 10				
A Sonion	≥ 10	> 10	> 10				
Glyphosate Re	newal Group AIR 5 – July 2020	Doc	ID: 110054-MCP10_GRG_Rev 1_				



B. OBSERVATIONS

Analytical data: Correct rate preparation and application was confirmed both by analysis of the stock solution, with recoveries of 85 % of glyphosate and via calibration of the spray equipment.

Mortality results: None of the tested rates of the test item MON 52276 significantly affected the survivorship of the tested species.

Seedling emergence results: None of the tested rates of the test item MON 52276 significantly affected the emergence of the tested species.

Phytotoxicity results: None of the tested rates of the test item MON 52276 showed phytotoxicity symptoms for any of the tested species.

<u>Growth stage results</u>: No differences in growth stage could be detected between the test item groups and the control for the ten tested species at any of the rates tested.

Dry weight results: No statistically significant reductions on shoot dry weight were observed for the tested treatment rates of the test item MON 52276 for all tested species.

Shoot height results: No statistically significant reductions on shoot height were observed for the tested treatment rates of the test item MON 52276 for all tested species.

The following point deviated from the current guideline recommendations:

• No reference substance or historical data were mentioned in the report.

Validity criteria according to OECD 208 were fulfilled for all species tested:

- Seedling emergence: The control seedling emergence was ≥ 70 % (actually: 75 % to 100 %).
- Phytotoxicity: The control seedlings of each species did not exhibit visible phytotoxic effects (e.g. chlorosis, necrosis, wilting, leaf and stem deformations) and control plants exhibited only normal variation in growth and morphology for that particular species.
- Mean survival: The mean survival of emerged control seedlings was ≥ 90 % (actually: 95 % to 100 %).
- Cultivation Conditions: The environmental conditions for each particular species were identical and growing media contained the same amount of soil matrix, support media, or substrate from the same source.



Assessment and conclusion by applicant:

Compared to the control group exposure of 10 plant species to MON 52276, resulted in no statistically significant differences in seedling emergence, mortality (survival), shoot heights and shoot dry weight, in any of the plant species tested. Therefore, the NOER is considered to be ≥ 10.00 L MON52276/ha (equivalent to ≥ 3.610 kg glyphosate acid/ha), with the corresponding LOER, ER₂₅ and ER₅₀ for all parameters considered to be ≥ 10.00 L MON52276/ha (≥ 3.610 kg glyphosate acid/ha).

Therefore, the study was classified as valid

Assessment and conclusion by RMS:

Annual 4- Demilation 284/2012	MON 52276 M-CP, Section 10	
Annex to Regulation 284/2013	Page 398 of 553	
I. Information on the stu	dy	
Data point	CP 10.6.2/002	1. 19.
Report author		5
Report year	2014	
Report title	MON 52276: Effects on the Vegetative Vigor of Non-Target Terrestrial Plants (Tier II)	
Report No	80477	
Document No	-	
Guidelines followed in study	OECD Guideline 227 (2006)	
Deviations from current test guideline	Deviations from current test guideline OECD 227 (2006): Major: none Minor: - No reference substance or historical data were mentioned in the report. - Light intensity was lower than 350 μE/m ² / ₄ s (mean values 170/173 μEs ⁻¹ m ⁻²)	
Previous evaluation	Yes, accepted in RAR (2015)	
GLP/Officially recognised testing facilities	 Light intensity was lower than 350 QEAnds (mean values 1/0/1/3 µEs⁻¹m⁻²) Yes, accepted in RAR (2015) Yes Valid Category 2a 	
Acceptability/Reliability	Valid S S	
Category study in AIR 5 dossier (L docs)	Category 2a	
2. Full summary Executive Summary A vegetative vigour study was	conducted exposing six dicotyledonous (cucumber, oilseed rape, radish	

1. Information on the study

 Full summary Executive Summary
 A vegetative vigour study was conducted exposing six dicotyledonous (cucumber, oilseed rape, radish, soybean, sunflower and tomato) and four monocotyledonous (corn, oat, wheat and onion) plant species to seven nominal test concentrations of 20, 40, 80, 360, 320, 640, and 1280 g MON 52276 a.e./ha. In addition, one negative control group (deionized water) was tested. The test was replicated four times for all species. At test initiation, each pot contained five plants per pot, except for cucumber which contained three plants per pot.

Following the application, plant damage and phytotoxic effects were recorded weekly until the test termination at 21 days after application. At test termination, the numbers of live and dead plants were recorded along with the visual assessments. Shoots were composited by replicate and fresh weights were measured and recorded. 5.0.5

The most sensitive monopoly edonous plant species was wheat with an EC₅₀ value of 38.2 g a.e./ha for shoot fresh weight. Catamber was the most sensitive dicotyledonous plant species with an EC_{50} value of 28.4 g a.e./ha for shoot fresh weight.

The validity of the present study according to OECD guideline 227 was achieved.

Glyphosate Renewal Group AIR 5 - July 2020

Annex to Regulation 284/2013	MON 52276	M-CP, Section 10 Page 399 of 553	Contraction of the second
I. MA	TERIALS AND METHODS		in the second se
A. MATERIALS		je S	0
Test material:		Joinet.	
Test item::	MON 52276 (formulated product)	A ST	
Description:	Amber liquid	NIN'S	
Lot/Batch #:	GLP-1308-22862-F	A A A A A A A A A A A A A A A A A A A	
Purity:	30.45 % glyphosate acid	». C, s, 10	
Vehicle and/or positive control:	No	10	
Test organism:			
Species:	6 Dicotyledons: (cucumber, oilse sunflower and tomato)	d rape, radish, soybean,	
	4 Monocotyledons: (corn, oat, whea	tand onion)	
Source:	MON 52276 TERIALS AND METHODS MON 52276 (formulated product) Amber liquid GLP-1308-22862-F 30.45 % glyphosate acid No 6 Dicotyledons: (cucumber, oilset sunflower and tomato) 4 Monocotyledons: (corn, oat, wheat Syngenta Seed: corn, sunflower Ohio Foundation Seeds: oat Park Seed Co.: onion L.A. Hearne company: wheat NE Seed: cucumber, tomato Johnny's Selected Seeds: oilseed rap Sustainable Seed Company: radish Missouri Foundation Seeds: soybear	be	
Environmental conditions:			
	Missouri Foundation Seeds: soybear 17.0 – 28.3 C corn, oat, onion, who	eat, soybean, sunflower	
Temperature: Relative humidity:	21.4 \pm 29.4 C: cucumber, oilseed ra 32 \pm 92% corn, oat, onion, wheat, s 27 \pm 73% cucumber, oilseed rape, s 16 hours light/8 hours dark	upe, radish, tomato soybean, sunflower radish, tomato	
	 170 μEs/m² (daily accumulated PAF out, onion, wheat, soybean, sunflow 173 μEs/m² (daily accumulated PAF cucumber, oilseed rape, radish, tomatical cucumber, oilseed rape, radish, tomatical cucumber, solution of the second s	R was 10 E/m ²) for	
Soil textural class:	Sandy Loam (72 % sand; 18 % silt;	10 % clay)	
Sol this is a start	5.9		
Soil organic content:	1.5 % (equivalent to 2.5 % organic r	natter)	
Experimental work datess	5 November – 26 November 2013		
~~`,0,0°			

B. STUDY DESIGN

Experimental treatments

Prior to treatment, seedlings were grown (in 16.5 cm - diameter plastic pots containing 11.5 cm depth of soil) to the 2 + 3 - 4 true leaf stage from untreated seed in a sandy Loam soil (1.5 % organic matter, pH 5.9) Glyphosate Renewal Group AIR 5 – July 2000 in a greenhouse. The test was replicated four times for all species. Because the test species are different in their size and growth requirements, numbers of test plants per pot and pots per replicate were adjusted accordingly. Applications of the formulated product were made using a calibrated overhead track sprayer (De Vries Manufacturing). The single nozzle sprayer was equipped with a TeeJet 4001 E nozzle and operated at 40 psi. The target application volume was 100 L of water per hectare (L/ha). The application started with the controls and then progressed upward in treatment rates. The applications produced target

Observations

Observations of survival (numbers of live plants present and cumulative mortality) and phytotoxicity ratings (i.e., visual injury assessments) were performed on a weekly basis for all species. Visual injury assessments were made on a scale of 0 to 100. The range and severity of effects as compared to the control plants are as follows: 0 to 10, no effect; 20 to 30, slight effect; 40 to 60, moderate effect; 70 to 90, severe effect; with 100 meaning all plants dead. Visually observed phytotoxic effects were stunting, chlorosis, wilting, leaf wrinkling, necrosis, and damping off, though not all manifested on all species. Shoot lengths were measured from the base of the stem to the tip of the longest leaf for bulb of leaf rosette plants and from the base of the stem to the apical bud for other plants. The in-life phase was terminated 21 days after application of the test substance. At test termination, the numbers of live and dead plants were recorded along with the visual assessments. Plants were watered prior to taking fresh weights. Test solutions were analysed for the concentrations of glyphosate, the active ingredient in MON 52276 using a liquid chromatography tandem mass spectrometry (LC-MS/MS) system The samples were Drog in collected prior to and after application to the test systems for the definitive test.

Statistical calculations

00 All statistical computations were performed using SAS Version 9.3 software. Continuous data (length, weight) was analysed using analysis of variance (ANOVA) and Jonekheere-Terpstra test if monotonous. The NOEC for quantal data (survival) for species less than 100 % was determined by Cochran-Armitage. If monotonicity was not determined then pair-wise testing was performed using Dunnett's or Dunn's test for continuous data, after Shapiro-Wilk and Levene testing for normality and homogeneity of variance respectively, and Fisher's Exact test for quantal data. Estimates for continuous data (length, weight) were calculated by Bruce and Versteeg weighted Probit or other appropriate regression models, fit using the Marquardt method. Estimates for Quantal data (survival) were calculated using Probit when possible or Moving Average Angle or Binomial analysis when appropriate.

II. RESULTS AND DISCUSSION Union the state A allow the full ð

A. FINDINGS

Color March Color Table 10.6.2-4: Analytical verification of the concentrations

F 3

	Parameter		ominal con	centration	of glyphosa	te acid equi	ivalent [g/ha	ı]	
		<u>50</u> 50 50 320 640		40	1280				
		N N	Nominal concentration of glyphosate acid equivalent [mg/L]						
		0, 0, 0	3.	20	6.	40	12	2.8	
	1) 1) 1) 1) 1) 1) 1) 1) 1) 1)	M	easured cor	centration	of glyphosa	ite acid equi	ivalent [mg/	L]	
	Pre-application concentration	< MQL ^a	3.10	3.08	6.0	5.88	12.8	13.3	
	Pre-application % of nominal	-	97	96	94	92	100	104	
	Post-application concentration	< MQL ^a	2.92	2.98	6.0	5.8	12.3	12.5	
	Post-application % of nominal	-	91	93	94	91	96	98	
	AT 16 AT								
4 13 20 00 00 00 00 00 00 00 00 00 00 00 00 00	Post-application opcontration < MQL ^a 2.92 2.98 6.0 5.8 12.3 Post-application of nominal - 91 93 94 91 96 ^a MQL = 0.0200 mg/mL MQL ^a 2.92 2.98 6.0 5.8 12.3 Post-application of nominal - 91 93 94 91 96 ^a MQL = 0.0200 mg/mL					1CP10_GRG_R	tev 1_Jul_2020		



Table 10.6.2-5: Effects of MON 52276 after 21 days

Table 10.6.2-5: Eff	ects of MC	DIN 52276 a						CP, Section 10 age 401 of 553
Crops	Control	20	Glyp 40	hosate acid 80	equivalent 160	g/ha 320	640	1280
	Control	20		al [%]	100	520	040	Pilling Pilling
Corn	100	100	100	100	100	95	50*	37*°
Oat	100	100	100	100	92	22*	0*	5 60*
Onion	100	100	100	100	100	87*	67*,00	35*
Wheat	100	100	100	57*	2*			0*
Cucumber	100	100	100	42*	0*	0*	1000 C	0*
Oilseed rape	100	100	100	100	100	100	ूर्% रू47*	0*
Radish	100	100	100	100	97	72*0	20*	2*
Soybean	100	100	100	95	65*		0*	0*
Sunflower	100	100	100	85*	20* 0	2 North	0*	0*
Tomato	100	100	100	90	5*	\$ 0*	0*	0*
	1	Р	hytotoxic F	Effects ratin	20* 6 5*5 6 19 6 6 6 15 60 2 30	<u>S</u>		I
Corn	0	0	10	18	11 A3 C	70	80	80
Oat	0	5	10	15	15,60	93	100	100
Onion	0	18	10	2 6	6	45	73	90
Wheat	0	0	25	015% ×	98	100	100	100
Cucumber	0	10	28	ુઈ ુડ્ડે63ૂઈ	100	100	100	100
Oilseed rape	0	0	3		38	60	85	100
Radish	0	5	1,00,00	స్ 23	43	65	90	98
Soybean	0	0	118	53	70	93	100	100
Sunflower	0	0	5 5326	50	83	100	100	100
Tomato	0		s [.] 833	55	95	100	100	100
		Iean plant f	~ -		-		0.400*	0 45 4*
Corn	74.329	69,18132 61 139	68.585 55.825	60.905* 53.543	28.846* 12.260*	2.448* 0.814*	0.498* NA	0.454* NA
Oat	57.927 ×		60.458	57.666	28.238*	8.926*	1.458*	0.218*
Onion		\$ 49 .072 \$ 27.120	14.170*	0.865*	0.059*	NA	NA	NA
Wheat	31, \$ 7,2 	122.01*	76.04*	10.298*	NA	NA	NA	NA
Cucumber Oilseed rape	129014	122.01	133.98	125.62	56.161*	17.283*	4.168*	NA
Radish	\$ 25.009	82.301	83.568	57.897*	19.982*	6.095*	0.919*	0.956*
		76.772	62.966*	20.617*	2.522*	2.175*	NA	NA
Sunflower	133.33	107.05*	42.117*	7.855*	1.017*	NA	NA	NA
Tomato	210.403	155.438*	60.455*	11.604*	0.291*	NA	NA	NA
Soybean	AIR 5 – July 2	020			Doc	ID: 110054-MC	P10 GRG R	ev 1 Jul 2020





Table 10.6.2-5:	Effects of MON	52276 after 21	days

Annex to Regulation 284/								
	/2013		MON 522	276				CP, Section 10 age 402 of 553
Table 10.6.2-5: E	ffects of MO	ON 52276 a	after 21 day	ys				CP, Section 10 age 402 of 553
Crops				hosate acid				.0
	Control	20	40	80	160	320	640	1280
	(01	1	Mean shoot	length [mn	1]	205*	100*	Q D W
Corn	691	667	670	608*	361*	207*	188*	\$87.* N. N.
Oat	720	690	687	709	367*	245*	NA	NA 143*
Onion	41/	398	210*	388* 260*	298*	191* NA	157*	NA
Wheat	591	449	151*	200° 55*	280 [°]	NA NA o	NA O	NA
Oilsood range	264	261	266	268	189	175*	NA 148*	NA
Radish	183	167	174	158*	134*	169*8	94*	151*
Souhean	548	533	454*	226*	138*	5146* Š	NA	NA
Supflower	498	445	284*	146*	118* 0	NA C	NA	NA
Tomato	302	314	158*	73*	71*0	NA NA	NA	NA
		10 00 10 00 10 00	S II					
Corn Oat Onion Wheat Cucumber Oilseed rape Radish Soybean Sunflower Tomato * = significantly differ NA = not applicable NA = not applicable Glyphosate Renewal Grow			^o u ^o					

Table 10.6.2-6: 21-day NOER, ER25 and ER50 values

	5: 21-day NOER, ER ₂₅ and E		
Crop]	Endpoints [g acid equivalent/ha	a];
	NOEG	% Survival	
Carra	NOEC	EC ₂₅ (95 % CI)	EC ₅₀ (95 % CI)
Corn Oat	320	522 (414 - 626)	854 (714 - 1069)
Onion	160	204 (175 – 228) 536 (424 – 650)	252 (225 – 28) 916 (7525–1194)
Wheat	40	70.2 (59.6 - 78.3)	859 (76.8-96.0)
Cucumber	40	NC	76.7 (65.1 - 92.7)
Oilseed rape	320		\$ 632 (558 - 728)
Radish	160	305 (252 - 353)	\$ \$632 (558 - 728) \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
Soybean	80	<u>134 (112 – 153)</u>	179 (157 – 204)
Sunflower	40	92.2 (78.3 – 104)	179 (157 - 204) 117 (104 - 132)
Tomato	80	92.4 (81.8 - 102)	
Crop		Fresh weight	100 (2011 120)
r	NOEC	EC25 (95 % CI)	EC ₅₀ (95 % CI)
Corn	40	87.1 (58 .3 + 1 30)	131 (99.0 - 174)
Oat	80	91,7 (79.3 - 106)	120 (109 – 132)
Onion	80	(103)(73.7-137)	163 (133 – 199)
Wheat	20	29.10(24.6 - 34.5)	38.2 (33.9 - 43.1)
Cucumber	< 20	28.4 (22.6 - 35.7)	39.2 (33.7 - 45.7)
Oilseed rape	80	5 6 28.4 (22.6 - 35.7) 5 96.0 (81.7 - 113)	153 (137 – 171)
Radish	40	55.3 (42.0 - 72.9)	94.9 (78.1 - 115)
Soybean	20		52.9 (44.1 - 63.5)
Sunflower		21.9 (19.1 - 25.2)	31.1 (27.7 - 34.8)
Tomato	< 20 2 5 5	19.5 (15.7 – 23.3)	30.0 (26.2 - 33.8)
Crop		Shoot length	
	NQÊÇÊ	EC ₂₅ (95 % CI)	EC ₅₀ (95 % CI)
Corn	50 5 40 ~ (5 5 80 ~ (5 5 80	55.8 (27.7 - 112)	207 (133 - 323)
Oat	۲ ¹ ۴ 80	112 (85.9 - 147)	204 (174 - 238)
Onion	20 5 5 20 5 5 20 5 5 20 5 5 20 5 5 20	99.7 (60.9 - 136)	387 (291 – 514)
Wheat	<u>بر م</u> ر 20	32.5 (16.7 - 63.2)	120 (73.4 - 197)
Cucumber	<u>کې < 20</u>	18.3 (14.0 – 22.5)	28.4 (24.1 - 32.7)
Oilseed rape	\$ 160	202 (131 - 313)	689 (525 - 902)
Radish Soybean Sunflower	40	130 (42.8 - 392)	1144 (526 – 2487)
Soybean	20	33.0 (19.8 - 54.8)	75.3 (54.7 – 103)
Sunflower Fomato CP = confidence in NC = not calculate Glyphosate Renewal	20	21.4 (13.8 - 32.3)	50.9 (38.7 - 67.1)
Pomato CI = confidence in	20	22.9 (12.7 - 41.0)	46.7 (32.1 - 67.9)

B. OBSERVATIONS

Analytical data:

Chemical analyses were performed on samples of the three highest test solutions to quantify glyphosate in the test solution. The mean measured are the test solution. The mean measured concentrations ranged from 92 to 104 % in the pre-application samples and ranged from 91 to 98 % to the post-application samples. The measured content of the test item always ranged between 80 and 120 % of nominal, so the ecotoxicological endpoints were evaluated using hiologie file nominal concentrations of the test item. 10° 00

Survival and phytotoxicity results:

There were no phytotoxic effects and the survival was 100 % in the control for all species. There was significant (p = 0.05) reduction in survival compared to the control in all species tested. After 21 days, treatment level mean phytotoxicity ratings ranged from 0 to 100 for all species and progressed toward moderate or severe with increasing test substance concentration. The lowest NOEC values was 40 g a.e./ha for wheat, cucumber and sunflower. The most sensitive species base of survival EC₅₀ values was cucumber with an EC₅₀ of 76.7 g a.e./ha.

cucumber with an EC₅₀ of 76.7 g a.e./ha. <u>Fresh weight results:</u> Shoot fresh weight was significantly reduced in all species. The most sensitive species based on shoot fresh , bounder weight EC_{50} values was tomato, with an EC_{50} of 30.0 g a.e./has s

Shoot length results:

Shoot length was significantly reduced in all species. The most sensitive species based on shoot length EC_{50} Multon values was cucumber with an EC₅₀ of 28.4 g a.e./ha.

non

The most sensitive monocotyledonous plant species was wheat with an EC₅₀ value of 38.2 g a.e./ha for shoot fresh weight. Cucumber was the most sensitive dicotyledonous plant species with an EC50 value of 28.4 g a.e./ha for shoot fresh weight.

The following points deviated from the current guideline recommendations:

- No reference substance or historical data were mentioned in the report.
- Light intensity was lower than 350 μ E/m²/s (means values 170/173 μ Es⁻¹ m⁻²)

However, there were no phytotexic effects observed in the controls for any of the species tested, meaning that the growing conditions were appropriate for the species. In addition any competition for light was minimized considering that due to the test species being different in their size and growth requirements, numbers of test plants per pot and pots per replicate were adjusted accordingly.

The validity criteria according to the OECD 227 were fulfilled. The seedling emergence was at least 70 % (actual values from \$\$\$\$\$,99%). In the control, the plants did not exhibit visible phytotoxic effects; the mean plant survival is at least 90 % for the duration of the study (actual value 100 %); environmental conditions for a particular species were identical and growing media contain the same amount of soil matrix, support media, or substrate from the same source.

III. CONCLUSIONS

Assessment and conclusion by applicant:

The lowest EC₅₀ value for MON 52276 was observed with cucumber and was calculated to be 284 \pm acid equivalent/ha for shoot fresh weight. The lowest NOEC values were observed with cucumber, sunflower and tomato for fresh weight parameter and with cucumber for shoot length parameter and were calculated to be < 20 g acid equivalent/ha. Ĩ,Ś

RMS conclusion in the RAR 2015:

. o'i'o, Despite the assumption that the study was considered to be valid as criteria according to OECD 227 were fulfilled, RMS questioned the reliability of the endpoints from the study with half the recommended light intensity. RMS could not exclude the possibility that sensitivity of the fest species was underestimated under the proposed environmental conditions and with the choice of the endpoint shoot length. RMS considered that uncertainties exist in terms of a reliable exposure of test plants and concerning the full potential of glyphosate action to affect a down regulated plastid localised pathway. Nevertheless, this study displayed the only dataset provided for the representative formulation MON 52276 and therefore, included information about the relevance of the formulants. In general, toxicity studies with the commercial product are more appropriate that studies with the active ingredient only for the assessment of the effects on non-target plants.

> of il Tell,

jj.

Assessment and conclusion by RMS:

1. Information on the st	udy
Data point	CP 10.6.2/003 5 5 5
Report author	
- J	
Report title	Evaluation of the toxicity of glyphosate and paraquat to terrestrial non- target plants
Report No	CEA 104
Document No	5 6 0 - 6 8
study Street	OECD 208B (draft, 2000): Terrestrial non-target plant test; Vegetative Vigour Test.
	No, no claims for GLP compliance were made for the study.
Previous evaluation	Yes, evaluated and not accepted: • RAR 2015
Short description of study design and observations	The vegetative vigour test assesses the potential damage to plants following exposure of Roundup (360 g glyphosate/L, EC) on non-target plants (<i>Beta vulgaris</i> (Sugar beet); <i>Raphanus rapistrum</i> (Rape); <i>Lepidium sativum</i> (Garden cress); <i>Pisum sativum</i> (Pea); <i>Lolium perenne</i> (Perennial ryegrass) and <i>Triticum aestivum</i> (Winter wheat)) following deposition on the leaves and above-ground portions of the plants. Seedlings were grown in pots filled with sterilised Kettering loam and Derby Quartz (mixture loam and grit: 5:1). Each treatment/crop combination was replicated four times. Prior to treatment, seedlings were grown to at least $2 - 4$ true leaves. Roundup was applied indoors with a Mardrive pot sprayer at 225 L/ha. The plants were treated with
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1. Information on the study

Annex to Regulation 284/2013	MON 52276	M-CP, Section Page 406 of 5
	seven nominal concentrations of 0.00004, and 4.0 L prod/ha. One negative contro treatment plants were kept in a greenhouse ratings, according to a nine point scoring s first 4 days and at approximately 7, 15 and 2 All plots were harvested between 20 to determine fresh shoot weight. The weight combined. Data for the No Observed H analysed using one-way ANOVA and Dur as post-hoc. The highest concentration not the control was identified as the NOER.	1 group was tested. After at 12 to 18 °C. Phytotoxicity ystem were recorded for the 22 days after the application 22 days after treatment to s of plants in one pot were effect Rates (NOER) were mett's t-test was performed
Short description of results	<i>B. vulgaris</i> (Sugar beet) and <i>R. rapistri</i> quickly to the application of glyphosate as showing significant differences in vegetati at 50 % field application rate (2.0 L/ha) one test item. The NOEC was 0.4 L/ha (10 % field rate) for the duration of the weight NOEC was also 0.4 L/ha. <i>Le sain</i> most sensitive species according to the vegen NOEC of 0.04 L/ha (1 % field rate) from d The fresh shoot weight was a less sensitive of 0.4 L/ha. The NOEC for calculated for fresh for all test species.	Roundup, with both species ve vigour from the controls e day after application of the field application rate). There <i>B. vulgaris</i> (Sugar beet) or e study and the fresh shoot <i>aum</i> (Garden cress) was the getative vigour scores with a ay 2 to the end of the study. e endpoint, with a NOEC of
Reasons for why the study is not considered relevant/reliable or not considered as key study Reasons why the study report is not available for submission Category study in ALF 5 dossier (L docs)	The study design is not in line with the c requirements. The validity criteria accord could not be fulfilled. Therefore, no cons drawn from the study. Deviations from current guideline: • The mean plant survival was not e • Seedling emergence rate for Lep	ing to the current guideline istent conclusions could be valuated <i>idum sativuma and Lolium</i>
Reasons why the study for some study states and states	The study is not considered as relevant shortcomings.	nt because of the various
Category study in ALK 5 dossier (L docs)	Category 3b	
Glyphosate Renewal Group AIR 5 – July		
Glyphosate Renewal Group AIR 5 – July	2020 Doc	ID: 110054-MCP10_GRG_Rev 1_Jul_20

Information on the study 1.

. Information on the stu	cp 10 < 2/004
Data point:	CP 10.6.2/004
Report author	MON 52276 M-CP, Section Page 407 of dy CP 10.6.2/004
Report year Report title	Comparative Post-Emergence Phytotoxicity of AMPA and
	Glyphosate to Crop and Annual Weed Species
Report No	Glyphosate to Crop and Annual Weed Species
Document No	-
Guidelines followed in study	Not applicable.
GLP	No, this report do not contain any test material and any experimentation.
Previous evaluation	Yes, evaluated and accepted: RAR 2015 RAR 2015 A Recepted: A R
Short description of study design and observations:	The purpose of this evaluation was to compare relative post- emergence phytotoxicity between glyphosate and aminomethylphosphonic acid (AMPA) with crop and annual weed species. At planting, containers were packed with sterilized silt loam soil. Seeds were planted between and approximately 30 specimens. After planting, plants were moved to the greenhouse with supplementary lighting and sufficient tap water was provided. Nominal test concentrations for foliar applications were prepared from a 1 % stock solution for glyphosate acid equivalent and AMPA and applied as needed to achieve the desired rate of application to young plants. Low rates required further dilution of the 1 % stock solution to 0.1 % and 0.01 % stock solutions to ensure accuracy in pipetting. To complete the formulation prior to application 0.4 % of emulsifier to (cyclo-L) was added to each spray bottle and then water was added in sufficient volume to provide a spray volume of 200 gallons Å. The plants were inspected approximately twice per week. Phytotoxicity was recorded as visual percent injury (chlorosis) relative to the untreated control and evaluated two weeks after test initiation. The percent injury observations were used as the phytotoxicity endpoint to calculate EC ₅₀ values in this analysis. Glyphosate Isopropylamine (IPA) and AMPA data from studies run in parallel were available from a studies conducted on 12 March and 15 August 1986. The glyphosate levels tested in March 1986 included 0.0625, 0.125, 0.25, 0.5, 1 and 5 lb a.e./A. and the glyphosate levels tested on 15 August 1986 were 1, 5, 10 and 20 lb a.e./A. Statistical calculations: EC ₅₀ values were calculated using a 3-parameter logistic model with the software package GraphPad Prism version 5.04 (GraphPad Software, Inc.). The maximum asymptote was constrained in the logistic model to 100 % to reflect the maximum potential response based on percent injury observations.
Short description of results of the second s	acid and ranged from 3.4 for hemp sesbania to 87 for common lambsquarters. All AMPA/EC ₅₀ glyphosate acid ratios were greater than 2, with an average ratio across the seventeen tested species of 22, indicating that AMPA has significantly lower herbicidal activity compared to glyphosate.

Annex to Regulation 284/2013	MON	52276			-CP, Section Page 408 of	
	Table 1. Post-emergence Species based on units of	te EC_{50} values for AMPA and C of kg/ha	Hyphosate to Cro	p and Annual W	Veed	illi illi
	Species Common name	Species Scientific Name	Glyphosate Acid EC ₅₀ (kg/ha)	AMPA EC ₅₀ (kg/ha)	EC50 Ratio ¹	101, Call.
	BARNYARD GRASS	Echinochloa crus-galli Xanthium strumarium	0.711	11.545 2.883	16.249 4.195.**	Ch.
	COCKLEBUR	Zea mays	0.289	4.702	16.260	
	CORN CRABGRASS	Digitaria ischaemum	0.289	7.846	20,000	
	GREEN FOXTAIL	Setaria veridis	0.392	4.751	283000 013.091	
	HEMP SESBANIA	Sesbania exaltata	1.003	2.238	2.231	
	LAMBSQUARTERS	Chenopodium album	0.389	22,193	56.978	
	MORNING GLORY	Ipomoea sp.	1.169	\$4.280	12.215	
	PROSO MILLET	Panicum miliaceum	0.330	2 4c849	14.709	
	RICE	Oryza sativa	0.936	\$9.732	10.395	
	SMARTWEED	Polygonum pensylvanicum	0.826	4.184	5.068	
	SORGHUM	Sorghum bicolor	Q.96Q S	10.844	19.373	
	SOYBEAN	Glycine max	8.250 2	10.291	10.832	
	SUGAR BEET	Beta vulgaris	ୂଁ ୪୫.୨୭	4.357	7.829	
	VELVETLEAF	Abutilon theophrasti	5_5 0 88 0	15.815	17.972	
	WHEAT	Triticum aestivum	© <u>0</u> .795	14.627	18.391	
	WILD BUCKWHEAT	Polygonum convolvutus		2.867	5.158	
	Average	5.00	0.6701	8.706	14.758	
	¹ EC ₅₀ ratio calculated as EC and may differ slightly from	50 AMPA/EC50 glyphosate. Results w hand calculated values	vere calculated with i	full precision mode	in Excel	
Reasons for why the	This report is a c	omparison of post-em	ergence phy	totoxicity h	between	
tudy is not considered		MPA with crop and a				
elevant/reliable or not		ted from several				
	nerformed Neve	ertheless the results co	wild be usef	il ac cunnt	emental	
onsidered as key tudy:	data.	SI'S M		ui as suppi	emental	
Reasons why the study	The report is con	sidered as supportive	only.			
report is not available for		o o				
ubmission	ST. ST.	sidered as supportive				
Category study in AIR 5 dossier (L docs)	Category 30					
dossier (L docs)	0 8.0	on non-target plan				

Extended laboratory studies on non-target plants **CP 10.6.3**

Additional testing is not required, since toxicity of glyphosate and the representative product MON 52276 to terrestrial non-target plants is adequately addressed within the framework of vegetative vigour and seedling emergence tests with 10 different representative plant species and an acceptable risk assessment is concluded. 2 007

Semi-field and field tests on non-target plants **CP 10.6.4**

Additional testing is not required.

Effects on Other Terrestrial s (Flora and Fauna)

CP 10.7 -, acceptable acute or long-term risks were indicated for each of the including birds, mammals, aquatic organisms, bees and other terrestrial non-target afthropods, soil macro and meso-organisms, micro-organisms and terrestrial non-target plants, in consideration of the proposed uses for MON 52276. However, a report has been prepared to further address of a glyphosate Renewal Group AIR 5 – July 2020

ion the second s the impact on biodiversity, namely 'Glyphosate: Indirect effects via trophic interaction - A Practical Approach to Biodiversity Assessment⁴⁸'. The purpose of this report is two-fold: (1) provide a biodiversity assessment that principally informs on indirect effects through trophic interactions and (2) to inform risk assessors and managers on risk mitigation options that are protective of aquatic and terrestrial biodiversity. The outcome of the present biodiversity assessment for glyphosate is summarized for the different environmental compartments and taxa where appropriate in the document M-CP Section 10.

CP 10.8 Monitoring Data Available monitoring data for glyphosate and its metabolites in soil, water, sediment and an are presented and discussed in detail in MCA Section 7.5

(2020) Glyphosate: Indirect effects via trophic interaction - A Practical Approach to

Annex M-CP 10-01: Avian risk assessment

Table CP 10-01-1:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c,	10 a-c
(1 × 1440 g.a.s/ha)		5

<u>Field crops</u> Table CP 10 (1 × 1440 g.:	(Post harve	st, pre-sowing, pr	Annex to Regulation 284/2013 MON 52276 M-CP, Section 10 Page 410 of 553 Annex M-CP 10-01: Avian risk assessment Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Image: CP 10-01-1: Table CP 10-01-1: Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Image: CP 10-01-1: Table CP 10-01-1: Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Image: CP 10-01-1: Table CP 10-01-1: Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Image: CP 10-01-1: Table CP 10-01-1: Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Active substance Active substance: Glyphosate Image: CP 10-01-1: Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c								
			<u>e-planting): Uses 2 a-</u>	-c, 10 a	<u>-c</u>						
(1 1110 g.		Field crops (Post l	harvest, pre-sowing, p	re-plant	ing): Us	es 2 a-c, 10 a-	c 1 3 3 4				
Active substa		Active substance:	••								
Reprod. Toxi bw/d)	city (mg/kg	Reprod. Toxicity (mg/kg bw/d): 96.3								
TER criterio		TER criterion: 5	1	1							
GAP crop	rate	Crop scenario Growth stage	Generic focal species	SVm	MAE	DDDm (mg/kg bw/d)	TER _{lt}				
(g a.s./ha)Field crops (Post-harvest, pre-sowing,1 × 1440	Bulbs and onion like crops BBCH ≥ 40	Small granivorous bird "finch" Linnet (Carduelis cannabina)	6.9	\$0\$ S	4.34	22.2					
pre-planting)		Cereals BBCH≥40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i>	\$.30 0	1.0 × 0.53	2.52	38.2				
		Fruiting vegetables BBCH ≥ 50	Small granivorous bird "finch" Linnet (Carduelis	10.4	1.0 × 0.53	2.59	37.1				
		Fruiting vegetables BBCH ≥ 50	Small omnivorous bird "lark" Woodlark (Lullula actorea)	3.3	1.0 × 0.53	2.52	38.2				
		BBCH≥20 5	Small insectivorous bird Swagtail" Yellow wagtail <i>Motacilla flava</i>)		1.0 × 0.53	7.40	13.0				
		Leafy vegetables BBCH ≥30	Small granivorous bird "finch" Serin (Serinus serinus)	3.8	1.0 × 0.53	2.90	33.2				
	c.	Leafy vegetables BBCII ≥ 50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	2.52	38.2				
Glyphosate Renew	(0) 1) (0) 1) (0) 1) (0) 1) (0) 1) (0) 1)	Leafy vegetables BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	7.40	13.0				
Ś	0,000 10,000 10,00000000	Legume forage BBCH≥50		3.4	1.0 × 0.53	2.59	37.1				
es international and a series of the series	(b),	Legume forage BBCH≥50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	2.52	38.2				

Table CP 10-01-1:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c
(1 × 1440 g.a.s/ha)	

Table CP 10 (1 × 1440 g.a		Field crops (Post l	harvest, pre-sowing, p	re-plant	ing): Us	es 2 a-c, 10 a-	Section 10 411 of 553 c	
Active substa			Active substance: Glyphosate					
bw/d)		Reprod. Toxicity (mg/kg bw/d): 96.3						
GAP crop		Crop scenario	Generic focal species	SVm	MAF _m ×	DDDm S		
p	rate (g a.s./ha)	Growth stage			TWA	(mg/kg bw/d		
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 1440	Legume forage BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		0.53		13.0	
pre-planting)		Maize BBCH≥40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> arbarag)	2.7 Ö	0:53 5	2.06	46.7	
		Maize BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)		₫.0 × 0.53	3.66	26.3	
		Oilseed rape BBCH ≥ 40	"lark" O W S Woodlark (Lulbalar) arborea)	2	1.0 × 0.53	2.06	46.7	
		Oilseed rape BBCH ≥ 40	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba patumbus)	0.9	1.0 × 0.53	0.687	140	
		Potatoes BBCH≥40	Quest among hind	3.3	1.0 × 0.53	2.52	38.2	
		Potatoes to	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	7.40	13.0	
		Pulses [©] S BBCH ≥ 50	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4	1.0 × 0.53	2.59	37.1	
	no 0,00 11,00 10,100 10,100000000	Pulses BBCH≥50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	2.52	38.2	
	10 10 10 10 10 10 10 10 10 10 10 10 10 1	Pulses BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.0 × 0.53	7.40	13.0	
ICS IN		Potatoes BBCH ≥ 40 Potatoes BBCH ≥ 20 Pulses BBCH ≥ 50 Pulses BBCH ≥ 20 Root & stem vegetables BBCH ≥ 40 Root & stem vegetables BBCH ≥ 40 - July 2020	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4	1.0 × 0.53	2.59	37.1	
No. No.		Root & stem vegetables BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i>	3.3	1.0 × 0.53	2.52	38.2	

Table CP 10-01-1:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c
(1 × 1440 g.a.s/ha)	

Annex to Regulati Table CP 10 (1 × 1440 g.a	-01-1: H	Field crops (Post	MON 52276 harvest, pre-sowing, pr	re-plan	ting): Use	Page	Section 10 412 of 553 C	in the second se
Active substa	nce	Active substance:	Glyphosate				ġ	S.
Reprod. Toxic bw/d) TER criterior	city (mg/kg		(mg/kg bw/d): 96.3				25 21 DUD	
GAP crop	-	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m (mg/kg bw/d)	TER ₁	
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 1440	Root & stem vegetables BBCH ≥ 20	arborea) Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	9.7		7.40 7.40 7.40 7.40 7.40 7.40 7.40 7.40	13.0	
pro (1		Strawberries BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	4.4	1.0 x 5 0,530 S 5 S	3.36	28.7	
		Strawberries BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail	9.79 CU 9.79 CU 9.79 CU 1.79 CU	0.53	7.40	13.0	
Table CP 10 (2 × 1080 g.a		Field crops (Post	harvest, pressiving, p		ting): Use	es 2 a-c, 10 a-	c	
Active substa	nce	Glyphosate						

Table CP 10-01-2: (2 × 1080 g.a.s/ha)

rate (g a.s./ha) 2 × 1080	Growth stage	"finch" Linnet (Carduelis	SV m 6.9		(mg/kg bw/d)	TER 22.2
2 × 1080	like crops	"finch" Linnet (Carduelis	6.9		4.34	<u> </u>
, cò		cannabina)		0.55		22.2
17 . 17 . 17 . 17 . 17 . 17 . 19 .	Cereals BBCH≥40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.1 × 0.53	2.08	46.3
14 00 00 00 00 00 00 00 00 00 00 00 00 00	Fruiting vegetables BBCH ≥ 50	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4	1.1 × 0.53	2.14	45.0
	Fruiting vegetables BBCH ≥ 50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.1 × 0.53	2.08	46.3
	Fruiting vegetables BBCH ≥ 20	"wagtail" Yellow wagtail	9.7	1.1 × 0.53	6.11	15.8
		$BBCH \ge 50$ Fruiting vegetables $BBCH \ge 50$ Fruiting vegetables $BBCH \ge 20$	$\begin{array}{c} \label{eq:basic} \end{tabular} \begin{tabular}{c} tabula$	Fruiting vegetablesSmall granivorous bird "finch" Linnet (Carduelis cannabina)3.4Fruiting vegetablesSmall omnivorous bird "lark" Woodlark (Lullula arborea)3.3Fruiting vegetables BBCH ≥ 50 Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)9.7	Fruiting VegetablesSmall granivorous bird "finch" Linnet (Carduelis cannabina)3.41.1 × 0.53Fruiting vegetablesSmall omnivorous bird "lark" Woodlark (Lullula arborea)3.31.1 × 0.53Fruiting vegetablesSmall omnivorous bird "lark" Woodlark (Lullula arborea)3.31.1 × 0.53Fruiting vegetablesSmall insectivorous bird "wagtail" (Motacilla flava)9.71.1 × 0.53	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

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Table CP 10-01-2:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c
(2 × 1080 g.a.s/ha)	

$(2 \times 1080 \text{ g.s})$		Field crops (Post l	narvest, pre-sowing, p	re-plant	ting): Us	es 2 a-c, 10 a-	Section 10 413 of 553 c		
Active substa	nce	Glyphosate	Hyphosate						
Reprod. Toxicity (mg/kg bw/d)		96.3 3 ¹ 4 8 4							
TER criterio GAP crop	1	5 Crop scenario	Generic focal species	SVm	MAF _m ×	DDD. E	TER _{lt}		
on cop	rate (g a.s./ha)	Growth stage				(mg/kg bw/d)			
Field crops (Post-harvest, pre-sowing,	2 × 1080	Leafy vegetables BBCH ≥ 50	Small granivorous bird "finch" Serin (<i>Serinus serinus</i>)	3.8	1.1 × 0.53		40.2		
pre-planting)		Leafy vegetables BBCH ≥ 50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3		2,08	46.3		
		Leafy vegetables BBCH ≥ 20	Simil granivorous bird "finch" Serin (Serinus serinus) Small omnivorous bird "lark" Woodlark (Lullula arborea) Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava) Small granivorous bird "finch" Linnet (Carduelis) Small omnivorous bird		1.12× 0.53	6.11	15.8		
		Legume forage BBCH ≥ 50	Small granivorous bird "finch" Linnet (Carduelis & S cannabina) & S Small omnivorous bird	3.4 3.4 4	1.1 × 0.53	2.14	45.0		
		Legume forage BBCH≥50	Small omniverous bird "lark" Woodlane (Lullula arborga)	3.3	1.1 × 0.53	2.08	46.3		
		Legume forage BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail	9.7	1.1 × 0.53	6.11	15.8		
		Maize BBCH \geq 40 5 $\frac{1}{100}$ Maize $\frac{1}{100}$ BBCH \geq 200 $\frac{1}{100}$	Small omnivorous bird Slark" Woodlark (<i>Lullula</i> <i>arborea</i>)	2.7	1.1 × 0.53	1.70	56.6		
		Maize C S K BBCH 2200	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	4.8	1.1 × 0.53	3.02	31.9		
		Offseed rape BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	2.7	1.1 × 0.53	1.70	56.6		
ó		Offseed rape BBCH \geq 40 Oilseed rape BBCH \geq 40 Potatoes BBCH \geq 40 Potatoes BBCH \geq 20	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba</i> <i>palumbus</i>)	0.9	1.1 × 0.53	0.567	170		
		Potatoes BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.1 × 0.53	2.08	46.3		
an service		Potatoes BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	9.7	1.1 × 0.53	6.11	15.8		

Table CP 10-01-2:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c
(2 × 1080 g.a.s/ha)	

Table CP 10-01-2: (2 × 1080 g.a.s/ha)	. .	Post harvest, pre-sowing,	pre-plan	ting): Us	es 2 a-c, 10 a-	Section 10 414 of 553 C	
Active substance	Glyphosate	Ivnhosate					
Reprod. Toxicity (m bw/d) TER criterion	ng/kg 96.3					ALL STATES	
	cation Crop scenari Growth stage		SVm	MAF _m × TWA	DDD _m	TER _{lt}	
Field crops (Post-harvest, pre-sowing, pre-planting)		Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4	1.1 × 0.53	(mg/kg bw//d) 2.14. 5 2.08 2.08	45.0	
	Pulses BBCH≥50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.5% 0 0.53	2.08	46.3	
	Pulses BBCH≥20	Small insectivorous bir "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	d 9.4	₽.1 × 0.53	6.11	15.8	
	Root & stem vegetables BBCH ≥ 40	Small granivorous bird "finch" Linnet (Carduetts cannabina) Small omniverous bird	5° 32.4	1.1 × 0.53	2.14	45.0	
	Root & stem vegetables BBCH ≥ 40	"lark" R S S		1.1 × 0.53	2.08	46.3	
	Root & stem vegetables BBCH ≥ 20	Small insectivorous bir wagtail" Yellow wagtail (Motacilla flava)	[.] d 9.7	1.1 × 0.53	6.11	15.8	
	Strawberries BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> arborea)	4.4	1.1 × 0.53	2.77	34.8	
	Strawberries BBCH 20	Small insectivorous bir "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	[.] d 9.7	1.1 × 0.53	6.11	15.8	
A COLORIS CONTRACT OF COLORIS CONTRACT OF COLORIS COLORIS CONTRACT OF COLORIS		Woodlark (Lullula arborea) Spalkinsectivorous bir vagtail" Yellow wagtail (Motacilla flava) Small omnivorous bird "lark" Woodlark (Lullula arborea) Small insectivorous bir "wagtail" Yellow wagtail (Motacilla flava)					

Table CP 10-01-3:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c
(1 × 720 g.a.s/ha)	

(1 × 720 g.a.s	-						Section 10 415 of 553 - c	
Active substa Reprod. Toxic		Glyphosate						
bw/d)		96.3						
TER criterion GAP crop		5 Crop scenario Generic focal species SVm MAFm×DDDm ががFER _{it}					TFR.	
-	rate (g a.s./ha)	Growth stage	Generic ideal speeks	5 v m	TWA	(mg/kg bw/d)	si Erqî	
Field crops (Post-harvest, pre-sowing,	1 × 720	Bulbs and onion like crops BBCH ≥ 40	Small granivorous bird "finch" Linnet (Carduelis cannabina)	6.9	1.0 × 0.53		36.6	
pre-planting)		Cereals BBCH≥40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i>	3.3	1.0 ⁵ ×.0 ⁵ 0.53 5 5 ⁶ 0	91.26	76.5	
		Fruiting vegetables BBCH ≥ 50	arborea) Small granivorous bird "finch" Linnet (Carduelis cannabina)	3.4° 11 11	₫.0 × 0.53	1.30	74.2	
		Fruiting vegetables BBCH ≥ 50	Small omnivorous bird "lark" Woodlark (<i>Lultula</i> <i>arborea</i>) Small insectivorous bird	100	1.0 × 0.53	1.26	76.5	
		Fruiting vegetables BBCH≥20	Small insectivorous bird "wagtaik" Yellow wagtail (Motacilla flava)	9.7	1.0 × 0.53	3.70	26.0	
		Leafy vegetables BBCH ≥ 50	Small granivorous bird Tinch ³ Serin (Serinus serinus)	3.8	1.0 × 0.53	1.45	66.4	
		Leafy vegetables $BBCH \ge 50$ 50	Sfrall omnivorous bird Slark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	1.26	76.5	
		BBCH 220	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.0 × 0.53	3.70	26.0	
		Legume forage BBCH ≥ 50	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4	1.0 × 0.53	1.30	74.2	
		Legume forage BBCH \geq 50 Legume forage BBCH \geq 50 Legume forage BBCH \geq 20 Maize BBCH \geq 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	1.26	76.5	
hi Neller Political		Legume forage BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.0 × 0.53	3.70	26.0	
N. Such		Maize BBCH≥40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	2.7	1.0 × 0.53	1.03	93.5	



Table CP 10-01-3: Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c (1 × 720 g.a.s/ha)

	nce	MON 52276 M-CP, Section 10 Page 416 of 553 Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Glyphosate							
Reprod. Toxi		96.3							
bw/d) TED anitanian		5			1.S. 10				
TER criterior GAP crop		5 Crop scenario	Generic focal species	SVm	MAF _m ×	DDD _m	`∂` ¶TER⊪		
-	rate (g a.s./ha)	Growth stage			TWA	(ma/ka ba/d			
Field crops	(g a.s./na) 1 × 720	Maize	Small insectivorous bird	4.8	1.0 ×	(ing) kg (b) (1) 1.83. (5) (1)	52.6		
(Post-harvest,		$BBCH \ge 20$	"wagtail" Yellow wagtail		0.53				
pre-sowing, pre-planting)			(Motacilla flava)			20 J			
- 0/		Oilseed rape BBCH ≥ 40	Small omnivorous bird "lark"	2.7	1.0 [%] .0 1.0 [%] .0 0:53	a.03	93.5		
		BBC11 ≤ 40	Woodlark (<i>Lullula</i>	ර්	1.0 [%] 2 3 0:53 5				
		Oilseed rape	<i>arborea</i>) Medium	090	₹.0 ×	0.343	280		
		$BBCH \ge 40$	herbivorous/granivorous	0.9/1 0/10/10/10/10/10/10/10/10/10/10/10/10/10	0.53	0.5 15	200		
			bird "pigeon" Wood pigeon (<i>Columba</i>	Del al					
		_							
		Potatoes BBCH ≥ 40	Small omnivorous bird &	3.3	1.0 × 0.53	1.26	76.5		
			"lark" کے کہ کہ Woodlark (Lullula کے arborea) کے کے		0100				
		Potatoes	Small insectivorous bird	9.7	1.0 ×	3.70	26.0		
		$BBCH \ge 20$	"wagtail" Yellow wagtail		0.53				
			(Motecilla flava)						
		Pulses BBCH ≥ 50	Small granivorous bird	3.4	1.0 × 0.53	1.30	74.2		
		DDCH 2 30	Lignet (Carduelis cannabina)		0.55				
l		Pulses	<i>çănnabina</i>) Small omnivorous bird	3.3	1.0 ×	1.26	76.5		
		BBCH ≥ 20 10 110	"lark"	0.0	0.53	1.20	10.5		
			Woodlark (<i>Lullula arborea</i>)						
		Pulses	Small insectivorous bird	9.7	1.0 ×	3.70	26.0		
	, cò		"wagtail" Yellow wagtail		0.53				
		Root & stem	(<i>Motacilla flava</i>) Small granivorous bird	3.4	1.0 ×	1.30	74.2		
	01.0	vegetables	"finch"	5.7	1.0 × 0.53	1.30	/4.2		
		Pulses BBCH \geq 50 Pulses BBCH \geq 50 BBCH \geq 20 BBCH \geq 20 BBCH \geq 40 Root & stem vegetables BBCH \geq 40 Root & stem vegetables BBCH \geq 40	Linnet (<i>Carduelis cannabina</i>)						
	AL CONTRACT	Root & stem	Small omnivorous bird	3.3	1.0 ×	1.26	76.5		
. 9	9 4 .0	vegetables BBCH > 40	"lark" Woodlark (<i>Lullula</i>		0.53				
			arborea)						

Table CP 10-01-3:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c
(1 × 720 g.a.s/ha)	

Annex to Regulation	on 284/2013		MON 52276				, Section 10 2 417 of 553	6. Shining the solution
Table CP 10 (1 × 720 g.a.s		Field crops (Pos	t harvest, pre-sowing, p	re-plan	iting): Us	ses 2 a-c, 10 a	і-с	istillut.
Active substa	nce	Glyphosate						*
Reprod. Toxio bw/d)	city (mg/kg	96.3					OF PAN	
TER criterion	<u>1</u>	5				~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	7. O.	
	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m (mg/kg bw/d)	TER _{lt}	
	1 × 720	Root & stem vegetables BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.0 × 0.53	3.900. 1.10	26.0	
pre planting)		Strawberries BBCH≥40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	4.4 ث	1.0 ⁵ ×2 0.53	a.68	57.4	
		Strawberries BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	9.74 10 10 10 10 10 10 10 10 10 10 10 10 10	₿:0 × 0.53	3.70	26.0	
Table CP 10 (2 × 720 g.a.s	-01-4: H s/ha)	Field crops (Post	t harvest, pre-sowing, p	ft ^o		es 2 a-c, 10 a-	-c	
Active substa	nce	Active substance:	Glyphosate 8					
Reprod. Toxic		96.3						

Table CP 10-01-4: (2 × 720 g.a.s/ha)

eld crops ost-harvest, e-sowing, e-planting)	rate (g a.s./ha) 2 × 720	Crop scenario	Small granivorous bird "finch" Linnet (Carduelis cannabina)	SV m 6.9	MAF _m × TWA 1.1 × 0.53	(mg/kg bw/d)	TER _l
ost-harvest, e-sowing, e-planting)		like crops in a bar and a bar	"finch" Linnet (Carduelis cannabina)	6.9		2.90	33.3
	20	Cereals 6					
		BBCH≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.1 × 0.53	1.39	69.5
		Fruiting vegetables BBCH ≥ 50	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4	1.1 × 0.53	1.43	67.5
Cr. 1010 1010	110 00 8 0 00 8 0 00	Fruiting vegetables BBCH ≥ 50	"lark" Woodlark (<i>Lullula</i> <i>arborea</i>)		1.1 × 0.53	1.39	69.5
nn ssin nn ssin science		Fruiting vegetables BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.1 × 0.53	4.07	23.7
(1)		Fruiting vegetables BBCH ≥ 20	"wagtail" Yellow wagtail	9.7		4.07	2
	bhosate Renew	phosate Renewal Group AIR 5	BBCH≥50	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

Table CP 10 (2 × 720 g.a.		Field crops (Post l	MON 52276 M-CP, Section 10 Page 418 of 553					
Active substa	nce	Active substance: C	ilyphosate					
Reprod. Toxi bw/d)		96.3					Or and Dubie	
TER criterio	n	5				J.	0	
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm (mg/kg bw/d)	TER _{it}	
Field crops (Post-harvest, pre-sowing,	2×720	Leafy vegetables BBCH ≥ 50	Small granivorous bird "finch" Serin (<i>Serinus serinus</i>)	3.8	1.1 × 0.53		60.4	
pre-planting)		Leafy vegetables BBCH≥50		3.3 Č		139	69.5	
		Leafy vegetables BBCH ≥ 20	/		0.53	4.07	23.7	
		Legume forage BBCH ≥ 50	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava) Small granivorous bird "finch" Linnet (Carduelis cannabina) Small omnivorous bird "lark"	3,4	1.1 × 0.53	1.43	67.5	
		Legume forage BBCH ≥ 50	Small omnivorous bird "lark" Woodlark (<i>bullula</i> arborea)	3.3	1.1 × 0.53	1.39	69.5	
		Legume forage BBCH≥20	Small insectivorous bird Wagaik Yallow wagtail		1.1 × 0.53	4.07	23.7	
		Maize \bigcirc	Small omnivorous bird [®] lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	2.7	1.1 × 0.53	1.13	85.0	
		BBCH < 20	Yellow wagtail (<i>Motacilla flava</i>)		1.1 × 0.53	2.01	47.8	
	201 11: 201 11: 201, 00	Øilseed rape B₿CH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	2.7	1.1 × 0.53	1.13	85.0	
, Q		Oilseed rape BBCH ≥ 40	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba</i> <i>palumbus</i>)	0.9	1.1 × 0.53	0.378	255	
	()	Oilseed rape BBCH ≥ 40 Oilseed rape BBCH ≥ 40 Potatoes BBCH ≥ 40 Potatoes BBCH ≥ 20 -July 2020	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.1 × 0.53	1.39	69.5	
A A A A A A A A A A A A A A A A A A A		Potatoes BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.1 × 0.53	4.07	23.7	

Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Table CP 10-01-4: (2 × 720 g.a.s/ha)

Active substa	ince	MON 52276 M-CP, Section 10 Page 419 of 553 Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Active substance: Glyphosate 96.3 5 Crop scenario Growth stage Generic focal species SVm MAFm × DDDm (mg/kg bw/d) TERt Pulses Small granivorous bird 3.4 1.1 × State						
Reprod. Tox bw/d)								
TER criterio		5			•	line and a second se	10 10 10 10 10 10 10 10 10 10 10 10 10 1	
GAP crop	rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species		MAF _m × TWA	DDDm (mg/kg bw/d)	TER _{lt}	
Field crops (Post-harvest, pre-sowing, pre-planting)	2 × 720	Pulses BBCH ≥ 50	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)		0.53	6.6	67.5	
pre-planting)		Pulses BBCH≥50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i>	3.3		1.39	69.5	
		Pulses BBCH ≥ 20	arborea) Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	957 10 10 957 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 1	0.53	4.07	23.7	
		Root & stem vegetables BBCH ≥ 40	Small granivorous bird "finch" Linnet (Carduelis cannabina) Small omnivorous bird	\$.4	1.1 × 0.53	1.43	67.5	
		Root & stem vegetables BBCH ≥ 40	Small omniverous bird "lark" Woodfarke(Laullula arborea)	3.3	1.1 × 0.53	1.39	69.5	
		Root & stem vegetables BBCH ≥ 20	SmalPinsectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	9.7	1.1 × 0.53	4.07	23.7	
		Strawberrieso	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	4.4	1.1 × 0.53	1.85	52.1	
	Ś	Strawberries BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.1 × 0.53	4.07	23.7	
AL SUC AL SUCA AL SUCA			Small omniverous bird "lark" Woodfark (Lullula arborea) Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava) Small omnivorous bird "lark" Woodlark (Lullula arborea) Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)					

Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Table CP 10-01-4: (2 × 720 g.a.s/ha)

Table CP 10-01-5:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c
(1 × 1080 g.a.s/ha)	

rictive substa	nce	MON 52276 M-CP, Section 10 Page 420 of 553 Tield crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Glyphosate						
Reprod. Toxi bw/d)		96.3						
TER criterio		5				hiji da kalendar da ka	0	
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm (mg/kg bw/d)	TER it	
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 1080	Cereals BBCH≥40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)		1.0 × 0.53	1890 A	51.0	
1 1 0/		Fruiting vegetables BBCH ≥ 50	"finch" Linnet (<i>Carduelis</i>	3.4 ©	0.53	1.95	49.5	
		Fruiting vegetables BBCH≥50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.30 10 11 3.30 10 11 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 1	¢.0 × 0.53	1.89	51.0	
		Fruiting vegetables BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtaik (Motacilla flava)	9 .7	1.0 × 0.53	5.55	17.3	
		Leafy vegetables BBCH≥50	Small granivorous bird "finch" & & Serin (Sections Serinus)	3.8	1.0 × 0.53	2.18	44.3	
		Leafy vegetables	Small omnivorous bird	3.3	1.0 × 0.53	1.89	51.0	
		Leafy vegetables BBCH ≥ 20 5 is	"lark" Woodlark (<i>Lullula</i> <i>arborea</i>) Small insectivorous bird Wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.0 × 0.53	5.55	17.3	
		BBCH 250	"finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	5.4	1.0 × 0.53	1.95	49.5	
		Legume forage BBCH ≥ 50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	1.89	51.0	
,	2001 2001 2001 2000 2000 2000	Legume forage BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	5.55	17.3	
1) 16/10 10/00 10/01 10/01		Legume forage BBCH ≥ 50 Legume forage BBCH ≥ 20 Maize BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	2.7	1.0 × 0.53	1.55	62.3	

Table CP 10-01-5:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c
(1 × 1080 g.a.s/ha)	

Reprod. Toxic	city (mg/kg	96.3					or and
bw/d) TER criterion		5					0, 2, 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
GAP crop	Application rate		Generic focal species	SVm	MAF _m × TWA	DDD _m	TER
	(g a.s./ha)	3					
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 1080	Maize BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	(mg/kg b)//d) 2355 - 4 26 - 5 26 - 4 26 - 4	35.0
		Oilseed rape BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	2.7 Ö	0.53	a.55	62.3
		Oilseed rape BBCH ≥ 40	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba</i> <i>palumbus</i>)	10.11 9 10 1	∦ :0 × 0.53	0.515	187
		Potatoes BBCH≥40	Small omnivorous bird "lark" Woodlark (Lullula arborea)	3.3	1.0 × 0.53	1.89	51.0
		Potatoes BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)		1.0 × 0.53	5.55	17.3
			Small granivorous bird "finch" Linnet (<i>Carduelis</i> cannabina)		1.0 × 0.53	1.95	49.5
		Pulses	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	1.89	51.0
		BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	5.55	17.3
	phosate Renewal Group AIR 5	Root & stem vegetables BBCH ≥ 40		3.4	1.0 × 0.53	1.95	49.5
		Root & stem vegetables BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	1.89	51.0
Ch and heller		Root & stem vegetables BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	5.55	17.3
10 1 10 10 10 10 10 10 10 10 10 10 10 10		Strawberries BBCH ≥ 40		4.4	1.0 × 0.53	2.52	38.2

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Table CP 10-01-5: Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c (1 × 1080 g.a.s/ha)

Active substa	nce	Glyphosate				.0
Reprod. Toxi bw/d)	city (mg/kg	96.3				sh out
TER criterion	1	5			· bi	0
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SV _m	MAF _m × DDD _m (mg/kg bw/d)	TER _{it}
			arborea)			
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 1080	Strawberries BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7		17.3

Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Table CP 10-01-6: (3 × 720 g.a.s/ha)

Active substa	nce	Glyphosate	S III S	2 2			
Reprod. Toxic bw/d) TER criterior		96.3 5	Generic focal species	el.			
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m (mg/kg bw/d)	TER
Field crops (Post-harvest, pre-sowing, pre-planting)	3 × 720	Cereals BBCH ≥ 40	Small onnivorous bird "lafk" Woodlark (Lullula arboiea)	3.3	1.2 × 0.53	1.51	63.7
		BBCH≥50 (°, °)	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4	1.2 × 0.53	1.56	61.9
		Fruiting vegetables BBCH 2500	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.2 × 0.53	1.51	63.7
		Fruiting vegetables BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.2 × 0.53	4.44	21.7
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Leafy vegetables BBCH≥ 50	Small granivorous bird "finch" Serin (<i>Serinus serinus</i>)	3.8	1.2 × 0.53	1.74	55.3
		Leafy vegetables BBCH≥50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.2 × 0.53	1.51	63.7
Stephene States		Leafy vegetables BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.2 × 0.53	4.44	21.7
Glyphosate Renew		– July 2020				CP10 GRG Rev	



Table CP 10-01-6:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c
(3 × 720 g.a.s/ha)	

Table CP 10 (3 × 720 g.a.		Field crops (Post)	harvest, pre-sowing, p	re-plant	0,	es 2 a-c, 10 a-	
Active substa	nce	Glyphosate					
Reprod. Toxi bw/d)		96.3					NO NO NO
DW/G) TER criterio	n	5				2	100
GAP crop		Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	(mg/kg kw/d)	TER
Field crops (Post-harvest, pre-sowing, pre-planting)	3 × 720	Legume forage BBCH ≥ 50	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4			61.9
pro planting)		Legume forage BBCH ≥ 50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i>	0	80.00	1.51	63.7
		Legume forage BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)		9.2 × 0.53	4.44	21.7
		Maize BBCH≥40	Small omnivorous bird "lark" Woodlark (Lulhula arborea)	2 .7	1.2 × 0.53	1.24	77.9
		Maize BBCH≥20	"wagtail" Yellow wagtail (Motacilla flava)	4.8	1.2 × 0.53	2.20	43.8
		Oilseed rape BBCH ≥ 40	Small omnivorous bird Plark?? Woodlark (<i>Lullula</i> auBorea)	2.7	1.2 × 0.53	1.24	77.9
		Oilseed rape 5 BBCH $\geq 40^{\circ}$ 5	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>auborea</i>) Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba</i> <i>palumbus</i>) Small omnivorous bird	0.9	1.2 × 0.53	0.412	234
		BBCH > 40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.2 × 0.53	1.51	63.7
Glyphosate Renew	80 000 1	Potatoes BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	9.7	1.2 × 0.53	4.44	21.7
	10/8 10/8 10/10	Pulses BBCH ≥ 50	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4	1.2 × 0.53	1.56	61.9
		Pulses BBCH ≥ 50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.2 × 0.53	1.51	63.7
100 100		Pulses BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail	9.7	1.2 × 0.53	4.44	21.7

Active substa	nce	Glyphosate					11:50 11:50			
Reprod. Toxi bw/d)	city (mg/kg	96.3					Of AND OUNS			
TER criterion	ı									
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m (mg/kg bw/d)	TERn			
	(g als <i>i</i> , 11a)		(Motacilla flava)			1. O. S.				
Field crops (Post-harvest, pre-sowing, pre-planting)	3 × 720	Root & stem vegetables BBCH ≥ 40	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4	1.2 × 2 0.53 4		61.9			
		Root & stem vegetables BBCH≥40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3 S	\$ <u>2</u> % 5 6338	1.51	63.7			
		Root & stem vegetables BBCH≥20	Small insectivorous bird, "wagtail" Yellow wagtail (Motacilla flava)		1.2 × 0.53	4.44	21.7			
		Strawberries BBCH ≥ 40	Small omnivorous bird "lark" Woodlark (Lullata arborea)	4.4	1.2 × 0.53	2.01	47.8			
		Strawberries BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (Motacifla flava)	9.7	1.2 × 0.53	4.44	21.7			

Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Table CP 10-01-6: (3 × 720 g.a.s/ha)

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Field crops (Shielded ground directed inter-row application): Uses 6a, b

Table CP 10-01-7: Field crops (Shielded ground directed inter-row application): Uses 6a, b (1 × 1080 g a.s./ha)

*	· •		ter-row application):				Section 10 425 of 553	
Table CP 10 (1 × 1080 g a		crops (Shielded g	ground directed inter-	row apj	plication			
Active substa Reprod. Toxi bw/d) TER criterioi	city (mg/kg	Glyphosate 96.3 5						
GAP crop		Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm (mg/kg.bw/d)	TER _{lt}	
Field crops (Shielded ground directed inter-	1 × 1080	Bulbs and onion like crops BBCH 10 – 39	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	11.4		6.58	14.8	
row application)		Fruiting vegetables BBCH 10 – 49	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)		150×8 0,\$3	6.53	14.8	
Field crops (Shielded ground directed inter-	1 × 1080	BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	11.4 0 11.4 0 10.90 11.3	1.0 × 0.53	6.24	15.4	
application)		Fruiting vegetables BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacifla fla</i> xa)	11.3	1.0 × 0.53	6.47	14.9	
		Leafy vegetables BBCH 10 – 49	Small omnixorous bird "lack" Woodlack (Lullula acborea)		1.0 × 0.53	6.24	15.4	
		BBCH 10 – 192 5	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	6.47	14.9	
		Legume Forage	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	11.4	1.0 × 0.53	6.53	14.8	
	11 11 10 10 10 10 10 10 10 10 10 10 10 10 10 1	The second of frame and a	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53	6.24	15.4	
Glyphosate Renewal Group	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Legume forage BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	6.47	14.9	
		Potatoes BBCH 10 – 39	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53	6.24	15.4	
V Such On Control 11, 12, 13, 13, 13, 14, 14, 14, 14, 14, 14, 14, 14, 14, 14		Potatoes BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	6.47	14.9	
£`,		Pulses BBCH 10 – 49	Small granivorous bird "finch"	11.4	1.0 × 0.53	6.53	14.8	

Table CP 10-01-7: Field crops (Shielded ground directed inter-row application): Uses 6a, b (1 × 1080 g a.s./ha)

Active substa	nce	Glyphosate					
Reprod. Toxi bw/d)	city (mg/kg	96.3				DDD _m (mg/kg bw/d)	S. Out
TER criterio		5		CT /		DDD (1)	
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	(mg/kg bw/d)	H E K _{lt}
	(g uisi, nu)		Linnet (<i>Carduelis cannabina</i>)				
		Pulses BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (Lullula	10.9		DDD _m (mg/kg bw/d) 6.24 13.0	15.4
		Pulses Leaf development BBCH 10 – 19	Arborea) Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba</i> <i>palumbus</i>) Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>) Small granivorous bird "finch" Linnet (<i>Carguelis</i>		1.39 ×8 0.53	13.0	7.41
Field crops (Shielded ground directed inter-	1 × 1080	Pulses BBCH 10 – 19	Small insectivorous birds "wagtail" Yellow wagtail	9113 (1.0 × 0.53	6.47	14.9
row application)			cannabina)		1.0 × 0.53	6.53	14.8
		JI.	Small omnivorous bird "Jarkö Weodlark (<i>Lullula</i> arbarea)	10.9	1.0 × 0.53	6.24	15.4
		Root & stem vegetables BBCH 10 5 19 Sugar beet	Small insectivorous bird wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	1.0 × 0.53	6.47	14.9
		Sugar beet Early (spring) (BBCH 10 – 19)	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53	6.24	15.4
		Sugar beet BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	5.9	1.0 × 0.53	3.38	28.5
	5,1 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0	- July 2020	(MOTACIIIA JIAVA)	<u> </u>	<u> </u>	<u> </u>	<u> </u>
♂ Glyphosate Renev	val Group AIR 5 -	– July 2020		Doc II	D: 110054-M	ICP10_GRG_Rev 3	_Jul_2020

Table CP 10-01-8: Field crops (Shielded ground directed inter-row application): Uses 6a, b (1 × 720 g a.s./ha)

(1 × 720 g a.s		crops (Shielded	ground directed inter-	row app	plication)): Uses 6a, b	Section 10 427 of 553		
Active substan	nce	Glyphosate	Glyphosate						
Reprod. Toxic bw/d)		96.3							
TER criterion GAP crop	Application	5 Crop scenario	Generic focal species	SVm	MAF _m ×	DDD _m (mg/kg bw/d)	TER _{lt}		
	rate (g a.s./ha)	Growth stage			TWA	(mg/kg bw/d)			
Field crops (Shielded ground directed inter-	1 × 720	Bulbs and onion like crops BBCH 10 – 39	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)		1.0 × 0.53	435; N	22.1		
row application)		Fruiting vegetables BBCH 10 – 49	Small granivorous bird "finch" Linnet (<i>Carduelis</i>	11.4 ©		4 .35	22.1		
Field crops (Shielded ground directed inter-	1 × 720	Fruiting vegetables BBCH 10 – 49	cannabina) Small omnivorous bird "lark" Woodlark (Lullula arborea)		¢.0 × 0.53	4.16	23.2		
row application)		Fruiting vegetables BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	-ଜିନ		4.31	22.3		
		Leafy vegetables BBCH 10 – 49	Small omniverous bird "lark" Woodlarke(Lullula arborea)	10.9	1.0 × 0.53	4.16	23.2		
		00	Smalfinsectivorous bird "wagtail" Yellow wagtail (Motacilla flava)		1.0 × 0.53	4.31	22.3		
		Legume forage (*) BBCH 10 449 (*)		11.4	1.0 × 0.53	4.35	22.1		
		BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53	4.16	23.2		
Glyphosate Renew	1000 17 1000 17 1000 17 1000 17 1000 17 1000 17 1000 17 10000 1000000	Legume forage BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	4.31	22.3		
North	10,00 9,00 0,00 0,00 0,00 0,00 0,00 0,00	Potatoes BBCH 10 – 39	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53	4.16	23.2		
se s	<i>5</i> [°]	Potatoes BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	4.31	22.3		
AL SUCH		Pulses BBCH 10 – 49	Small granivorous bird "finch" Linnet (Carduelis cannabina)	11.4	1.0 × 0.53	4.35	22.1		

Table CP 10-01-8: Field crops (Shielded ground directed inter-row application): Uses 6a, b (1 × 720 g a.s./ha)

	A otive and star	n 00	Glyphosate					
	Active substan Reprod. Toxi		96.3					
	bw/d)							A CONTRACTION OF CONTRACTICON OF CONTRACTI
	TER criterior GAP crop		5 Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA		Í ER _{lt}
		(5 (10) 10)	Pulses BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53	4.96. ji	23.2
			Pulses Leaf development BBCH 10 – 19	Medium herbivorous/granivorous bird "pigeon"	22.7	6.53 J	8.66	11.1
	Field crops (Shielded ground directed inter-	1 × 720	Pulses BBCH 10 – 19	Wood pigeon (<i>Columba</i> palumbus) Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	4.31	22.3
	row application)		Root & stem vegetables BBCH 10 – 39	"finch" Linnet (Carduelis, "		0.53	4.35	22.1
			Root & stem vegetables BBCH 10 – 39	Cannabings S Small onnivorous bird "lark" Woodlark (Eullula arborea)	10.9	1.0 × 0.53	4.16	23.2
			Root & stem vegetables BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail <i>Motacilla flava</i>)	11.3	1.0 × 0.53	4.31	22.3
			Sugar beet of o	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53	4.16	23.2
		80	Sugar beet BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	5.9	1.0 × 0.53	2.25	42.8
			9 <u>- 55</u> 50	((1	1	1	
HOLONG CONTROL	Glyphosate Renew	val Group AIR 5	– July 2020		Doc II	D: 110054-M	ICP10_GRG_Rev 1	_Jul_2020

Control of invasive species: Uses 8, 9

Table CP 10-01-9: Control of invasive species: Uses 8, 9 (1 × 1800 g a.s./ha)

Table CP 1	0-01-9: Cont	rol of invasive sp	ecies: Uses 8, 9 (1 × 18	00 g a.s.	./ha)		Section 10 429 of 553
Active substa	ance	Glyphosate					10 10 10 10 10 10 10 10 10 10 10 10 10 1
Reprod. Tox bw/d) TER criterio		96.3 5				ONIL 1	1) 10 10 10 10 10 10 10 10 10 10
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m god (mg/kg bw/d)	I L'Nit
Control of invasive species	1 × 1800	Bulbs and onion like crops BBCH 10 – 39	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	11.4		169	8.85
		Bulb and onion like crops BBCH ≥ 40	Small granivorous bird "finch" Linnet (Carduelis cannabina)	6.9	\$.0 × 5 0530	6.58	14.6
		Bulb and onion like crops BBCH≥40	Small omnivorous bird "lark" Woodlark (<i>Lullula</i>	\$.59 8	1.0 × 0.53	6.20	15.5
		Bulb and onion like crops BBCH ≥ 20	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	9.7	1.0 × 0.53	9.25	10.4
		Cereals BBCH 10 – 29	Small omnivorous bird "lark" Woodlark (Lullula acbarea)	10.9	1.0 × 0.53	10.4	9.26
		Cereals BBCH 30 – 39	Small Smnivorous bird Stark Woodlark (<i>Lullula</i> arborea)	5.4	1.0 × 0.53	5.15	18.7
		Cereals	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	3.15	30.6
		BBCH 10 – 49	"finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	11.4	1.0 × 0.53	10.9	8.85
		Fruiting vegetables BBCH ≥ 50	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4	1.0 × 0.53	3.24	29.7
	11,00,00 11,00,00 11,00,00 10,00,000 10,00,000 10,0000 10,00000000	Fruiting vegetables BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53	10.4	9.26
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	wal Group AIR 5	Fruiting vegetables BBCH ≥ 50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	3.15	30.6

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	nce	Glyphosate							
Reprod. Toxic bw/d)		96.3					TFP.		
TER criterion		5					and a		
-	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m (mg/kg bw/d)	ŤÆŘ		
	1 × 1800	Fruiting vegetables BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	1.0 × 0.53	(mg/kg bw/d) 10.8 5 1 0 1 0 2 0 2 10.1	8.93		
		Fruiting vegetables BBCH ≥ 20	Small insectivorous bird "wagtail"	9.7 ශ්	1.0 × 10 0.53 × 10	9,25	10.4		
		Hops BBCH≥20	Small insectivorous bird "finch" Chaffinch (<i>Fringilla</i> <i>colebs</i>)		0.53	10.1	9.52		
		Hops BBCH 10 – 19	Small granivorous bird	511.4 (1.0 × 0.53	10.9	8.85		
		Hops BBCH 20 – 39	Small granivorous bird "finch" Goldfinch (Carduelis carduests)	5.1	1.0 × 0.53	5.44	17.7		
		Hops BBCH≥40	Small granivorous bird "finch" Goldfinch (<i>Carduelis</i> carduelis)	3.4	1.0 × 0.53	3.24	29.7		
		Leafy vegetables BBCH ≥ 50		3.8	1.0 × 0.53	3.63	26.6		
		Leafy vegetables	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53	10.4	9.26		
	100 100 100 100 100 100 100 100 100 100	Eeafy vegetables BBCH ≥ 50	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	3.15	30.6		
Glyphosate Renew		C Leafy vegetables BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	10.8	8.93		
		Leafy vegetables BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53	9.25	10.4		
Scription of the second		Legume forage BBCH 10 – 49	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	11.4	1.0 × 0.53	10.9	8.85		

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TER criterion5GAP crop (g a.s./ha)Application Growth stageConstration (g a.s./ha)Generic focal species (g a.s./ha)NmMAFm × TWADDDm (mg/kg bwd)Control of invasive species1 × 1800Legume forage BBCH ≥ 50Small granivorous bird "finch" Linnet (Carduelis cannabina)3.41.0 × 0.533.243.4Legume forage BBCH 10 - 49Small omnivorous bird "lark" Woodlark (Lullula arborea)10.91.0 × 0.530.4Legume forage BBCH 2 50Small omnivorous bird "lark" Woodlark (Lullula arborea)3.3 1.0 × 0.531.0 × 0.53Legume forage BBCH 2 50Small omnivorous bird "lark" Woodlark (Lullula arborea)3.3 1.0 × 0.531.0 × 0.53Legume forage BBCH 2 1 - 49Medium Wood pigeon (Columba palumbus)22.7 0.531.0 × 0.5321.7Legume forage BBCH 10 - 19Small insectivorous bird "wagtail" Vellow wagtail (Motacilla flava)10.9 0.5310.8Legume forage BBCH 20Small insectivorous bird Wood pigeon (Columba palumbus)1.0 × 0.5310.8Legume forage BBCH 20Small insectivorous bird Woad pigeon Woad pigeon (Motacilla flava)1.0 × 0.539.25Legume forage BBCH 20Small insectivorous bird Woat pigeon Woad pigeon Woad pigeon (Motacilla flava)1.0 × 0.531.43	29.7 9.26
BBCH ≥ 50"lark" Woodlark (Lullula arborea)0.53Legume forage Leaf development 	29.7 9.26 30.6
BBCH ≥ 50"tark" Woodlark (Lullula arborea)(6.53)Legume forage Leaf development BBCH 21 - 49Medium herbivorous/granivorous bird "pigeon" 	9.26
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	30.6
Legume forage BBCH 21 - 49Interbination herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus) 0.53 Legume forage BBCH 10 - 19Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava) 11.0×10.8 0.53Legume forage BBCH 20Small insectivorous bird "wagtail" Yellow wagtail Yellow wagtail (Motacilla flava) 1.0×10.8 0.53	1
Legume forage BBCH 10 - 19Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)11.3 0.531.0 × 0.5310.8Legume forage BBCH ≥ 20 Small insectivorous bird wagtail"9.7 0.531.0 × 0.539.25 0.53	4.45
$BBCH \ge 20$ (wagtail) Vellow wagtail (Motacilla flava)	8.93
Maize Medium granivorous 1.5 1.0×1.43 BBCH 30 $\approx 39\%$ bird 0.53	10.4
(<i>Perdix perdix</i>)	67.3
MaizeMedium granivorous 0.8 $1.0 \times$ 0.763 BBCH > 40bird "gamebird" 0.53 0.53 Partridge (Perdix perdix) 0.53	126
$\begin{array}{c c} & \mathbf{Maize} \\ & \mathbf{BBCH 10-29} \\ & & \mathbf{Woodlark} (Lullula \\ arborea) \end{array} \begin{array}{c c} & \mathbf{Small omnivorous bird} \\ & 10.9 \\ & 10.4 \\ & 0.53 \\ & 0.53 \end{array}$	9.26
$ \begin{array}{c} & & \\ & & $	18.7
Maize Medium granivorous bird "gamebird" Partridge (Perdix perdix) 0.8 1.0 × 0.763 Maize Small omnivorous bird BBCH 10 - 29 Small omnivorous bird "lark" Woodlark (Lullula arborea) 10.9 1.0 × 10.4 Maize BBCH 30 - 39 Small omnivorous bird "lark" Woodlark (Lullula arborea) 5.4 1.0 × 5.15 Maize Small omnivorous bird "lark" Woodlark (Lullula arborea) 0.53 2.7 1.0 × 2.58 Maize Small omnivorous bird "lark" Woodlark (Lullula arborea) 2.7 1.0 × 2.58	37.4

Table CP 10-01-9: Control of invasive species: Uses 8, 9 (1 × 1800 g a.s./ha)

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Active subst	ance	Glyphosate							
Reprod. Toy bw/d)	kicity (mg/kg	96.3					A CONTRACTION OF CONTRACTICON OF CONTRACTICONTRACTICON OF CONTRACTICON OF CONTRACTICON OF CONTRACTICON OF CONT		
TER criterio	on	5							
GAP crop	rate	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm (mg/kg bw/d)	TERn		
$\alpha \rightarrow 1.6$	(g a.s./ha)	Mala	Medium	22.7	1.0	017	4.45		
Control of invasive species	1 × 1800	Maize BBCH 10 – 29	herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba</i> <i>palumbus</i>)		1.0 × 0.53		4.45		
		Maize BBCH 30 – 39	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba</i> <i>palumbus</i>)	10 10 10 10	1.0 ⁹ ×.0 0:53	a0.9	8.85		
		Maize BBCH≥40	palumbus) C C	5.78 EU 178 EU 18 EU 18 EU 18 EU	1.0 × 0.53	5.44	17.7		
		Maize BBCH 10 – 19	Small insectiverous bird "wagtail" Yellow wagtail (Motacilla flave) Small insectivorous bird	11.3	1.0 × 0.53	10.78	8.93		
		Maize BBCH≥20	Small disectivorous bird "wagtail" Yellow wagtail Motacilla flava)	4.8	1.0 × 0.53	4.58	21.0		
		Oilseed rape Early (shoots) BBCH 10 – 19	Large herbivorous bird "goose" Greylag goose (Anser anser)	15.9	1.0 × 0.53	15.2	6.35		
		Oilseed rape Late (with seeds) BBCH 80 ~ 99	Small granivorous bird "finch" Linnet (Carduelis cannabina	11.4	1.0 × 0.53	10.9	8.85		
		Oilseed rape BBCH 10 – 29	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53	10.4	9.26		
	67 07 07 07 07 07 07 07 07 07 0	Oilseed rape BBCH 30 – 39	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	3.15	30.6		
	Si al	011 1	a	2.7		1			

Small omnivorous bird

Woodlark (Lullula

"lark"

arborea)

2.7

 $1.0 \times$

0.53

Table CP 10-01-9: Control of invasive species: Uses 8, 9 (1 × 1800 g a.s./ha)

Oilseed rape

 $BBCH \ge \hat{40}$

2.58

37.4

Active substance

MON 52276

Reprod. Toxicity (mg/kg bw/d)7.1.10000000000000000000000000000000000
TEX CriterionGAP crop rate (g a.s./ha)Application Growth stageGeneric focal speciesSV_nMAF_m × TWADDD_n (mg/kg bw/d)SERControl of invasive species1 × 1800Oilseed rape BBCH 10 - 19Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)22.71.0 × 0.5321.74.45Oilseed rape BBCH 20 - 29Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)3.51.0 × 0.533.3428.8Oilseed rape BBCH 30 - 39Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)0.51.0 × 0.530.591.8Oilseed rape BBCH 30 - 39Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)0.91.0 × 0.530.5891.8Oilseed rape BBCH 240Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)0.91.0 × 0.530.859112Oilseed rape BBCH 240Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)0.91.0 × 0.530.859112Oilseed rape BBCH 10 - 19Small inscentivorous bird 5.90.91.0 × 0.530.6317.1Oilseed rape BBCH 10 - 19Small inscentivorous bird 5.90.530.5317.1Oilseed rape BBCH 20 - 29Small inscentivorous bird 5.90.530.5317.1Oilseed rape BBCH 20 - 29Small inscentivorous bird 5.90.531.0
GAP crop rate (g a.s./ha)Application Growth stageCeneric focal speciesSV_mMAFm × DDDm TWAMaFm (mg/kg bwd)BR (mg/kg bwd)Control of invasive species1 × 1800Oilseed rape BBCH 10 - 19Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)22.71.0 ×21.74.45Oilseed rape BBCH 20 - 29Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)3.51.0 ×3.3428.8Oilseed rape BBCH 30 - 39Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)3.51.0 ×1.0 ×91.8Oilseed rape BBCH 30 - 39Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)1.0 ×1.0 ×0.5391.8Oilseed rape BBCH 20 - 19Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)0.91.0 ×0.859112Oilseed rape BBCH 20 - 29Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus)0.91.0 ×0.859112Oilseed rape BBCH 20 - 29Small insectivorous bird "wagtil" (Moacilla flava)0.91.0 ×5.6317.1Oilseed rape BBCH 20 - 29Small insectivorous bird "wagtil" (Moacilla flava)2.81.0 ×2.6736.1
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$
Oliseed rape BBCH $30 - 39$ Medium herbivorous/granivorous palumbus) $1.0 \times 1.0 \times 1.05$ 1.05 91.8 Oilseed rape BBCH ≥ 40 Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus) 0.9 1.0×0.859 112 Oilseed rape BBCH ≥ 40 Medium herbivorous/granivorous bird "pigeon" Wood pigeon (Columba palumbus) 0.9 1.0×0.859 112 Oilseed rape BBCH $10 - 19$ Small insectivorous bird wegtail (Motacilla flava) 5.9 1.0×0.859 17.1 Oilseed rape BBCH $20 - 29$ Small insectivorous bird Vellow wagtail (Motacilla flava) 2.8 1.0×0.53 2.67 36.1
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$
BBCH 20 – 29 & Wagtail" 0.53 Yellow wagtail (<i>Motacilla flava</i>)
Orchard Small $2.7 1.0 \times 2.58 37.4$
application all feeding species "thrush" season & Robin (<i>Erithacus</i>
Orchard Orchard Not crop directed application all seasonSmall granivorous bird (<i>Serinus serinus</i>)12.6 0.531.0 × 0.5312.08.01
Potatoes BBCH $10-39$ Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>) Notational control of the state of the
$\begin{array}{ $

Table CP 10-01-9: Control of invasive species: Uses 8, 9 (1 × 1800 g a.s./ha)

Glyphosate

MON 52276

A stive substance		Clunhaasta					Section 10 434 of 553
Active substance Reprod. Toxicity (mg/kg		Glyphosate 96.3					. (
bw/d)	nty (mg/kg	90.5					S OUDIS
TER criterion		5	-				AL CONTRACT
-	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	(mg/kg bw/d)	TER
	1 × 1800	Potatoes BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)		1.0 × 0.53		8.93
		Potatoes BBCH ≥ 20	Small insectivorous bird "wagtail"		0.53	5.23	10.4
		Pulses BBCH 10 – 49	Yellow wagtail (<i>Motacilla flava</i>) Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>) Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>) Small omnivorous bird "lark" Woodlark (<i>kullula</i>)		P.0.× 0.53	10.9	8.85
		Pulses BBCH≥50	Small granivorous bird "finch" Linnet (Carduelis)	3.4	1.0 × 0.53	3.24	29.7
		Pulses BBCH 10 – 49	Small omnivorous bird "lark" Woodlark (Lillula arborga)	10.9	1.0 × 0.53	10.4	9.26
		Pulses BBCH≥50	Small omnivorous bird "lark" Woodlark (Lullula arborea)	3.3	1.0 × 0.53	3.15	30.6
		I as f days laws	Medium herbivorous/granivorous bird "pigeon" Wood pigeon (<i>Columba</i> <i>palumbus</i>)	22.7	1.0 × 0.53	21.7	4.45
	Č.	Pulses of C BBCH 10 - 19	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3	1.0 × 0.53	10.8	8.93
Glyphosate Renew	90, 7) 10, 10, 10 10, 10, 10 10, 00, 00	Pulses BBCH≥20	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motcailla flava</i>)	9.7	1.0 × 0.53	9.25	10.4
0	6.00 10 10 10 10 10 10 10 10 10 10 10 10 1	Root & stem vegetables BBCH 10 – 39	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	11.4	1.0 × 0.53	10.9	8.85
ss in the local and		Root & stem vegetables BBCH ≥ 40	Small granivorous bird "finch" Linnet (<i>Carduelis</i> <i>cannabina</i>)	3.4	1.0 × 0.53	3.24	29.7
AL SCA		Root & stem vegetables BBCH 10 – 39	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53	10.4	9.26

MON 52276

Active substance		Glyphosate					Section 10 435 of 553
		96.3					
bw/d)	ienty (ing/kg	2013					AL DUDI
TER criterio		5	1	1	1	I	10 SI CON
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	(mg/kg bw/d)	TER
Control of	1 × 1800	Root & stem	Small omnivorous bird	3.3	1.0 ×	3.15 5 5	30.6
invasive species		vegetables BBCH≥40	"lark" Woodlark (<i>Lullula</i> <i>arborea</i>)		0.53		
		Root & stem	Small insectivorous bird	11.3	1.0 *	10.8	8.93
		vegetables	"wagtail" Yellow wagtail (<i>Motacilla flava</i>)				
		Root & stem	Small insectivorous bird	9.7 %	1.0×	9.25	10.4
		vegetables BBCH≥20	"wagtail" Yellow wagtail (Motacilla flava)		0.53		
		Strawberries BBCH 10 – 39	(Motacilla flava) Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava) Small omnivorous bird "lark" Woodlark (Lullula Small omnivorous bird "lark" Woodlark (Lullula Woodlark (Lullula	510.9	1.0 × 0.53	10.4	9.26
			arborea)				
		Strawberries BBCH≥40	WOULIAN (Lununu	4.4	1.0 × 0.53	4.20	22.9
			arbore@)	11.0			
		Strawberries BBCH 10 – 19	Small insectivorous bird "waggail" Yellow wagtail		1.0 × 0.53	10.8	8.93
		Strawberries BBCH ≥ 20	Yelfow wagtail (Motacilla flava) Small insectivorous bird wagtail" Yellow wagtail (Motacilla flava) Small granivorous bird	9.7	1.0 × 0.53	9.25	10.4
		Late (summer /	"finch"	11.4	1.0 × 0.53	10.9	8.85
			cannabina)				
		Sugar beet Early (spring) (BBCH 10 – 19)	Small omnivorous bird "lark" Woodlark (<i>Lullula</i>	10.9	1.0 × 0.53	10.4	9.26
	2.2		arborea)				
	10000 11 1000 1000 1000 1000 1000 1000	Sugar beet BBCH 10 – 19	Small insectivorous bird "wagtail" Yellow wagtail	5.9	1.0 × 0.53	5.63	17.1
Mechinal Contract	10 10 10 10 10 10	autinni) Sugar beet Early (spring) (BBCH 10 – 19) Sugar beet BBCH 10 – 19 Sugar beet BBCH 20 – 49 Sugar beet BBCH 20 – 49	(<i>Motacilla flava</i>) Small insectivorous bird "wagtail" Yellow wagtail	2.8	1.0 × 0.53	2.67	36.1
		Concern la cont	(Motacilla flava)	0.7	1.0	0.05	10.4
N SICH SICH		BBCH 20 – 49	Small insectivorous bird "wagtail" Yellow wagtail (Motacilla flava)	9.7	1.0 × 0.53	9.25	10.4



MON 52276

Active substa	nce	Glyphosate					•.
Reprod. Toxi bw/d) TER criterio		96.3					V DUDICO
GAP crop	Application rate	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	(mg/kg hw/d)	TERu
	(g a.s./ha)		~				
Control of invasive species	1 × 1800	Sunflower Early germination / Leaf development (BBCH 00 – 19)	Small omnivorous bird "lark" Woodlark (<i>Lullula</i> <i>arborea</i>)	10.9	1.0 × 0.53		9.26
		Sunflower Early germination / Leaf development (BBCH 00 – 19)	Small insectivorous bird "wagtail" Yellow wagtail (<i>Motacilla flava</i>)	11.3 ර		10.8	8.93
		Vineyard BBCH≥20	Small insectivorous species "redstart" Black redstart <i>"Phoenicurus ochruros</i> "		↓T.@× 0:53	9.44	10.2
		Vineyard BBCH 10 – 19	Small granivorous bind "finch" Linnet (Carduelis)		1.0 × 0.53	6.58	14.6
		Vineyard BBCH 20 – 39	Small granivorous bird "finch" Linnet (Carduelis cannabina)	5.7	1.0 × 0.53	5.44	17.7
		Vineyard BBCH≥40	Small granivorous bird "finch" Linnet (Carduelis cannabina)	3.4	1.0 × 0.53	3.24	29.7
		Vineyard BBCH 10 – 19 je	Šmall omnivorous bird Slark" Wood lark (<i>Lullula</i> <i>arborea</i>)	6.5	1.0 × 0.53	6.20	15.5
		Vineyard 5 5 BBCH 20 7 39	Small omnivorous bird "lark" Wood lark (<i>Lullula</i> <i>arborea</i>)	5.4	1.0 × 0.53	5.15	18.7
		Vineyard BBCH≥40	Small omnivorous bird "lark" Wood lark (<i>Lullula</i> <i>arborea</i>)	3.3	1.0 × 0.53	3.15	30.6

Table CP 10-01-9: Control of invasive species: Uses 8, 9 (1 × 1800 g a.s./ha)

Annex M-CP 10-02: Calculations of the 21day time-weighted-average (twa) for glyphosate in grass foliage used in the avian and mammalian rich assessment

B.9.13 Calculation of the 21day time-weighted –average (twa) for glyphosate in grass foliage used in the mammalian risk assessment

The methodology used to calculate the TWA for glyphosate in grass foliage for the long-term mammalian risk assessment follows the procedure described in the Guidance Document on Terrestrial Ecotoxicology (1). With the approach outlined in the Guidance Document on Terrestrial Ecotoxicology, residues are assumed to follow the standard pattern of first order exponential decline. 0

The decline of glyphosate residue in grass was characterised using data from 22 residue trials each of which had a Day 0 value. Of these 22 trials, 18 of the trials were from 4 separate Monsanto reports (teferences 2 -5) and 4 trials were from 2 separate Cheminova reports (references 6 and 7). MON 2139 and a comparable Cheminova formulation were used in these grass residue trials. The grass residue values from the Cheminova trials were taken directly from the Glyphosate Monograph (reference 8); the Cheminova reports themselves were not reviewed.

The dissipation of glyphosate in grass was estimated using the standard first order dissipation model:

(1)
$$C_t = C_i \times e^{-kt}$$

eler openeler (1) $C_t = C_i \times e^{-kt}$ Where k is first order rate constant, Ci is the initial residue concentration, and Ct is the residue concentration at time t. Residue half-life time (DT_{50}) in days for these grass land trials was calculated with equation (2).

8

(2)
$$DT_{50} = \frac{-\ln 0.5}{k}$$

80⁰⁰ kIn each Monsanto report, residual glyphosate in mg/kg dry matter in grass was normalised to 1 kg a.s./ha and these values were plotted against time in days. For the Monsanto residues trials, many of the later sampling intervals were taken after plant desiccation. Therefore, for the purpose of accurately characterising glyphosate dissipation kinetics in grass, the glyphosate resdiues in mg/kg normalised to 100 % dry matter content were used to eliminate the effect of sample weight losses during desiccation (Table II-1). However, since the final sampling day in Cheminova teals was on Day 5, when grass desiccation was negligible, correction for moisture content was not necessary (Table II-2). July of

The dissipation of glyphosate was modelled with equation I using nonlinear regression (9). For 20 of the 22 trials, the standard first-order dissipation model provided an adequate fit for glyphosate dissipation (R2 > 0.8). The standard first-order dissipation model inadequately fit one Monsanto trial and one Cheminova trial (coefficient of determination, R2 < 0.600). For these two trials, the DT₅₀ was estimated by identifying the first day when a measured value had a greater than 50 % dissipation. Since the DT_{50} was estimated in this fashion for these two trials, the glyphosate residues in Table II-1 and Table II-2 are also expressed as a percentage of the initial concentration, which was set at 100 % for Day 0 after treatment. The average DT_{50} for the 22 trials was 2.8 days.

The linear first-order rate constant corresponding to a DT_{50} of 2.8 days was calculated using equation 3: (3) $k = \frac{-ln0.5}{2}$ DT50

Which results in a rate constant k of 0.2476 days-1. The 21-days time-weighed average (TWA) was calculated using equation 4:

(4) TWA
$$= \underbrace{(a_{t}, e_{t}, k_{t})}_{kt}$$

Where kas the first order rate constant calculated using equation (3), and t is the window of time over the TWA is calculated (i.e. 21 days). Using these parameters for k, and t, the 21-Day TWA is calculated to be 0.19 for active substance glyphosate acid.

Glyphoaste Country, App. NRG % of DAT³ R² k DT50 Monsanto Report No (days-1) 100% Year Rate Day 0 days of Trial, ID (kg a.s. a.s./ha)1 DM^2 residue Great Britain, 1981 2 ML Solution of the second SU 8125 1.08 101 100 1h 0.99 0.4106 1.7 RIP95-01242MEL 30.080 27 26.7 3 12 11.9 7 2.1 SU 8125 2.88 100 0.3251 67 1h 0.997 27 40.3 3 5 7.5 7 0.72 SU 30117 247 100 0.9587 1.08 1h 0.997 all of the second second 14 5.7 3 7 8 3.2 Mr. Sold and a second second 7 2.8 9 ler all 6 2.4 10 3 1.2 14 SU 30117 2.88 100 0.7063 0.98 130 1h 0.976 100 100 100 Social 14 10.8 3 11 8.5 7 of the state of th 9 9 6.9 7.7 10 10 3 2.3 14 50° SU 30119 1.08 193 100 <u>l</u>\$₽ 0.809 0.1456 4.8 245 595 175 90.7 ŝ 38 19.3 9 4.2 øľ1 ŝ SU 30119 100 00 1h 2.88 161 0.901 0.155 4.5 364 123 4 8 300 18.6 9 § 8.1 \$3.0 11 ő France, 1981 ó Ø Contraction of the second seco 168 811 100 RIP95-01245MLL 30.082 0 0.976 0.4576 1.5 9 5.4 5 23 13.7 8 5 12 3 <u>4%08</u> 811 134 100 0 0.95 0.3768 1.8 9 6.7 5 27 20.1 8 5 3.7 12 Netherlands, 1982 Hodo Contraction of the second NL 8207 1.44 682 100 0 0.998 0.423 1.6 RIP95-01264MLL 30.101 77 11.3 5 31.7 4.6 10

Glyphosate residues in grass following a single treatment of Roundup[®] (MON 2139, SL/360). Source: Monsanto Field Residue Studies:

Glyphosate residues in grass following a single treatment of Roundup[®] (MON 2139, SL/360). Source: Monsanto Field Residue Studies:

Annex to Regulation 284				MON 522				M-CP, Section 1 Page 439 of 55
Glyphosate resid Source: Monsan					eatment of	of Round	up® (M	ION 2139, SL/360).
Country, Year Trial, ID	App. Rate (kg a.s./ha) ¹	NRG 100% of DM ²	% of Day 0 a.s. residue	DAT ³	R ²	k (days ⁻¹)	DT ₅₀ days	Glyphoaste Monograph reference; Monsanto Report No. RIP95-01273MISC 30.132
Danmark, 1981	a.s./11a)	DIVI	Testude					Wonsanto Report No.
Villbach (GE)- 1981-0181 Vi	1.8	162.9 36 52.6	100 22.3 32.3	0 7 14	0.844	0.1415	4.9	RIP95-01273MEC.30.132
Villbach (GE)- 1981-0281 Vi	1.8	496.3 184.4 37	100 37.2 7.5	0 7 14	0.994	0.1537	4.5	
Lettgunbrunn (GE)-1981- 0981LE	1.8	437.9 51.2 69.4	100 11.7 15.8	0 7 14	0.961	0.2616	2.60	Monograph reference; Monsanto Report No. 2 RIP95-01273MEC 30.132
Villbach (GE)- 1981-0481 Vi	1.8	190.7 69	100 36.2	0 7	0.937	0,11,0 0,11,0	6.3	
		69 59	30.2	14	5			
Danmark, 1983					200	0		
Vogach (GE)- 19B	1.44	158.9 9.9 8.3	100 6.2 5.2	0 3 7 8	0,995	0.9083	0.76	RIP95-01273MLL 30.132
Untermehlhausen	1.44	3.3 4.4 169.6	2.1 2.8 100			0.2852	2.4	-
(GE)-1983		16.4 16.2 13	9.7 5 4 956 20 1	70 10 14	-			
Schoneberg	1.44	257.2 1,55.8 144.6	100 60.6 56.2	0 3 7	*	*	104	
Utphe (GE)-1983	00000 1:4000 1:4000 00000 00000 00000 00000 0000000000	123.9 151 354.9 78.7	48.2 58.7 100 22.2	10 14 0 7	0.961	0.1718	4	_
Milling (CE)		252.0	17.7 11	14 21	0.997	0.9014	0.77	-
Meiling (GE) 1983		16.6 6 6.3	6.5 2.4 2.5	3 7 10				
A solution of the standard sta	esidual glyph ament. ⁴ Estim order dissipa	8.3 osate mg/k nated DT ₅₀ tion model	3.3 ag normalized value based	14 d to 1 kg a s. on time when	/ha and corre	ected to 100 %	6 dry matt	ter content. Values taken directly /as reached. /054-MCP10_GRG_Rev 1_Jul_202
Glyphosate Renewal Gro	up AIR 5 – Ji	uly 2020				Do	oc ID: 110	054-MCP10_GRG_Rev 1_Jul_202

annex to Regul	ation 284/2013		1	MON 52276			M-CP, Section 10 Page 440 of 553	CO CO CO CO CO CO CO CO CO CO CO CO CO C
Source: C		ield Residu		ngle treatmer (cited in Glyp		· (-) · · · · · · · · · · · · · · · · · · ·		ion in the second secon
App. Rate	Residue	% of Day	DAT ²	R ²	k	DT ₅₀	Glyphoaste	
(kg	(mg	0 a.s.			(days ⁻¹)	(days)	Monograph	v"
a.s./ha)1	a.s./kg wet weight)	Residue					Cheminova Report	
	weight)						No.	
Great Brita	in, 1992						Glyphoaste Monograph reference; Cheminova Report No.	
2.16	237.6	100	4h	0.987	1.9629	0.35	RIP95-09308	
	45	18.9	1				AF 93/04572-01	
	19.6	8.2	3			S.		
	9.6	4	5			H.S.	Le la	
1.08	87.6	100	4h	0.937	2.0879	0.33	5	
	14.6	16.7	1			12 0 0° 0°.		
	14.3	16.3	3		Q			
	8.3	9.5	5		ji.	5 5°		
2.16	252.3	100	4h	0.951	0.4885	.4	RIP95-01312	
	131	51.9	1		E. o. o		IF-93/13842-01	
	72.1	28.6	3				Cheminova Report No. RIP95-01308 IF-93/04572-01	
	36.6	14.6	5					
1.08	90.4	100	4h	* 1	**************************************	3 ³		
	142.8	158	1					
	39.8	44	3	Le la	·			
	17.3	19.1	5	S. 8 3				

Glyphosate residues in grass following a single treatment of CHE 3607 (SL/360)
Source: Cheminova Field Residue Studies (cited in Glyphosate Monograph):

³ Estimated DT₅₀ value based on time when approximately 50% dissipation was reached.

* Did not fit standard 1st order dissipation model.

References

nces Guidance Document on Risk assessment for Birds and Mammals Under Council Directive 1. 91/414/EEC, September 2002, SANCO/4145/2000.

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- 8.
- 9.

Annex M-CP 10-03: Mammalian risk assessment

Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c

S: Mammalian risk assessment est, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c Table CP 10-03-1: No Contra $(1 \times 1440 \text{ g a.s./ha})$, 00 00 00

Active substan	nce	Glyphosate		50 5	8		
Reprod. Toxic	ty (mg/kg	50					
bw/d)			A.	DE D			
TER criterion	l	5		S.			
GAP crop	Application	Crop scenario	Generic focal species	SVm	MAFm	DDDm	TER
-	rate	Growth stage	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		× TWA	(mg/kg bw/d)	
	(g a.s./ha)	-					
Field crops	1 × 1440	Bulbs and onion	Small herbivorous	43.4	1.0 ×	33.1	1.51
(Post-harvest,		like crops	mammal (Wole")		0.53		
pre-sowing,		$BBCH \ge 40$	mammal Wole" Common yole(<i>Microtus</i>				
pre-planting)			arvalis) L				
· · · · · ·		Bulbs and onion	Small omnivorous	4.7	1.0 ×	3.59	13.9
		like crops	mamma "mouse"		0.53		
		$BBCH \ge 40$	Wood mouse (Apodemus				
		5	sylvaticus)				
		Cereals	Small insectivorous	1.9	1.0 ×	1.45	34.5
		BBCH ≥ 20 S	mammal "shrew"		0.53		
			Common shrew (Sorex				
			araneus)				
		Cereads 8	Small herbivorous	21.7	$1.0 \times$	16.6	3.02
		BB€H ≥ 40	mammal "vole"		0.53		
		S S S	Common vole (Microtus				
	ć		arvalis)				
	17 19 20 20 20 20 20 20 20 20 20 20 20 20 20	Cereals	mammar mouse Wood mouse (Apodemus Sylvaticus) Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Small herbivorous mammal "vole" Common vole (Microtus arvalis) Small omnivorous mammal "mouse"	2.3	$1.0 \times$	1.76	28.5
	L. S	BBCH ≥ 40	mammai mouse		0.53		
	2.6	6 C	Wood mouse (Apodemus				
			sylvaticus)				
		Fruiting vegetables	Small insectivorous	1.9	$1.0 \times$	1.45	34.5
	AL NO	$BBCH \ge 20$	mammal "shrew"		0.53		
ć	S. F.		Common shrew (Sorex				
Glyphosate Renew	S.		araneus)				
	þ.	Fruiting vegetables		21.7	1.0 ×	16.6	3.02
10° + 9°		$BBCH \ge 50$	mammal "vole"		0.53		
A. H.			Common vole (<i>Microtus</i>				
S S S S		D '4' 4 11	arvalis)	2.2	1.0		• • •
JU CH		Fruiting vegetables		2.3	1.0 ×	1.76	28.5
S. C		$BBCH \ge 50$	mammal "mouse"		0.53		
i fi			Wood mouse (<i>Apodemus</i> sylvaticus)				
			sylvalleus)				

Active substa		Glyphosate					Louis.
Reprod. Toxi bw/d) TER criterioi		50 5				۷.	S OF HIS DU
GAP crop		Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm (mg/kg.bw/d) 3:45:	TER
		Grassland Late	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53	(ing kga wa)	34.5
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 1440	Leafy vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i>	1.9	0,53 5	1.45	34.5
		Leafy vegetables BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)		1.0 × 0.53	16.6	3.02
	All season Leafy veget BBCH ≥ 50 Legume for BBCH ≥ 20		Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus)	§14.3	1.0 × 0.53	10.9	4.58
		BBCH≥50	Small omnivorous mammak mouse" Wood mouse(<i>Apodemus</i> sylvaticus)	2.3	4.3 $1.0 \times \\ 0.53$ 10.9 .3 $1.0 \times \\ 0.53$ 1.76 .9 $1.0 \times \\ 0.53$ 1.45 1.7 $1.0 \times \\ 0.53$ 16.6	28.5	
		BBCH≥20	mammal "shrew" Common shrew (<i>Sorex</i>	(A) (A) <th< td=""><td>34.5</td></th<>	34.5		
		Legume forage K BBCH $\geq 50^{\circ}$	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)			16.6	3.02
			Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3		1.76	28.5
		BBCH ≥ 50mammal "vole" Common vole (Microtus arvalis)0.53Leafy vegetables All seasonLarge herbivorous mammal "lagomorph" Rabbit (Oryctotagas cuniculus)14.31.0 × 0.5310.9Leafy vegetables BBCH ≥ 50Small omnivorous mammal "nouse" Wood mouse (Apodemus sylvaticus)2.31.0 × 0.531.76Legume forage BBCH ≥ 20Small Insectivorous mammal "shrew" Common shrew (Sorex arvalis)1.91.0 × 0.531.45Legume forage BBCH ≥ 50Small Insectivorous mammal "shrew" Common vole (Microtus arvalis)1.0 × 0.531.45Legume forage BBCH ≥ 50Small onnivorous mammal "vole" Common vole (Microtus arvalis)1.0 × 0.531.6.6Legume forage BBCH ≥ 50Small nerbivorous mammal "nouse" Wood mouse (Apodemus sylvaticus)1.0 × 0.531.76Maize BBCH ≥ 20Small onnivorous mammal "nouse" Common vole (Microtus arvalis)1.9 0.531.0 × 0.53Legume forage BBCH ≥ 50Small onnivorous mammal "nouse" Wood mouse (Apodemus sylvaticus)1.9 0.531.0 × 0.53Maize MaizeSmall insectivorous mammal "shrew" Common shrew (Sorex araneus)1.9 0.531.45MaizeSmall herbivorous Maize1.9 0.531.0 × 0.53	1.45	34.5			
10 10	11,0% 01,0%	Maize BBCH≥40	mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	18.1	1.0 × 0.53	13.8	3.62
		Maize BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	1.9	1.0 × 0.53	1.45	34.5
and Ste		Oilseed rape BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	1.9	1.0 × 0.53	1.45	34.5

Table CP 10 (1 × 1440 g a		Field crops (Post	harvest, pre-sowing, pi	-	0,		
Active substa	nce	Glyphosate					in the second se
Reprod. Toxi	city (mg/kg	50					2000
bw/d)		5				、 、	1. S.
TER criterion GAP crop		5 Crop scenario	Generic focal species	SVm	MAF	DDD S	TER _#
Gill clop	rate (g a.s./ha)	Growth stage	Generic Iocal speeks	5 • 11	× TWA	(mg/kg.bw/d)	
		Oilseed rape BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (<i>Microtus</i>	18.1	1.0 × 0.53	DDD _m (mg/kg.bw/d) 33.8.0 55.0 10.9	3.62
Field crops	1 × 1440	Oilseed rape	<i>arvalis</i>) Large herbivorous	14.3	50 × 3	ک 10.9	4.58
(Post-harvest, pre-sowing, pre-planting)		All season	mammal "lagomorph"	in all	0.53		
pre-planting)		Oilseed rape BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i>		1.0 × 0.53	1.45	34.5
	Potatoes BBCH ≥ 20	sylvaticus) Small insectivorous mammal "shrew" Common shrew (Soras araneus)	4.9	1.0 × 0.53	1.45	34.5	
		Potatoes BBCH≥40	Small herbivorous mammak vole ² Common vole (Microtus arvalis)	21.7	1.0 × 0.53	16.6	3.02
		Potatoes BBCH≥40	Large herbivorous mammal "lagomorph"	4.3	1.0 × 0.53	3.28	15.2
		Potatoes $3 \frac{1}{6}$ BBCH $\geq 40^{\circ}$	Rabbit (Oryctolagus cuniculus) Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus) Small insectivorous	2.3	1.0 × 0.53	1.76	28.5
		BBCH > 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	1.9	1.0 × 0.53	1.45	34.5
		Pusses BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7	1.0 × 0.53	16.6	3.02
, d	(0) 20 11 10 20 10 20 10 10 20 10 10 10 10 10 10 10 10 10 10 10 10 10	Pulses BBCH ≥ 50	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	4.3	1.0 × 0.53	3.28	15.2
Se Si Se	¢.	Pulses BBCH≥50	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	2.3	1.0 × 0.53	1.76	28.5
Glyphosate Renew		Root and stem vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53	1.45	34.5

Table CP 10 (1 × 1440 g a		Field crops (Post	harvest, pre-sowing, pr	-	0,		
Active substa	nce	Glyphosate					ii C
Reprod. Toxio bw/d)		50					en out
-	Application rate	5 Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m (mg/kg_bw/d)	TER
	(g a.s./ha) 1 × 1440	Root and stem vegetables BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7	1.0 × 0.53 5	DDD _m (mg/kg.bw/d) *6.6	3.02
pre-planning)		Root and stem vegetables BBCH ≥ 40	Common vole (Microtus arvalis) Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus) Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Small herbivorous mammal "vole Common vole (Microtus arvalis)	2.3	150 % 0,53 %	1.76	28.5
		Strawberries BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	1.0 × 0.53	1.45	34.5
		Strawberries BBCH≥40	Small herbivorous mammal "vole Common vole (<i>Microtus</i> <i>arvalis</i>) Large herbivorous	28.9	1.0 × 0.53	22.1	2.27
		Strawberries BBCH≥40	mammak lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)		1.0 × 0.53	4.35	11.5
		Strawberries BBCH≥40	Small onnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	3.1	1.0 × 0.53	2.37	21.1
		Sugar beet 5 10° BBCH $\geq 20^{\circ}$ 5° 10°	Wood mouse (Apodemus sylvaticus) Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Small herbivorous	1.9	1.0 × 0.53	1.45	34.5
		BBCH > 40	mammal "vole Common vole (<i>Microtus</i> <i>arvalis</i>)	18.1	1.0 × 0.53	13.8	3.62
	0 0 0 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0	Sugar beet BBCH≥40	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	3.6	1.0 × 0.53	2.75	18.2
81010 1010	110, 100 101 101 101 101 101 101 101 101	Sugar beet BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	1.9	1.0 × 0.53	1.45	34.5
S S S S S S S S S S S S S S S S S S S	ç.	Sunflower BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53	1.45	34.5
Jucon Contraction of the second of the secon		Sunflower BBCH≥40	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	18.1	1.0 × 0.53	13.8	3.62

							<u> </u>
Active substa	nce	Glyphosate					. Co
Reprod. Toxi bw/d)	city (mg/kg	50					2) Marine Cult
TER criterio	n	5				J.	0
GAP crop	Application	Crop scenario	Generic focal species	SVm	MAFm	DDDm SS	TER
_	rate	Growth stage			× TWA	(mg/kg_bw/d)	
	(g a.s./ha)						
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 1440	Sunflower BBCH≥40	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	3.6	1.0 × 0.53 &	101 101 101 101 101 101 101 101 101 101	18.2
		Sunflower BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	1.9	150 8 N 0,53 N 8 N 10,53 N	1.45	34.5

Table CP 10-03-2:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c
(2 × 1080 g a.s./ha)	
	E S S

	ostance	Glyphosate							
Reprod. 7 bw/d) TER crite	Foxicity (mg/kg erion	50 0° 5° 5° 5° 5° 5° 5° 5° 5° 5° 5° 5° 5° 5°							
GAP croj	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m (mg/kg bw/d)	TER		
Field crop (Post-harv pre-sowin pre-plantin	est, g,	Bulbs and onion like crops BBCH \geq 40	Small herbivorous mammal "vole"	43.4	1.1 × 0.53	27.3	1.83		
1 1		Bulbs and onion of the crops of	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	4.7	1.1 × 0.53	2.96	16.9		
	60 10 10 10 10 10 10 10 10 10 10 10 10 10	Cereals BBCH≥20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	1.9	1.1 × 0.53	1.20	41.8		
	10000000000000000000000000000000000000	€ereals BBCH≥40	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7	1.1 × 0.53	13.7	3.66		
	14/00 00,000 010,000 010,000	Cereals BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3	1.1 × 0.53	1.45	34.5		
Stick Street	enewal Group AIR 5	Fruiting vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.1 × 0.53	1.20	41.8		

Table CP 10-03-2:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c
(2 × 1080 g a.s./ha)	

Table CP 10- (2 × 1080 g a		Field crops (Post	harvest, pre-sowing, pr	e-planti	ng): Use	es 2 a-c, 10 a-c	Section 10 446 of 553 c
Active substan	ıce	Glyphosate					ð
Reprod. Toxic bw/d)		50					TER#
TER criterion		5		CV	MAE	DDD (1)	े ैं जिन्हा
1	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	(mo/ko bw/d)	T E Klt
Field crops (Post-harvest, pre-sowing, pre-planting)	st,	Fruiting vegetables BBCH ≥ 50	mammal "vole"	21.7	1.1 × 0.53 ©	1.45	3.66
		Fruiting vegetables BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3	151 & X 0,53 & V V	1.45	34.5
		Grassland Late	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	2.3 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9	1.1 × 0.53	1.20	41.8
		Leafy vegetables BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sores araneus)	£.9	1.1 × 0.53	1.20	41.8
		Leafy vegetables BBCH ≥ 50	Small herbivorous mammak vole's Common vole (Microtus arvatis)	21.7	1.1 × 0.53	13.7	3.66
		Les and a second s	Large hetbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> cumculus)	14.3	1.1 × 0.53	9.00	5.55
		Leafy vegetables® BBCH ≥ 500 0 500	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3	1.1 × 0.53	1.45	34.5
	Ś	Leguine forâge BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.1 × 0.53	1.20	41.8
	2000 1000 1000 1000 1000 1000 1000 1000	Legume forage BBCH≥50	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7	1.1 × 0.53	13.7	3.66
20 20 20 20 20 20 20 20 20 20 20 20 20 2		Legume forage BBCH≥50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3	1.1 × 0.53	1.45	34.5
ss in a second	7	Maize BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.1 × 0.53	1.20	41.8
Glyphosate Renewa		Maize BBCH≥40	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	18.1	1.1 × 0.53	11.4	4.39

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Table CP 10-03-2:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c
(2 × 1080 g a.s./ha)	

Active substa	nce	Glyphosate					Section 10 447 of 553 c
Reprod. Toxi bw/d)		50					TER ^H
TER criterio	n	5				J.	
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m (mg/kg.bw/d)	TER _{lt}
Field crops (Post-harvest, pre-sowing, pre-planting)	2 × 1080	Maize BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> sylvaticus)	1.9	1.1 × 0.53 5	100 - 50 100 -	41.8
1 1 0/		Oilseed rape BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	151 8 X 0.53 X	1.20	41.8
		Oilseed rape BBCH ≥ 40	wood mouse (Apodemus sylvaticus) Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Small herbivorous mammal "vole" Common vole (Microtus arvalis) Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus)	18:10 F	1.1 × 0.53	11.4	4.39
		Oilseed rape All season	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>) Small omnivorous	14.3	1.1 × 0.53	9.00	5.55
		Oilseed rape BBCH ≥ 40	Small omnivorous mammak [®] mouse [®] Wood mouse(<i>Apodemus</i> sylvaticus)	1.9	1.1 × 0.53	1.20	41.8
		Potatoes BBCH≥20	Smallinsectivorous	1.9	1.1 × 0.53	1.20	41.8
		Potatoes 3^{+} 3^{+} BBCH $\geq 40^{+}$ 3^{+} 3^{+} 3^{+}	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7	1.1 × 0.53	13.7	3.66
		BBCH > 40	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	4.3	1.1 × 0.53	2.71	18.5
	200 11 200 11 200 10 200 00	Potatoes BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3	1.1 × 0.53	1.45	34.5
10°		Pulses BBCH≥20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	1.9	1.1 × 0.53	1.20	41.8
Glyphosate Renew	¢'	Pulses BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7	1.1 × 0.53	13.7	3.66

Table CP 10-03-2:	Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c
(2 × 1080 g a.s./ha)	

Active substa	nce	Glyphosate					Section 10 448 of 553 c
Reprod. Toxi bw/d)		50					TER ^H
TER criterio	n	5				J.	
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	(mg/kg.bw/d)	TER _{It}
Field crops (Post-harvest, pre-sowing, pre-planting)	2 × 1080	Pulses BBCH ≥ 50	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	4.3	1.1 × 0.53 0	2.74	18.5
		Pulses BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3	61,53 5 0,53 5 5 5 5	1.45	34.5
		Root and stem vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	1.1 × 0.53	1.20	41.8
		Root and stem vegetables BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (Microuis arvalis)	21.7	1.1 × 0.53	13.7	3.66
		Root and stem vegetables BBCH≥40	Small omnivorous mammak mouse" Wood mouse (Apodemus sylvaticus)	2.3	1.1 × 0.53	1.45	34.5
		Strawberries BBCH ≥ 20	Small Insectivorous mammal "shrew" Common shrew (Sorex armeus)	1.9	1.1 × 0.53	1.20	41.8
		Strawberries 5 in BBCH ≥ 40 5 6 in Strawberries 5 in BBCH ≥ 40 5 6 in Strawberries 5 in Strawberries	Small herbivorous mammal "vole Common vole (<i>Microtus</i> <i>arvalis</i>)	28.9	1.1 × 0.53	18.2	2.75
		Strawberries BBCH > 40	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	5.7	1.1 × 0.53	3.59	13.9
	200 17 200 17 201 10 201 00	Strawberries BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	3.1	1.1 × 0.53	1.95	25.6
10°		Sugar beet BBCH≥20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	1.9	1.1 × 0.53	1.20	41.8
Glyphosate Renew	¢'	Sugar beet BBCH≥40	Small herbivorous mammal "vole Common vole (<i>Microtus</i> <i>arvalis</i>)	18.1	1.1 × 0.53	11.4	4.39

Active substa	nce	Glyphosate					CO				
Reprod. Toxi bw/d)	city (mg/kg	50					OF PLAN				
TER criterio	n	5	5								
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m (mg/kg.bw/d)	TER				
Field crops (Post-harvest, pre-sowing, pre-planting)	2 × 1080	Sugar beet BBCH ≥ 40	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	3.6	1.1 × 0.53 &	27. 27. 27. 27. 27. 27. 27. 27. 27. 27.	22.1				
		Sugar beet BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	1.9	61,53 5 0,53 5	1.20	41.8				
		Sunflower BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	19 10 4 19 10 4 0 4 1 5 10 4 10	1.1 × 0.53	1.20	41.8				
		Sunflower BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (<i>Microuis</i> <i>arvalis</i>)	\$8.1	1.1 × 0.53	11.4	4.39				
		Sunflower BBCH ≥ 40	Large herbivorous mammal "lagomorph" Rabbit (Oryceolagus cuniculus)	3.6	1.1 × 0.53	2.27	22.1				
		Sunflower BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (Apodemus	1.9	1.1 × 0.53	1.20	41.8				

Reprod. Toxi bw/d) TER criterio GAP crop	n 🔨 🚫 Application	ర్ Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m (mg/kg bw/d)	TER
Field crops (Post-harvest pre-sowing) pre-planting)	18 540	Bulbs and onion like crops BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	43.4	1.0 × 0.53	12.4	4.03
Glyphosate Renew		Bulbs and onion like crops BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	4.7	1.0 × 0.53	1.35	37.2

(1 × 540 g a.		l crops (Post harv	vest, pre-sowing, pre-pl	anting):	Uses 2 :	а-с, 10 а-с	Section 10 450 of 553
Active substa	nce	Glyphosate					SU.
Reprod. Toxi bw/d) TER criterio		50					OF OF OF
GAP crop		5 Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m	TER
	(g a.s./ha)					L 2	
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 540	Cereals BBCH≥20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	1.9	1.0 × 0.53	0.544 A	91.9
		Cereals BBCH≥40	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7		§6.21	8.05
		Cereals BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)		1.0 × 0.53	0.658	76.0
		Fruiting vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sares araneus)	¥.9	1.0 × 0.53	0.544	91.9
		Fruiting vegetables BBCH≥50	Small herbivorous mammal vole" Common vole (Microtus arvatas)	21.7	1.0 × 0.53	6.21	8.05
		Fruiting vegetables BBCH ≥ 50	Small omnivorous manimal "mouse" Wood mouse (Apodemus	2.3	1.0 × 0.53	0.658	76.0
		Grassland	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	1.9	1.0 × 0.53	0.544	91.9
	×0 ⁶	BBCH 20	mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)		1.0 × 0.53	0.544	91.9
		Leafy vegetables BBCH≥50	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)		1.0 × 0.53	6.21	8.05
		Leafy vegetables All season	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	14.3	1.0 × 0.53	4.09	12.2
Glyphosate Renew	¢,	Leafy vegetables BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3	1.0 × 0.53	0.658	76.0
AN COLORINA		Legume forage BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53	0.544	91.9

Active substa	nce	Glyphosate					.8
Reprod. Toxi bw/d)		50					OF ALL
TER criterio		5				he.	10 - 12 10 - 12 10 - 12
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m	TER _{lt}
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 540	Legume forage BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)		1.0 × 0.53	6.21. A	8.05
		Legume forage BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3	0.53	S0.038	76.0
		Maize BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)		1.0 × 0.53	0.544	91.9
		Maize BBCH≥40	Small herbivorous mammal "vole" Common vole (Microths arvalis)	¥8.1	1.0 × 0.53	5.18	9.65
		Maize BBCH≥40	Small omnivorous mammal mouse" Wood mouse (Apodemus sylvaticus)	1.9	1.0 × 0.53	0.544	91.9
		Oilseed rape BBCH ≥ 20	Small insectivorous manimal "shrew" Common shrew (Sorex argueus)	1.9	1.0 × 0.53	0.544	91.9
		Oilseed rape 3 3 3 3 3 3 3 3 3 3	arqueus) Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	18.1	1.0 × 0.53	5.18	9.65
	5		Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	14.3	1.0 × 0.53	4.09	12.2
	10, 10, 11 10, 10, 11 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	Öitseed rape BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)		1.0 × 0.53	0.544	91.9
, d		Potatoes BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	1.9	1.0 × 0.53	0.544	91.9
Glyphosate Renew	¢.	Potatoes BBCH≥40	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7	1.0 × 0.53	6.21	8.05

Active substa	nce	Glyphosate					.6
Reprod. Toxi bw/d)		50					OC COL
TER criterio		5		CN/	MAE	DDD (1)	STED.
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	(ma/ka hw/d)	TER _{it}
Field crops (Post-harvest, pre-sowing, pre-planting)	1×540	Potatoes BBCH ≥ 40	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	4.3	1.0 × 0.53	123. 1	40.6
1 1 0/		Potatoes BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3	0.53	30.038	76.0
		Pulses BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)		1.0 × 0.53	0.544	91.9
		Pulses BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (Microths arvalis)	21.7	1.0 × 0.53	6.21	8.05
		Pulses BBCH ≥ 50	Large herbivorous mammal "lagonorph" Rabbit (Oryctolagus cuniculus)	4.3	1.0 × 0.53	1.23	40.6
			Small omnivorous mammal "mouse" Wood mouse (Apodemus	2.3	1.0 × 0.53	0.658	76.0
		Root and stem (1) vegetables (1) BBCH ≥ 30 (1)	<i>Sylvaticus)</i> Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	1.9	1.0 × 0.53	0.544	91.9
		Root and stem vegetables	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7	1.0 × 0.53	6.21	8.05
		Root and stem vegetables BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	2.3	1.0 × 0.53	0.658	76.0
, d	(1) 200 (1) 201 (1) 21 (1) 21 (1) 20 (1) 20	Strawberries BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53	0.544	91.9
Sc Intelling	1 ₀ ,	BBCH ≥ 40 Root and stem vegetables BBCH ≥ 40 Strawberries BBCH ≥ 20 Strawberries BBCH ≥ 40 - July 2020	Small herbivorous mammal "vole Common vole (<i>Microtus</i> <i>arvalis</i>)	28.9	1.0 × 0.53	8.27	6.05

Active substa	ince	Glyphosate					Section 10 453 of 553
Reprod. Toxi bw/d)		50					OF CHANGE
TER criterio GAP crop		5 Crop scenario	Generic focal species	SVm	MAF _m	DDD_m . \heartsuit	STER1r
F	rate (g a.s./ha)	Growth stage		~ · m	× TWA	(ma/ka bw/d	n
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 540	Strawberries BBCH ≥ 40	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	5.7	1.0 × 0.53 5	1263. 1463. 10 10 10 10 10 10 10 10 10 10	30.6
1 1 0/		Strawberries BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i>	3.1	0.53		56.4
		Sugar beet BBCH≥20	sylvaticus) Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Small herbivorous		1.0 × 0.53	0.544	91.9
		Sugar beet BBCH≥40	Small herbivorous mammal "vole Common vole (Microuis arvalis)	¥8.1	1.0 × 0.53	5.18	9.65
		Sugar beet BBCH ≥ 40	Large herbivorous mammal "lagonsorph" Rabbit (Oryctolagus cuniculus)	3.6	1.0 × 0.53	1.03	48.5
		Sugar beet BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	1.9	1.0 × 0.53	0.544	91.9
		Sunflower 200° 0° 0°	Wood mouse (Apodemus Sylvaticus) Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Small herbivorous	1.9	1.0 × 0.53	0.544	91.9
		BBCH 240	mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	18.1	1.0 × 0.53	5.18	9.65
	200 11 10 10 10 10 10 10 10 10 10	Sunflower BBCH≥40	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	3.6	1.0 × 0.53	1.03	48.5
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	10000000000000000000000000000000000000	Sunflower BBCH≥40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	1.9	1.0 × 0.53	0.544	91.9
Glyphosate Renew	val Group AIR 5	Lub- 2020		Dec ID:		CP10 GRG Rev	

Active substa	ince	Glyphosate					. C
Reprod. Toxi bw/d)		50					CC
DW/U) TER criterio		5				J.	6.2
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm	TER _{lt}
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 720	Bulbs and onion like crops BBCH ≥ 40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )		1.0 × 0.53 ¢	1.79	3.02
pro panong)		Bulbs and onion like crops BBCH ≥ 40	Small omnivorous mammal "mouse"	4.7	0.53 N	1.79	27.9
		Cereals BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)		1.0 × 0.53	0.725	69.0
		Cereals BBCH≥40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> ) Small omnivorous	21.7	1.0 × 0.53	8.28	6.04
		Cereals BBCH≥40	Small omnivorous mammak 'mouse'' Wood mouse (Apodemus sylvaticus)		1.0 × 0.53	0.878	57.0
		BBCH≥20	Small Insectivorous manimal "shrew" Common shrew (Sorex argneus)	1.9	1.0 × 0.53	0.725	69.0
		Fruiting vegetables BBCH ≥ 50 50 50 50 50 50 50 50 50 50 50 50 50	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	1.0 × 0.53	8.28	6.04
		BBCH 250	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	2.3	1.0 × 0.53	0.878	57.0
		Grassland Date	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53	0.725	69.0
20		Leafy vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53	0.725	69.0
Glyphosate Renew	(b),	Leafy vegetables BBCH ≥ 50	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	1.0 × 0.53	8.28	6.04

Active substa	nce	Glyphosate					.0
Reprod. Toxi bw/d)		50					Or of United
TER criterio	n	5				J.	
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm S	TER _{lt}
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 720	Leafy vegetables All season	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	14.3	1.0 × 0.53 ¢	0.878	9.16
P. • P		Leafy vegetables BBCH≥50	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	2.3	150 58 . 0,53 5 0,53 5	0.878	57.0
		Legume forage BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	2.3	1.0 × 0.53	0.725	69.0
		Legume forage BBCH ≥ 50	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> ) Small omnivorous	21.7	1.0 × 0.53	8.28	6.04
		Legume forage BBCH ≥ 50	Small omnivorous mammal mouse" Wood mouse (Apodemus sylvaticus)		1.0 × 0.53	0.878	57.0
		Maize BBCH≥20	Small insectivorous	1.9	1.0 × 0.53	0.725	69.0
		Maize $5^{-}$ $10^{\circ}$ BBCH $\geq 40^{\circ}$ $6^{\circ}$ $10^{\circ}$	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	18.1	1.0 × 0.53	6.91	7.24
		BBCH≥40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	1.9	1.0 × 0.53	0.725	69.0
	200 17 200 17 19, 00, 00, 00, 00, 00, 00, 00, 00, 00, 0	Öilseed rape ₿BCH≥20	Small insectivorous mammal "shrew" Common shrew ( <i>Sorex</i> <i>araneus</i> )	1.9	1.0 × 0.53	0.725	69.0
10°	110,000 ml	Oilseed rape BBCH ≥ 40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	18.1	1.0 × 0.53	6.91	7.24
Glyphosate Renew	6	Oilseed rape All season	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	14.3	1.0 × 0.53	5.46	9.16

Active substa	nce	Glyphosate					. 3
Reprod. Toxi bw/d)		50					OC ON DUDIN
TER criterio		5				J.	
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm	TER _{It}
Field crops (Post-harvest, pre-sowing, pre-planting)		Oilseed rape BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	1.9	1.0 × 0.53 ¢	9.725 ST	69.0
1 1 0/		Potatoes BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	0.53 ~	0.725	69.0
		Potatoes BBCH≥40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )		1.0 × 0.53	8.28	6.04
		Potatoes BBCH ≥ 40	Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus) Small omnivorous	4.3	1.0 × 0.53	1.64	30.5
		Potatoes BBCH ≥ 40	Small omnivorous mammak mouse" Wood mouse (Apodemus sylvaticus)		1.0 × 0.53	0.878	57.0
		Pulses BBCH≥20	Small insectivorous mammal "shrew"	1.9	1.0 × 0.53	0.725	69.0
		Pulses BBCH ≥ 50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	1.0 × 0.53	8.28	6.04
		BBCH > 50	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	4.3	1.0 × 0.53	1.64	30.5
		Putses BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	2.3	1.0 × 0.53	0.878	57.0
,0,	10,00 m 20,00 m 20,00 m 0,00 m	Root and stem vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53	0.725	69.0
Glyphosate Renev	b,	Root and stem vegetables BBCH≥40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	1.0 × 0.53	8.28	6.04

Active substa	nce	Glyphosate					. Co
Reprod. Toxi bw/d)	city (mg/kg	50					Or of Dulling
TER criterio		5	r	1		, in the second s	
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm	TER _{It}
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 720	Root and stem vegetables BBCH≥40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> sylvaticus)	2.3	1.0 × 0.53 ്	9:878 5°	57.0
1 1 0/		Strawberries BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	0.53 ×	0.725	69.0
		Strawberries BBCH ≥ 40	Small herbivorous mammal "vole Common vole ( <i>Microtus</i> <i>arvalis</i> )	28:97 4 8 97 4 97 4 97 4 97 4 97 4 97 4 97 4 97 4	1.0 × 0.53	11.0	4.53
		Strawberries BBCH ≥ 40	Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus) Small omnivorous	\$.7	1.0 × 0.53	2.18	23.0
		Strawberries BBCH ≥ 40	Small omnivorous mammak 'mouse'' Wood mouse (Apodemus sylvaticus)		1.0 × 0.53	1.18	42.3
		Sugar beet BBCH≥20	Smallinsectivorous	1.9	1.0 × 0.53	0.725	69.0
		Sugar beet $\delta \not{z}^{0}$ BBCH $\geq 40^{\circ}$ $\delta \not{z}^{0}$	Small herbivorous mammal "vole Common vole ( <i>Microtus</i> <i>arvalis</i> )	18.1	1.0 × 0.53	6.91	7.24
		BBCH240	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	3.6	1.0 × 0.53	1.37	36.4
	200 ]] 200 ]] 10, 00, 00, 00, 00, 00, 00, 00, 00, 00,	Sugar beet BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	1.9	1.0 × 0.53	0.725	69.0
10°	110,000 ml	Sunflower BBCH≥20	Small insectivorous mammal "shrew" Common shrew ( <i>Sorex</i> <i>araneus</i> )	1.9	1.0 × 0.53	0.725	69.0
Glyphosate Renew	6	Sunflower BBCH ≥ 40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	18.1	1.0 × 0.53	6.91	7.24

Active substa	nce	Glyphosate					
Reprod. Toxi bw/d) TER criterioi		50 5				Cu.	of the Dul
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm		DDD _m (mg/kg.bw/d)	TER _{it}
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 720	Sunflower BBCH ≥ 40	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	3.6	1.0 × 0.53 0	1330 C	36.4
		Sunflower BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> sylvaticus)	1.9	150 8 X 0,53 X X X	0.725	69.0

rate (g a.s./ha)Growth stage× TWA(mg/kg bw/d)Field crops (Post-harvest, pre-sowing, pre-planting) $2 \times 720$ Bulbs and onion like crops BBCH $\geq 40$ Small herbivorous mammal "vole" Common vole (Microtus arvalis) $43.4$ $1.1 \times$ $0.53$ $18.2$ Bulbs and onion pre-planting)Bulbs and onion like crops BBCH $\geq 40$ Small herbivorous mammal "vole" Common vole (Microtus arvalis) $4.7$ $0.53$ $1.1 \times$ $0.53$ $1.97$ $0.53$ Bulbs and onion like crops BBCH $\geq 40$ Small onnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus) $1.1 \times$ $0.53$ $0.798$ $0.53$	bw/d) TER criterio	icity (mg/kg on	50 5	Generic focal species			
Field crops (Post-harvest, pre-sowing, pre-planting) $2 \times 720$ Bulbs and onion like crops BBCH $\geq 40$ Small herbivorous manmal "vole" Common vole (Microtus $43.4$ $1.1 \times$ $0.53$ $18.2$ $2 \times 720$ Bulbs and onion pre-planting)Bulbs and onion 	GAP crop	rate	Crop scenario Growth stage		SVm		TER
Bulbs and onion       Small omnivorous       4.7       1.1 ×       1.97       2         like crops       mammal "mouse"       0.53       0.53       0.53         BBCH       40       wood mouse (Apodemus sylvaticus)       0.53       0.53	(Post-harvest, pre-sowing,	$2 \times 720$	Bulbs and onion	Small herbivorous	43.4	18.2	2.74
CorealsSmall insectivorous $1.9$ $1.1 \times$ $0.798$ BBCH $\geq 20$ mammal "shrew" $0.53$ $0.53$ Common shrew (Sorex araneus) $araneus$ $araneus$	1 1 6)		Bully and onion	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i>	4.7	1.97	25.3
		Solo Solo	Cereals & BBCH≥ 20	mammal "shrew"	1.9	0.798	62.7
$\begin{array}{c} & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\$		10000000000000000000000000000000000000	©ereals BBCH≥40	mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )		9.11	5.49
Cereals BBCH $\geq$ 40 Small omnivorous $2.3$ $1.1 \times 0.965$ $3.3$ BBCH $\geq$ 40 Wood mouse (Apodemus sylvaticus)		10000000000000000000000000000000000000	Cereals BBCH≥40	mammal "mouse" Wood mouse ( <i>Apodemus</i>	2.3	0.965	51.8



Table CP 10 (2× 720 g a.s		l crops (Post harv	vest, pre-sowing, pre-pl	anting):	Uses 2 :	a-c, 10 a-c	Section 10 459 of 553
Active substa	nce	Glyphosate					P
Reprod. Toxic bw/d)	city (mg/kg	50					OC ALL
TER criterion GAP crop		5 Crop scenario	Generic focal species	SVm	MAE		े <i>े</i> ऑफ्रि.
-	rate (g a.s./ha)	Growth stage		S V m	× TWA	DDD _m (mg/kg bw/d)	I L Kit
Field crops (Post-harvest, pre-sowing, pre-planting)	2 × 720	Fruiting vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew ( <i>Sorex</i> <i>araneus</i> )	1.9	1.1 × 0.53	9.11	62.7
1 1 3/		Fruiting vegetables BBCH ≥ 50	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	151 8 0,53 0 0,0	9.11	5.49
		Fruiting vegetables BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)		1.1 × 0.53	0.965	51.8
		Grassland Late	Small insectivorous mammal "shrew" Common shrew (Sores araneus)	S.9	1.1 × 0.53	0.798	62.7
		Leafy vegetables BBCH ≥ 20	Small insectivorous mammak shrew Common shrew (Sorex araneus)	1.9	1.1 × 0.53	0.798	62.7
		Leafy vegetables BBCH ≥ 50	Small herbivorous maninal "vole" Common vole ( <i>Microtus</i>	21.7	1.1 × 0.53	9.11	5.49
		Leafy vegetables	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	14.3	1.1 × 0.53	6.00	8.33
		Leaty vegetables BBCH≥50	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> sylvaticus)	2.3	1.1 × 0.53	0.965	51.8
	700 11 00 11 00 11 00 10 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 0	Legume forage BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.1 × 0.53	0.798	62.7
2000		Legume forage BBCH ≥ 50	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	1.1 × 0.53	9.11	5.49
	<i>b</i> [*]	Legume forage BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	2.3	1.1 × 0.53	0.965	51.8
Glyphosate Renew		Maize BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.1 × 0.53	0.798	62.7

Active substa	nce	Glyphosate					. CT
Reprod. Toxi bw/d)		50					Or is OLU
TER criterio	n	5				1	10 S
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm S	TERn
Field crops (Post-harvest, pre-sowing, pre-planting)	2 × 720	Maize BBCH ≥ 40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	18.1	1.1 × 0.53	0.798	6.58
1 1 8/		Maize BBCH≥40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	1.9	151 8 3 0,53 5 8 5	0.798	62.7
		Oilseed rape BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1970 101 1970 101 1970 101 1970 101 1970 101 1970 101	1.1 × 0.53	0.798	62.7
		Oilseed rape BBCH ≥ 40	Small herbivorous mammal "vole" Common vole ( <i>Microuis</i> <i>arvalis</i> ) Large herbivorous	\$8.1	1.1 × 0.53	7.60	6.58
		Oilseed rape All season	Large herbivorous mammak "lagomorph" Rabbit ( <i>Oryctolagus</i> cuniculus)		1.1 × 0.53	6.00	8.33
		Oilseed rape BBCH ≥ 40	Small omnivorous mammal "mouse"	1.9	1.1 × 0.53	0.798	62.7
		Potatoes $20^{\circ}$ $20^{\circ}$ $3^{\circ}$ $3^{\circ}$	Wood mouse (Apodemus sylvaticus) Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Small herbivorous	1.9	1.1 × 0.53	0.798	62.7
		BBCH > 40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	1.1 × 0.53	9.11	5.49
	200 11 200 11 11 10 10 10 10 10	Potatoes BBCH≥40	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )		1.1 × 0.53	1.80	27.7
10 10	110,000 31	Potatoes BBCH≥40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	2.3	1.1 × 0.53	0.965	51.8
Glyphosate Renew	¢	Pulses BBCH≥20	Small insectivorous mammal "shrew" Common shrew ( <i>Sorex</i> <i>araneus</i> )	1.9	1.1 × 0.53	0.798	62.7

Active substa	nce	Glyphosate					. 3		
Reprod. Toxi		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
bw/d) TER criterion		5							
GAP crop		Crop scenario	Generic focal species	SVm	MAF _m	DDD _m (mg/kg bw/d)	TER		
	rate (g a.s./ha)	Growth stage			* I WA	(mg/kg_pw/d)			
	2 × 720	Pulses BBCH ≥ 50	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	1.1 × 0.53 ¢	9.16 J	5.49		
1 1 0/		Pulses BBCH≥50	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	4.3	61,8° × 0,53 ¢	\$1.80	27.7		
		Pulses BBCH≥50	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)		1.1 × 0.53	0.965	51.8		
		Root and stem vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Serex araneus)	S.9	1.1 × 0.53	0.798	62.7		
		Root and stem vegetables BBCH $\ge$ 40	Small herbivorous mammal vole ³ Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	1.1 × 0.53	9.11	5.49		
		Root and stem vegetables BBCH $\geq$ 40	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	2.3	1.1 × 0.53	0.965	51.8		
		Strawberries $5$ $10^{\circ}$ BBCH $\geq 20^{\circ}$ $6^{\circ}$ $10^{\circ}$	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.1 × 0.53	0.798	62.7		
		Strawberries BBCH > 40	Small herbivorous mammal "vole Common vole ( <i>Microtus</i> <i>arvalis</i> )	28.9	1.1 × 0.53	12.1	4.12		
	200 J	Štrawberries BBCH≥40	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	5.7	1.1 × 0.53	2.39	20.9		
10 10		Strawberries BBCH≥40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	3.1	1.1 × 0.53	1.30	38.4		
	Ç.	Sugar beet BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.1 × 0.53	0.798	62.7		

Active substa	nce	Glyphosate					.0
Reprod. Toxi bw/d)		50					OF ALL
TER criterio	n	5				4	A Star
GAP crop		Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m	TER _{it}
Field crops (Post-harvest, pre-sowing, pre-planting)	2 × 720	Sugar beet BBCH ≥ 40	Small herbivorous mammal "vole Common vole ( <i>Microtus</i> <i>arvalis</i> )		1.1 × 0.53 &	(ing kg w(u) 3.60 5 5 5 1.51	6.58
1 1 0/		Sugar beet BBCH≥40	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	3.6		1.51	33.1
		Sugar beet BBCH ≥ 40	mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> ) Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> ) Small insectivorous mammal "shrew" Common shrew (Sorea <i>araneus</i> )		1.1 × 0.53	0.798	62.7
		Sunflower BBCH≥20	Synancus) Small insectivorous mammal "shrew" Common shrew (Sorea araneus) Small herbivorous	£.9	1.1 × 0.53	0.798	62.7
		BBCH≥40	mammak vole3 Common vole ( <i>Microtus</i> arvalis)		1.1 × 0.53	7.60	6.58
		Sunflower BBCH≥40	Large herbivorous		1.1 × 0.53	1.51	33.1
		Sunflower 5 10 BBCH ≥ 40 6 10	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	1.9	1.1 × 0.53	0.798	62.7
Glyphosate Renew		July 2020					
Glyphosate Renew	val Group AIR 5	– July 2020		Doc ID:	110054-M	CP10_GRG_Rev 1	_Jul_2020

Active substance		Glyphosate	MON 52276 M-CP, Section 10 Page 463 of 553 crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c							
Reprod. Toxi bw/d)	city (mg/kg	50								
TER criterion		5 <u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>								
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm S	TER _{It}			
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 1080	Bulbs and onion like crops BBCH ≥ 40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )		1.0 × 0.53	2.69	2.01			
pro planting)		Bulbs and onion like crops BBCH ≥ 40	Small omnivorous mammal "mouse"	4.7	¥0.53 న	2.69	18.6			
		Cereals BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)		1.0 × 0.53	1.09	46.0			
		Cereals BBCH≥40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> ) Small omnivorous	21.7	1.0 × 0.53	12.4	4.03			
	Cereals BBCH ≥ 40	Small omnivorous mammak mouse" Wood mouse (Apodemus sylvaticus)		1.0 × 0.53	1.32	38.0				
	BBCH≥20	Small Insectivorous maninal "shrew" Common shrew (Sorex	1.9	1.0 × 0.53	1.09	46.0				
		Fruiting vegetables BBCH ≥ 50 C	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	1.0 × 0.53	12.4	4.03			
		BBCH 250	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	2.3	1.0 × 0.53	1.32	38.0			
	200 200 200 200 200 200 200 200 200 200	Grassland Date	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53	1.09	46.0			
10°		Leafy vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew ( <i>Sorex</i> <i>araneus</i> )	1.9	1.0 × 0.53	1.09	46.0			
Glyphosate Renew	¢'	Leafy vegetables BBCH ≥ 50	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	1.0 × 0.53	12.4	4.03			

Table CP 10- (1 × 1080 g a		l crops (Post harv	vest, pre-sowing, pre-pl	anting):	Uses 2 a		2P, Section 10 ge 464 of 553			
Active substar	ıce	Glyphosate								
Reprod. Toxicity (mg/kg bw/d)		50	50 50 50 50 50 50 50 50 50 50 50 50 50 5							
TER criterion GAP crop		5     Crop scenario     Generic focal species     SVm     MAFm     DDDm     TERit       Growth stage     SVm     XTWA     (mg/kg.bw/d)     SVm     SVm     SVm								
- 1	rate (g a.s./ha)	Growth stage		~	× TWA	(mo/ko bw/	a)			
	1 × 1080	Leafy vegetables All season	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	14.3	1.0 × 0.53 5		6.11			
		Leafy vegetables BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	2.3		1.52	38.0			
		Legume forage BBCH≥20	sylvaticus) Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Small herbivorous	19 19 19 19 19 19 19 19 19 19 19 19 19 1	1.0 × 0.53	1.09	46.0			
		Legume forage BBCH≥50	arvalis)	21.7	1.0 × 0.53	12.4	4.03			
		Legume forage BBCH ≥ 50	Small omnivorous mammak mouse" Wood mouse (Apodemus sylvaticus)	2.3	1.0 × 0.53	1.32	38.0			
		Maize BBCH≥20	Smallonsectivorous	1.9	1.0 × 0.53	1.09	46.0			
		Maize BBCH ≥ 40°	argneus) Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	18.1	1.0 × 0.53	10.4	4.83			
		BBCH240	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	1.9	1.0 × 0.53	1.09	46.0			
Glyphosate Renewa		Oilseed rape BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53	1.09	46.0			
100 100		Oilseed rape BBCH ≥ 40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	18.1	1.0 × 0.53	10.4	4.83			
	¢*	Oilseed rape All season	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	14.3	1.0 × 0.53	8.19	6.11			
No. All		Oilseed rape BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	1.9	1.0 × 0.53	1.09	46.0			

Active substance		Glyphosate	MON 52276 M-CP, Section 10 Page 465 of 553 crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c							
Reprod. Toxi bw/d)		50								
TER criterion		5 <u><u><u></u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>								
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm	TER _{it}			
Field crops (Post-harvest, pre-sowing, pre-planting)		Potatoes BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53 0	12.4	46.0			
F. F. 1		Potatoes BBCH ≥ 40	mammal "shrew" Common shrew (Sorex araneus) Small herbivorous mammal "vole" Common vole (Microtus arvalis) Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus) Small omnivorous mammal "mouse" Wood mouse (Apodenus sylvaticus) Small insectivorous mammal shrew" Common shrew (Sorex	21.7	150 8 X 0,53 5 2 S	12.4	4.03			
		Potatoes BBCH ≥ 40	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	4% 0 10 10 10 10 10 10 10 10 10 10 10 10 1	1.0 × 0.53	2.46	20.3			
		Potatoes BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	2.3	1.0 × 0.53	1.32	38.0			
		Pulses BBCH ≥ 20	Small insectivorous mammak shrew Common shrew (Sorex araneus)	1.9	1.0 × 0.53	1.09	46.0			
		Pulses BBCH≥50	Small herbivorous	21.7	1.0 × 0.53	12.4	4.03			
		Pulses $5$ $10^{-10}$ BBCH $\geq 50^{-10}$ $3^{-10}$	Common vole ( <i>Microtus</i> argalis) Earge herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> ) Small omnivorous	4.3	1.0 × 0.53	2.46	20.3			
		BBCH≥50	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	2.3	1.0 × 0.53	1.32	38.0			
	5, 200 3, 20 3, 20 4, 20	Root and stem vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew ( <i>Sorex</i> <i>araneus</i> )	1.9	1.0 × 0.53	1.09	46.0			
20	10,00 21,00 21,01 20,20 20,20	Root and stem vegetables BBCH≥40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	1.0 × 0.53	12.4	4.03			
Glyphosate Renew		Root and stem vegetables BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	2.3	1.0 × 0.53	1.32	38.0			

Table CP 10 (1 × 1080 g a		l crops (Post harv	vest, pre-sowing, pre-pl	anting):	Uses 2 a		CP, Section 10 ge 466 of 553		
Active substa	nce	Glyphosate							
Reprod. Toxicity (mg/kg bw/d)		50							
TER criterion GAP crop		5 Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m (mg/kg bw/	TER _{it}		
	(g a.s./ha)	Growth stage					ju)		
Field crops (Post-harvest, pre-sowing, pre-planting)	1 × 1080	Strawberries BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53 &		46.0		
		Strawberries BBCH≥40	Small herbivorous mammal "vole Common vole ( <i>Microtus</i> <i>arvalis</i> )	28.9		16.5	3.02		
		Strawberries BBCH≥40	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	19 19 19 19 19 19 19 19 19 19 19 19 19 1	1.0 × 0.53	3.26	15.3		
			Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	3.1	1.0 × 0.53	1.77	28.2		
		Sugar beet BBCH≥20	Small insectivorous mammal shrew? Common shrew (Sorex araneus)	1.9	1.0 × 0.53	1.09	46.0		
		Sugar beet BBCH≥40	Small herbivorous mammal "vole Common vole ( <i>Microtus</i> aryalis)	18.1	1.0 × 0.53	10.4	4.83		
		Sugar beet $3$ $2$ $3$ $3$ $3$ $3$ $3$ $3$ $3$ $3$ $3$ $3$	aryalis) Darge herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	3.6	1.0 × 0.53	2.06	24.3		
	5	BBCH≥40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	1.9	1.0 × 0.53	1.09	46.0		
	200 200 200 200 200 200 200 200 200 200	Sunflower	Small insectivorous mammal "shrew" Common shrew ( <i>Sorex</i> <i>araneus</i> )		1.0 × 0.53	1.09	46.0		
0 ²	110,000 ml	Sunflower BBCH≥40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	18.1	1.0 × 0.53	10.4	4.83		
	5 5 5 5 5 5 5 5 5 5 5 5 5 5	Sunflower BBCH≥40	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	3.6	1.0 × 0.53	2.06	24.3		
Evelocrops (Post-harvest, pre-sowing, pre-planting) Glyphosate Renew	1 × 1080	Sunflower BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	1.9	1.0 × 0.53	1.09	46.0		

Table CP 10 (3 × 720 g a.		l crops (Post harv	vest, pre-sowing, pre-pl	anting):	Uses 2		Section 10 467 of 553			
A (* 1 (		Charles of a								
Active substa		50	ilyphosate							
Reprod. Toxi bw/d)	city (mg/kg	Glyphosate								
TER criterion		5 S 2								
GAP crop	Application	Crop scenario	DDDm &	TER						
	rate (g a.s./ha)	Growth stage	Generic focal species	SVm	× TWA	(mg/kg bw/d)				
Field crops (Post-harvest, pre-sowing, pre-planting)	3 × 720	Bulbs and onion like crops BBCH ≥ 40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	43.4			2.52			
r -		Bulbs and onion like crops BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> sylvaticus)	4.7	₹1,2×5° Ø.53 5°	2.15	23.2			
		Cereals BBCH ≥ 20	mammal "shrew" Common shrew (Sorex araneus)	9.90 L 1.90 L L L L L L L L L L L L L L L L L L L	1.2 × 0.53	0.870	57.5			
		Cereals BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (Mierotus arvalis)	21.7	1.2 × 0.53	9.94	5.03			
		Cereals BBCH≥40	Small ornivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	2.3	1.2 × 0.53	1.05	47.5			
		BBCH≥20	Small insectivorous maximal "shrew" Common shrew (Sorex Straneus)	1.9	1.2 × 0.53	0.870	57.5			
Field crops (Post-harvest, pre-sowing, pre-planting)	3 × 720	Fruiting	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	1.2 × 0.53	9.94	5.03			
Glyphosate Renewal Gr	5 5 5 5	Fruiting Segetables	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	2.3	1.2 × 0.53	1.05	47.5			
	50 00 11, 12 11, 12 10, 12	Grassland Late	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.2 × 0.53	0.870	57.5			
	10 10 10 10 10 10 10 10 10 10 10 10 10 1	Leafy vegetables BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.2 × 0.53	0.870	57.5			
Story Story		Leafy vegetables BBCH≥50		21.7	1.2 × 0.53	9.94	5.03			
200 14		Leafy vegetables All season	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i>	14.3	1.2 × 0.53	6.55	7.64			



Table CP 10 (3 × 720 g a.		l crops (Post harv	vest, pre-sowing, pre-pl	anting):	Uses 2	a-c, 10 a-c	Section 10 468 of 553			
Reprod. Toxicity (mg/kg bw/d)		Glyphosate								
		50								
TER criterion GAP crop Application rate		Strop scenario     Generic focal species     SVm     MAFm     DDDm     TERt       Growth stage     K     K     K     K     K     K								
	(g a.s./ha)			1	1	B. Color				
		Leafy vegetables BBCH ≥ 50	cuniculus) Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	2.3	1.2 × 2 0.53	1. 05 1. 05 1. 01 1. 01.	47.5			
L		Legume forage BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex	N. C	1,2×<° ∅.53 <	0.870	57.5			
		Legume forage BBCH≥50	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )		1.2 × 0.53	9.94	5.03			
		BBCH≥50	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	2.3	1.2 × 0.53	1.05	47.5			
		Maize BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneas)	1.9	1.2 × 0.53	0.870	57.5			
		5	Small Berbivorous mammal "vole" Common vole ( <i>Microtus</i> arvalis)	18.1	1.2 × 0.53	8.29	6.03			
Field crops (Post-harvest, pre-sowing, pre-planting)	3 × 720	Maize BBCH ≥40 1	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> sylvaticus)	1.9	1.2 × 0.53	0.870	57.5			
			Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.2 × 0.53	0.870	57.5			
	80 00 00 11 00 00 11 11 00 10	Oilseed rape BBCH≥40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	18.1	1.2 × 0.53	8.29	6.03			
20 0, 0, 0,	Lock Cito	Oilseed rape All season	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	14.3	1.2 × 0.53	6.55	7.64			
UCS MARCA MA		BBCH $\geq 20$ Oilseed rape BBCH $\geq 40$ Oilseed rape All season Oilseed rape BBCH $\geq 40$ Potatoes BBCH $\geq 20$ - July 2020	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	1.9	1.2 × 0.53	0.870	57.5			
20 1/40		Potatoes BBCH≥20	Small insectivorous mammal "shrew" Common shrew ( <i>Sorex</i>	1.9	1.2 × 0.53	0.870	57.5			

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# Table CP 10-03-7: Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c (3 × 720 g a.s./ha)

Table CP 1( (3 × 720 g a.		l crops (Post harv	vest, pre-sowing, pre-pl	anting):	Uses 2		Section 10 469 of 553
Active substa	ince	Glyphosate					
Reprod. Toxi bw/d)	icity (mg/kg	50					TER
TER criterio GAP crop	n Application rate	5 Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm (mg/kg bw/d)	TER
	(g a.s./ha)						
		Potatoes	<i>araneus</i> ) Small herbivorous	21.7	1.2 ×	No. N	5.02
		BBCH≥40	mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )				5.03
		Potatoes BBCH≥40	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	4.3	1,2×< Ø.53 √	1.97	25.4
		Potatoes BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)		1.2 × 0.53	1.05	47.5
		Pulses BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.2 × 0.53	0.870	57.5
		Pulses BBCH ≥ 50	Small hetbivorous mammal 'vole''	21.7	1.2 × 0.53	9.94	5.03
Field crops (Post-harvest, pre-sowing, pre-planting)	3 × 720	Pulses BBCH≥50	arvalts) arvalts) Large herbivorous manimal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> ) Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> ) Small insectivorous mammal "shrew"	4.3	1.2 × 0.53	1.97	25.4
1 1 8/		Pulses BBCH ≥ SQL U SQL U SQL	Small omnivorous mammal "mouse" Wood mouse (Apodemus svlvaticus)	2.3	1.2 × 0.53	1.05	47.5
		N. 18-10-11-2	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.2 × 0.53	0.870	57.5
		Root and stem vegetables BBCH≥40	Small herbivorous mammal "vole" Common vole ( <i>Microtus</i> <i>arvalis</i> )	21.7	1.2 × 0.53	9.94	5.03
	1000 1000 1000 1000 1000	Root and stem vegetables BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	2.3	1.2 × 0.53	1.05	47.5
Glyphosate Renew		Strawberries BBCH≥20	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	1.9	1.2 × 0.53	0.870	57.5
5 No		Strawberries BBCH ≥ 40	Small herbivorous mammal "vole Common vole ( <i>Microtus</i>	28.9	1.2 × 0.53	13.2	3.78



# Table CP 10-03-7: Field crops (Post harvest, pre-sowing, pre-planting): Uses 2 a-c, 10 a-c (3 × 720 g a.s./ha)

Field crops (Post-harvest, pre-sowing, pre-planting) $3 \times 720$ Sugar beet BBCH $\geq 40$ Large herbicorous mammal "fagomory Rabbit (Oroctolagi cuniculus)Sugar beet BBCH $\geq 40$ Sugar beet mammal "mouse" Wood mouse (Aport Sylvaticus)Sugar beet Sugar beet BBCH $\geq 40$ Small omnivorous mammal "fagomory Rabbit (Oroctolagi cuniculus)Sugar beet BBCH $\geq 40$ Small omnivorous mammal "mouse" Wood mouse (Aport Sylvaticus)Sunflower BBCH $\geq 20$ Small insectivorous mammal "shrew" Common shrew (Se araneus)Sunflower BBCH $\geq 40$ Small herbivorous mammal "vole"	ph" <i>is</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.1</i> <i>demus</i> <i>3.6</i> <i>b</i> <i>3.6</i> <i>b</i> <i>3.6</i> <i>b</i> <i>b</i> <i>1</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i>	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	42 3 870 5	9.2 9.2 55.2 5.03
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BBCH $\geq 40$ mammal "lagomor Rabbit (Oryctolagu cuniculus)Strawberries BBCH $\geq 40$ Small omnivorous mammal "mouse" Wood mouse (Apo sylvaticus)Sugar beet BBCH $\geq 20$ Small insectivorous mammal "shrew" Common shrew (Se araneus)Sugar beet BBCH $\geq 40$ Small herbivorous mammal "shrew" Common shrew (Se arvalis)Field crops (Post-harvest, pre-sowing, pre-planting) $3 \times 720$ Sugar beet BBCH $\geq 40$ Sugar beet mammal "shrew" Common vole (Mia arvalis)Sugar beet BBCH $\geq 40$ Large herbivorous mammal "fagomor Rabbit (Oryctolagu cuniculus)Sugar beet BBCH $\geq 40$ Small officiorous mammal "fagomor Mode mouse (Apo Single of the strain of the str	ph" <i>us</i> <i>demus</i> <i>s</i> <i>a</i> <i>b</i> <i>b</i> <i>a</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i> <i>b</i>	$\begin{array}{c c} 1.2 \times & 0.1 \\ 0.53 \\ \hline 1.2 \times & 0.1 \\ 1.2 \times & 0.1 \\ \hline 1.2 \times & 8.1 \\ 0.53 \\ \hline \end{array}$	42 3 870 5	35.2 57.5
BBCH $\geq 40$ mammal "mouse" Wood mouse (Apor sylvaticus)Sugar beetSmall insectivorous mammal "shrew" Common shrew (Se araneus)BBCH $\geq 20$ mammal "shrew" Common shrew (Se araneus)Sugar beetSmall herbivorous mammal "vole Common vole (Mia arvalis)Field crops (Post-harvest, pre-sowing, pre-planting) $3 \times 720$ Sugar beet BBCH $\geq 40$ Large herbivorous mammal "shagomor Rabbit (Oryctolagi cuniculus)Sugar beet BBCH $\geq 40$ Small omnivorous mammal "mouse" Wood mouse (Apor Sylvaticus)Sugar beet BBCH $\geq 40$ Small omnivorous mammal "mouse" Wood mouse (Apor Sylvaticus)Sunflower BBCH $\geq 20$ Small insectivorous mammal "shrew" Common shrew (Se araneus)Sunflower BBCH $\geq 40$ Small insectivorous mammal "shrew" Common shrew (Se araneus)Sunflower BBCH $\geq 40$ Small herbivorous mammal "shrew" Common shrew (Se araneus)Sunflower BBCH $\geq 40$ Small herbivorous mammal "shrew" Common shrew (Se araneus)	demus s 9.95 + 6 ores 5.65 18.1 crotus 3.6 ph"	$\begin{array}{c c} 1.2 \times & 0.1 \\ 0.53 \\ \hline 1.2 \times & 0.1 \\ 1.2 \times & 0.1 \\ \hline 1.2 \times & 8.1 \\ 0.53 \\ \hline \end{array}$	42 3 870 5	57.5
BBCH $\geq 20$ mammal "shrew" Common shrew (Sa araneus)Sugar beet BBCH $\geq 40$ Small herbivorous mammal "vole Common vole (Mia arvalis)Field crops (Post-harvest, pre-sowing, pre-planting) $3 \times 720$ Sugar beet BBCH $\geq 40$ Large herbivorous mammal "fagomor Rabbit (OryCtolagi curiculus)Sugar beet BBCH $\geq 40$ Sugar beet mammal "fagomor Rabbit (OryCtolagi curiculus)Sugar beet Sugar beet BBCH $\geq 40$ Sugar beet mammal "mouse" Wood mouse (Apo Sylvaticus)Sunflower BBCH $\geq 20$ Small insectivorous mammal "shrew" Common shrew (Sa araneus)Sunflower BBCH $\geq 40$ Small herbivorous mammal "shrew" Common shrew (Sa araneus)Sunflower BBCH $\geq 40$ Small herbivorous mammal "shrew" Common shrew (Sa araneus)	ph"	0.53		
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$(Post-harvest, pre-sowing, pre-planting) \\ \hline BBCH \geq 40 \\ \hline mammal "fagomory Rabbit (Oryčtolagi, cuniculus) \\ \hline Sugar beet \\ BBCH \geq 40 \\ \hline mammal "mouse" \\ \hline Wood mouse (Apostory Votaticus) \\ \hline Sunflower \\ BBCH \geq 20 \\ \hline mammal "shrew" \\ Common shrew (Scaraneus) \\ \hline Sunflower \\ \hline Sunflower \\ \hline BBCH \geq 40 \\ \hline mammal "shrew" \\ \hline Common shrew (Scaraneus) \\ \hline Sunflower \\ \hline BBCH \geq 40 \\ \hline mammal "vole" \\ \hline mammal "vole" \\ \hline mammal "vole" \\ \hline mammal "shrew" \\ \hline mammal "vole" \\ \hline mammal "vole" \\ \hline mammal "vole" \\ \hline mammal "shrew" \\ \hline mammal "vole" \\ \hline mammal "vole" \\ \hline mammal "vole" \\ \hline mammal "shrew" \\ \hline mammal "vole" \\ \hline mammal "vole" \\ \hline mammal "shrew" \\ \hline mammal "vole" \\ \hline mammal "vole" \\ \hline mammal "shrew" \\ \hline mammal "vole" \\ \hline mammal "shrew" \\ \hline mammal "vole" \\ \hline mammal "shrew" $	ph"	$1.2 \times 1.0$		.05
$BBCH \ge 40$ $Wood mouse (AponSunflower) BBCH \ge 20$ $Sunflower \\ Common shrew (Soaraneus)$ $Sunflower \\ Sunflower \\ BBCH \ge 40$ $Sunflower \\ Small herbivorous \\ Small herbivorous \\ Small herbivorous \\ Small herbivorous \\ Sunflower \\ Small herbivorous \\ Small herbiv$		0.53		30.3
Sunflower       Small insectivorous         BBCH ≥20       mammal "shrew"         Common shrew (So       araneus)         Sunflower       Small herbivorous         BBCH ≥ 40       mammal "vole"	demus	$\begin{array}{c} 1.2 \times \\ 0.53 \end{array} $	870 5	57.5
BBCH > 40 mammal "vole"		$\begin{array}{c} 1.2 \times \\ 0.53 \end{array} $	870 5	57.5
Sunflower Large herbivorous $BBCH \ge 40$ mammal "lagomor		1.2 × 8.2 0.53	29 6	5.03
Rabbit (Oryctolagu デター cuniculus)	ph"	1.2 × 1. 0.53	65 3	30.3
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \end{array} \end{array} \end{array} \\ \begin{array}{c} \\ \\ \end{array} \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \\ \end{array} \\ \end{array} \\ \end{array} $		1.2 × 0. 0.53	870 5	57.5
$\begin{array}{c} \hline \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	ph" <i>is</i> 3.6 1.9	0.53 1.2 × 0.1		

# Field crops (Shielded ground directed inter-row application): Use 6a, b

	.s./ha)					: Uses 6a, b	Section 10 471 of 553
Active substan Reprod. Toxic bw/d) TER criterion	ity (mg/kg	Glyphosate 50 5				DDD mg/kg bw/d)	160 3) 160 20
GAP crop		Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDD _m (mg/kg bw/d)	TER _{lt}
Field crops 1 (Shielded ground directed	I × 1080	Fruiting vegetables BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew ( <i>Sorex</i> <i>araneus</i> )	4.2	1.0 * 0.53 č	2,40	20.8
inter-row application)		Fruiting vegetables BBCH 10 – 49	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> sylvaticus)		0.53	4.46	11.2
		Leafy vegetables BBCH 10 – 19	sylvaticus) Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Small omnivorous mammal "mouse"	4.20°	1.0 × 0.53	2.40	20.8
		Leafy vegetables BBCH 10 – 49	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	7.8	1.0 × 0.53	4.46	11.2
		Legume forage BBCH 10 – 19	Synall meetivorous manimal "shrew" Common shrew (Sorex arangas)	4.2	1.0 × 0.53	2.40	20.8
		T C Š		7.8	1.0 × 0.53	4.46	11.2
		Potatoes	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> ) Small insectivorous mammal "shrew" Common shrew ( <i>Sorex</i> <i>araneus</i> )	4.2	1.0 × 0.53	2.40	20.8
		Potatoes BBCH 10 - 40	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	14.5	1.0 × 0.53	8.19	6.11
Glyphosate Renewa		Potatoes BBCH 10 – 39	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	7.8	1.0 × 0.53	4.46	11.2
1001 1001 1001 1001 1001		Pulses BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew ( <i>Sorex</i> <i>araneus</i> )	4.2	1.0 × 0.53	2.40	20.8

# Table CP 10-03-8: Field crops (Shielded ground directed inter-row application): Uses 6a, b (1 × 1080 g a.s./ha)

	Active substa	ance	Glyphosate					0. 3.
	Reprod. Tox		50					Children Chi
	bw/d) TER criterio	n	5					or its buy
	GAP crop		Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA		TER _{lt}
	Field crops (Shielded ground directed	1 × 1080	Pulses BBCH 10 – 49	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	14.3	1.0 × 0.53 0	(mg/kg/wy/a) 8:19: 3:19: 4.46	6.11
	inter-row application)		Pulses BBCH 10 – 49	Small omnivorous	7.8		4.46	11.2
			Root & stem vegetables BBCH 10 – 19	mammal "mouse" Wood mouse (Apodemus sylvaticus) Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Small omnivorous mammal "mouse"		1.0 × 0.53	2.40	20.8
			Root & stem vegetables BBCH 10 – 39	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus) Small insectivorous	7.8	1.0 × 0.53	4.46	11.2
			BBCH 10 – 19	mammak shrew Common shrew (Sorex araweys)	4.2	1.0 × 0.53	2.40	20.8
			Sugar beet BBCH 10 – 39	Large herbivorous manimal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	14.3	1.0 × 0.53	8.19	6.11
			Sugar beet 5 10 BBCH 10 5 398 10 8 10 10 10 10 10 10 10 10 10 10 10 10 10	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	7.8	1.0 × 0.53	4.46	11.2
H Carlo Coloring			– July 2020					
11 10 10 10 10 10 10 10 10 10 10 10 10 1	Glyphosate Renew	wal Group AIR 5	– July 2020		Doc ID	: 110054-M	CP10_GRG_Rev 1	_Jul_2020
1410 1000 1000 1000	Glyphosate Renev	wal Group AIR 5	– July 2020		Doc ID	: 110054-M	CP10_GRG_Rev 1	_Jul_202

# Table CP 10-03-9: Field crops (Shielded ground directed inter-row application): Uses 6a, b (1 × 720 g a.s./ha)

Active substa	ince	Glyphosate					
Reprod. Tox bw/d)		50					Or PJ
TER criterio		5				J.	
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm	TER
Field crops (Shielded ground directed	1 × 720	DDCII 10 10	Small insectivorous mammal "shrew" Common shrew ( <i>Sorex</i> <i>araneus</i> )	4.2	1.0 × 0.53	2.98	31.2
inter-row application)		Fruiting vegetables BBCH 10 – 49	mammal snrew         Common shrew (Sorex araneus)         Small omnivorous         mammal "mouse"         Wood mouse (Apodemus sylvaticus)         Small insectivorous         mammal "shrew"         Common shrew (Sorex araneus)         Small omnivorous         Small insectivorous         mammal "shrew"         Common shrew (Sorex araneus)         Small omnivorous         Small insectivorous         mammal "mouse"         Wood mouse (Apodemus sylvaticus)         Small insectivorous         small insectivorous         mammal "shrew"         Common shrew (Sorex araneus)	7.8	150 8 3 0.53 5 2 8	2.98	16.8
		Leafy vegetables BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)		1.0 × 0.53	1.60	31.2
		Leafy vegetables BBCH 10 – 49	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	9.8	1.0 × 0.53	2.98	16.8
		Legume forage BBCH 10 – 19	Small insectivorous mammal shrew Common shrew (Sorex araneus)	4.2	1.0 × 0.53	1.60	31.2
		Legume forage BBCH 10 – 49	Small omnivorous manimal "mouse"	7.8	1.0 × 0.53	2.98	16.8
		Potatoes 5 20 BBCH 10 5198 5	Wood mouse (Apodemus sylvaticus) Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Large herbivorous	4.2	1.0 × 0.53	1.60	31.2
		DDCUU101 10	Large herbivorous mammal "lagomorph" Rabbit ( <i>Oryctolagus</i> <i>cuniculus</i> )	14.3	1.0 × 0.53	5.46	9.16
		Potatoes BBCH 10 – 39	Small omnivorous mammal "mouse" Wood mouse ( <i>Apodemus</i> <i>sylvaticus</i> )	7.8	1.0 × 0.53	2.98	16.8
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	10000000000000000000000000000000000000	Pulses BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	4.2	1.0 × 0.53	1.60	31.2
Glyphosate Rene	ço	Pulses BBCH 10 – 49	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	14.3	1.0 × 0.53	5.46	9.16

Table CP 10-03-9: Field crops (Shielded ground directed inter-row application): Uses 6a, b (1 × 720 g a.s./ha)

	Active substa	ince	Glyphosate					6. 60.
	Reprod. Toxi		50					TER _{tt}
	bw/d) TER criterio	n	5					A. S.
	GAP crop		Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	(maller berlin	TER _{it}
	Field crops (Shielded ground directed	1 × 720	Pulses BBCH 10 – 49	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	7.8	0.53		16.8
	inter-row application)		Root & stem vegetables BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	4.2	150 8 3 0,53 5 2	1.60	31.2
			Root & stem vegetables BBCH 10 – 39	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	7.8 0 4 4 0 0 7.8 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.0 × 0.53	2.98	16.8
			Sugar beet BBCH 10 – 19	Common shrew (Sorres araneus)	4.2	1.0 × 0.53	1.60	31.2
			Sugar beet BBCH 10 – 39	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	14.3	1.0 × 0.53	5.46	9.16
			Sugar beet BBCH 10 – 39	Small on ivorous manimal "mouse"	7.8	1.0 × 0.53	2.98	16.8
			- July 2020					
NSI DD DD OD OD OD OD OD OD OD OD OD OD OD OD OD OD OD OD OD O	Glyphosate Renev	wal Group AIR 5	– July 2020		Doc ID:	110054-M	CP10_GRG_Rev 1	_Jul_2020

Control of invasive species: Uses 8,9

	0-03-10: Co	ntrol of invasive sp	oecies: Uses 8, 9 (1 × 18	00 g a.s.	/ha)		Section 10 475 of 553
Active subst	ance	Glyphosate					J) N
Reprod. Tox bw/d) TER criterio	kicity (mg/kg	50 5				Contraction of the second	TFR.
GAP crop		Crop scenario Growth stage	Generic focal species	SVm	× TWA	(mg/kg bw/d)	I L'INI
Control of	1 × 1800	Bulbs & onion like	Small insectivorous	1.9	1.0 × 🖉	1081	27.6
invasive species		crops BBCH≥20	mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)			138 L	
		Bulbs & onion like crops BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	43.4	1,0× 0.53	41.4	1.21
		Bulbs & onion like crops BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>) Small insectivorous		1.0 × 0.53	4.48	11.2
		Bush & cane fruit BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	4.2	1.0 × 0.53	4.01	12.5
		Bush & cane fruit BBCH ≥ 20	Small insectivorous mammal "strew" Common shrew (Sorex graneus)	1.9	1.0 × 0.53	1.81	27.6
		Bush & cane fruit	Small herbivorous manimal "vole" Common vole (<i>Microtus</i> arvalis)	43.4	1.0 × 0.53	41.4	1.21
		Bush & cane fruit BBCH 20 39	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	36.1	1.0 × 0.53	34.4	1.45
		Bush & cane fruit	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7	1.0 × 0.53	20.7	2.42
	80 00 1	Bush & cane fruit BBCH 10 – 19	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	4.7	1.0 × 0.53	4.48	11.2
Critical Critical	10,000 000 000 000 000 000 000 000 000 0	Bush & cane fruit BBCH 20 – 39	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	3.9	1.0 × 0.53	3.72	13.4
Such Such Services	•	Bech \geq 40 Bush & cane fruit BBCH 10 – 19 Bush & cane fruit BBCH 20 – 39 Bush & cane fruit BBCH \geq 40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3	1.0 × 0.53	2.19	22.8

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Glyphosate Active substance PUC PUC Reprod. Toxicity (mg/kg 50 bw/d) **TER** criterion **TER**tt SVm DDD_m GAP crop Application Crop scenario Generic focal species MAFm × TWA (mg/kg bw/d) rate Growth stage <u>(g a.s./ha)</u> 170 Liouna Ling 4.01 4.2 1×1800 Cereals Small insectivorous $1.0 \times$ 12.5 Control of Non Non Olino. BBCH 10 – 19 mammal "shrew" invasive 0.53 Common shrew (Sorex species araneus) 0.530 G 1,981 Cereals Small insectivorous 1.9 27.6 $BBCH \ge 20$ mammal "shrew" Common shrew (Sorex araneus) Ø Solution of the second second Cereals Small herbivorous 1e0 × 0.53 20.7 2.42 BBCH > 40mammal "vole" Common vole (Microtus) arvalis) à 100 Lin 7.8 Cereals Small omnivorous 7.44 $1.0 \times$ 6.72 mammal "mouse" BBCH 10 – 29 0.53 Wood mouse (Apodemus svlvaticus) Cereals Small omnivorous 3.9 $1.0 \times$ 3.72 13.4 BBCH 30 - 39 mammal "mouse" 0.53 Wood mouse (Apodemus sylvaticus) Small omnivorous Cereals 2.3 $1.0 \times$ 2.19 22.8 mammal "mouse" $BBCH \ge 40$ 0.53 Wood mouse (Apodemus svlvaticus) Fruiting vegetables Small insectivorous 4.2 $1.0 \times$ 4.01 12.5 Hid's BBCH 10 - 19 mammal "shrew" 0.53 illion the all of Common shrew (Sorex araneus) Fruiting vegetables Small insectivorous 1.9 $1.0 \times$ 1.81 27.6 BBCH 200 mammal "shrew" 0.53 Common shrew (Sorex araneus) 21.7 Fruiting vegetables Small herbivorous $1.0 \times$ 20.7 2.42

mammal "vole"

Small omnivorous

mammal "mouse" Wood mouse (Apodemus

Small omnivorous

mammal "mouse"

Large herbivorous

Brown hare (Lepus europaeus)

mammal "lagomorph"

Wood mouse (Apodemus

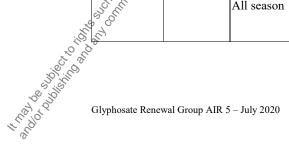
arvalis)

sylvaticus)

sylvaticus)

Common vole (Microtus

Table CP 10-03-10: Control of invasive species: Uses 8, 9 (1 × 1800 g a.s./ha)



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A CONTRACTION OF CONT

 $BBCH \ge 50$

Fruiting vegetables

Fruiting vegetables

BBCH 10 – 49

 $BBCH \ge 50$

Grassland

All season

0.53

 $1.0 \times$

0.53

 $1.0 \times$

0.53

 $1.0 \times$

0.53

7.44

2.19

16.5

6.72

22.8

3.03

7.8

2.3

17.3

Active substance

MON 52276

Notice Internet Reprod. Toxicity (mg/kg 50 OWN bw/d) **TER** criterion **TER**t Application Crop scenario SVm DDD_m GAP crop Generic focal species MAFm × TWA (mg/kg bw/d) rate Growth stage <u>(g a.s./ha)</u> Pland Nickle H 1.9 1×1800 Grassland Small insectivorous $1.0 \times$ 27.6 Control of mammal "shrew" invasive Late 0.53 Common shrew (Sorex species araneus) 0,530,00 0,530,00 0,530,00 0,00,00 0,00,00 Small herbivorous Grassland 72.3 69.0 0.725 All season mammal "vole" Common vole (Microtus arvalis) Ò Ø Solution of the second second $100 \times$ Grassland Small omnivorous 7.94 0.53 6.30 mammal "mouse" Late season (seed heads) Wood mouse (Apodemus. svlvaticus) 10Ch 4.2 Small insectivorous 🔊 Hop 4.01 $1.0 \times$ 12.5 mammal "shrew" BBCH 10 - 19 0.53 Common shrew (Socex R de. araneus) Hop Small insectivorous 1.9 $1.0 \times$ 1.81 27.6 $BBCH \ge 20$ mammal "shrew" 0.53 Common shrew (Sorex aranes) Small herbivorous Hop 21.7 $1.0 \times$ 20.7 2.42 mammal "vole" $BBCH \ge 40$ 0.53 Common vole (Microtus arvatis) Ind Contraction Small omnivorous 7.8 Hop $1.0 \times$ 7.44 6.72 BBCH 10 – 18 mammal "mouse" 0.53 in the second Wood mouse (Apodemus sylvaticus) No Contraction of the second s 3.9 BBCH20 Small omnivorous $1.0 \times$ 3.72 13.4 mammal "mouse" 0.53 10mm Wood mouse (Apodemus sylvaticus) Small omnivorous 2.3 Hop 2.19 22.8 $1.0 \times$ 8 $BBCH \ge 40$ 100 mammal "mouse" 0.53 and a set of the set o yoù Wood mouse (Apodemus sylvaticus) Hallon Contraction of the contra Leafy vegetables Small insectivorous 4.2 $1.0 \times$ 4.01 12.5 BBCH 10 - 19 0.53 mammal "shrew" Common shrew (Sorex araneus) Second Second Leafy vegetables Small insectivorous 1.9 1.81 27.6 $1.0 \times$ A CONTRACTION OF CONT $BBCH \ge 20$ mammal "shrew" 0.53 Common shrew (Sorex araneus) Leafy vegetables Small herbivorous 72.3 $1.0 \times$ 69.0 0.725 BBCH 40 - 49 mammal "vole" 0.53 Common vole (Microtus arvalis)

Table CP 10-03-10: Control of invasive species: Uses 8, 9 (1 × 1800 g a.s./ha)

Glyphosate

Reprod. Tox bw/d)	ance kicity (mg/kg	Glyphosate 50					N OUN
TER criterio)n	5					200
GAP crop		Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	(mg/kg bw/d)	- BE F
	<u>(g a.s./ na)</u>	Leafy vegetables BBCH ≥ 50	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7	1.0 × 0.53		2.42
Control of invasive species	1 × 1800	Leafy vegetables All season	Large herbivorous mammal "lagomorph" Rabbit (<i>Orvetolagus</i>	14.3	0.530	\$9.0	3.67
		Leafy vegetables BBCH 10 – 49	sylvaticus) Small omnivorous mammal "mouse" Wood mouse (Apodemus, sylvaticus) Small omnivorous Wood mouse (Apodemus sylvaticus) Small insectivorous		120 × 0.53	7.44	6.72
		Leafy vegetables BBCH ≥ 50	Small omnivorous mammal "mouse" (Wood mouse (Apodemus sylvaticus) (2.3	1.0 × 0.53	2.19	22.8
		Legume forage BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex aranews)	4.2	1.0 × 0.53	4.01	12.5
		Legume forage BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (Sorex	1.9	1.0 × 0.53	1.81	27.6
		Legume forage BBCH 40 – 48		72.3	1.0 × 0.53	69.0	0.72
		Legume forage BBCH ≥ 90	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7	1.0 × 0.53	20.7	2.42
		L'aguma foraga	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	14.3	1.0 × 0.53	13.6	3.67
		Legume forage BBCH 10 – 49	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	7.8	1.0 × 0.53	7.44	6.72
1) 1) 100 100 100 100 100 100 100 100 10		Legume forage BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3	1.0 × 0.53	2.19	22.8
S C C C C C C C C C C C C C C C C C C C	ewal Group AIR f	Maize BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	4.2	1.0 × 0.53	4.01	12.5

A 41 B 4		Claudenants					Section 10 479 of 553
Active subst	ance ance (mg/kg	Glyphosate					
bw/d)	anty (mg/kg	50					An Delli
TER criterio		5	Γ	1		T	A S S
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	(mg/kg bw/d)	Ω≌R⊪ ©
Control of invasive species	1 × 1800	Maize BBCH≥20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i>	1.9	1.0 × 0.53		27.6
		Maize BBCH 10 – 29	araneus) Small herbivorous mammal "vole" Common vole (<i>Microtus</i> arvalis)	72.3	0530	69.0	0.725
		Maize BBCH 30 – 39	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)		120 × 0.53	34.4	1.45
		Maize BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (Micronus arvalis) S	18.1	1.0 × 0.53	17.3	2.90
		Maize BBCH 10 – 29	Small omniverous & mammal "mouse" Wood mouse (Apodemus sylvaticus)	7.8	1.0 × 0.53	7.44	6.72
		Maize BBCH 30 – 39	Small omnivorous manufal "mouse" Wood mouse (Apodemus Silvaticus)	3.9	1.0 × 0.53	3.72	13.4
		Maize BBCH ≥ 40 Oilseed Pape BBCH 10 - 49 Oilseed Pape BBCH 10 - 49 Oilseed rape	Stylicus) Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)	1.9	1.0 × 0.53	1.81	27.6
		Oilseed Paper & BBCH 10-49	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	4.2	1.0 × 0.53	4.01	12.5
	2, 17 19, 19 19, 00	Dilseed rape BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	1.9	1.0 × 0.53	1.81	27.6
		Oilseed rape BBCH≥40	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	18.1	1.0 × 0.53	17.3	2.90
1)16/10/10/10/10/10/10/10/10/10/10/10/10/10/		Oilseed rape All season	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	14.3	1.0 × 0.53	13.6	3.67
N COULD SC	ewal Group AIR 5	Oilseed rape BBCH 10 – 29	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> sylvaticus)	7.8	1.0 × 0.53	7.44	6.72

bw/d) TER criterio		5		•			Succession of the second secon
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	(mg/kg bw/d)	I FF K
Control of invasive species	1 × 1800	Oilseed rape BBCH 30 – 39	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3	1.0 × 0.53		22.8
		Oilseed rape BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	1.9	0.530		27.6
		Orchards Application crop directed BBCH < 10 or not crop directed	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)		120 × 0.53	1.81	27.6
		Orchards Application crop directed BBCH < 10 or not crop directed	Wood mouse (Apodemus sylvaticus) Small insectivorous mammal "shrew" Common shrew (Sorex araneus) Small herbivorous mammal "vole" Common vole (Micronus arvalis) Large herbivorous mammal "lagomorph" Rabbit (Orgetolagus cuniculus)	72:3	1.0 × 0.53	69.0	0.72
		Orchards Application crop directed BBCH < 10 or not crop directed	Large herbivorous mammal "Sagomorph" Rabbit (Orvetotagus cuniculus)	14.3	1.0 × 0.53	13.6	3.67
		Application crop	mammal "mouse" Wood mouse (Apodemus	7.8	1.0 × 0.53	7.44	6.72
		Ornamentals/nursery	Small herbivorous	72.3	1.0 × 0.53	69.0	0.72
		Ornamentals/nursery BBCH > 50	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	36.1	1.0 × 0.53	34.4	1.45
		Potatoes	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	4.2	1.0 × 0.53	4.01	12.5
Control of invasive species	1 × 1800	Potatoes BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	1.9	1.0 × 0.53	1.81	27.6
1) (1) (1) (1) (1) (1) (1) (1) ((0) (0) (0)	Potatoes BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7	1.0 × 0.53	20.7	2.42
11, St. C.	1 × 1800 5 1 × 1800 5	Potatoes BBCH 10 – 40	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	14.3	1.0 × 0.53	13.6	3.67

	ance	Glyphosate					
Reprod. Tox bw/d)	cicity (mg/kg	50					A CILI
TER criterio	n	5					A SON
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	MAF _m × TWA	DDDm (mg/kg bw/d)	FER _{it}
	(B (112) (21)	Potatoes BBCH ≥ 40	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	4.3	1.0 × 0.53	4.10 5 5 * 5 * 5 * 5 * 5 * 5 * 5 * 5	12.2
		Potatoes BBCH 10 – 39	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i>	7.8	0330	7544	6.72
		Potatoes BBCH ≥ 40	Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus)		1.0 × 0.53	2.19	22.8
		Pulses BBCH 10 – 19	Small insectivorous	4.2	1.0 × 0.53	4.01	12.5
		Pulses BBCH ≥ 20	Small insectivorous mammal "Shrew" Common shrew (Sorex araneus)	1.9	1.0 × 0.53	1.81	27.6
		Pulses BBCH 40 – 49	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> grvetis)	72.3	1.0 × 0.53	69.0	0.725
		Pulses BBCH≥50 50 50 50 50 50 50 50 50 50 50 50 50 5	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	21.7	1.0 × 0.53	20.7	2.42
		Pulses 5 5 5 BBCM 10 49	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	14.3	1.0 × 0.53	13.6	3.67
Control of invasive species	1 × 1800	Puises BBCH≥50	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	4.3	1.0 × 0.53	4.10	12.2
		Pulses BBCH \geq 50 Pulses BBCH 10 - 49 Pulses BBCH 2 50 Pulses BBCH 2 50 Pulses BBCH 2 50 Root & stem vegetables BBCH 10 - 19	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	7.8	1.0 × 0.53	7.44	6.72
A CONTRACT OF CONTRACT.		Pulses BBCH ≥ 50	Small omnivorous mammal "mouse" Wood mouse (<i>Apodemus</i> <i>sylvaticus</i>)	2.3	1.0 × 0.53	2.19	22.8
Succession of the second secon		Root & stem vegetables BBCH 10 – 19	Small insectivorous mammal "shrew" Common shrew (Sorex araneus)	4.2	1.0 × 0.53	4.01	12.5

Table CP 10-03-10: Co	-		-			Section 10 482 of 553
Active substance Reprod. Toxicity (mg/kg	Glyphosate					
bw/d)	50					DA DUDI: SOUDI: OUTOCAR
TER criterion	5		•	1		Children Chi
	Crop scenario	Generic focal species	SVm	MAF _m		TER
rate (g a.s./ha)	Growth stage				(mg/kg bw/d)	
	Root & stem	Small insectivorous	1.9	1.0 ×		27.6
	vegetables BBCH≥20	mammal "shrew" Common shrew (<i>Sorex</i>		0.53		
		araneus)		,) .)		
	Root & stem	Small herbivorous	21.7		20.7	2.42
	vegetables BBCH≥40	mammal "vole" Common vole (<i>Microtus</i>	2	0.530		
			SN.			
	Root & stem vegetables	Small omnivorous	7.8	120 ×	7.44	6.72
	BBCH 10 – 39	arvalis) Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus) Small omnivorous mammal "mouse" Wood mouse (Apodemus sylvaticus) Small insectivorous mammal "Shrew"		0.55		
	Root & stem	Small omnivorous	2.3	1.0 ×	2.19	22.8
	vegetables BBCH≥40	mammal "mouse"	w,	0.53		
		sylvaticus)				
	Strawberries	Small insectivorous	4.2	$1.0 \times$	4.01	12.5
	BBCH 10 – 19	mammal "shrew" Common shrew (Sorex aranets)		0.53		
	Strawberries	Small insectivorous	1.9	1.0 ×	1.81	27.6
	BBCH≥20	mammal "shrew" Common shrew (Sorex		0.53		
Control of 1×1800	Strawberries	araneus) Small herbivorous	28.9	1.0 ×	27.6	1.81
invasive species	Strawberries BBCH \geq 40 Strawberries BBCH 10 - 39 Strawberries Btrawberries DBCH \geq 40	mammal "vole Common vole (<i>Microtus</i>	-019	0.53	27.0	1.01
	Strough and a	<i>arvalis</i>) Large herbivorous	14.3	1.0	12 (2 (7
	BBCH 10-39	mammal "lagomorph"	14.5	1.0 × 0.53	13.6	3.67
	200 1 12 12 12 12 12 12 12 12 12 12 12 12 1	Rabbit (Oryctolagus				
_	Strawberries	<i>cuniculus</i>) Large herbivorous	5.7	1.0 ×	5.44	9.19
8 8, ¹ /2, ¹ /	BBCH≥40	mammai nagomorph		0.53		2.12
6, 71	80	Rabbit (<i>Oryctolagus cuniculus</i>)				
S. S. M.	Strawberries	Small omnivorous	7.8	1.0 ×	7.44	6.72
Glyphosate Renewal Group AIR 5	BBCH 10 – 39	mammal "mouse" Wood mouse (<i>Apodemus</i>		0.53		
	Strawberries	sylvaticus) Small omnivorous	3.1	1.0 ×	2.96	16.9
	$BBCH \ge 40$	mammal "mouse"	011	0.53	2.90	10.9
100 40 100 40		Wood mouse (<i>Apodemus</i> sylvaticus)				
	Sugar beet	Small insectivorous	4.2	1.0 ×	4.01	12.5
S. C.C.	BBCH 10 – 19	mammal "shrew"		0.53		
2		Common shrew (Sorex araneus)				

Active substa		Glyphosate					
Reprod. Toxi bw/d)		50					Che Cherry
TER criterio		5			1	Г	an je
GAP crop	Application rate (g a.s./ha)	Crop scenario Growth stage	Generic focal species	SVm	× TWA	DDDm (mg/kg bw/d)	- BEI
		Sugar beet BBCH ≥ 20	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	1.9	1.0 × 0.53		27.6
		Sugar beet BBCH ≥ 40	Small herbivorous mammal "vole Common vole (<i>Microtus</i>	18.1	0,530	64.5 1	2.90
		Sugar beet BBCH 10 – 39	arvalis) Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus) Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus) Small omnivorous mammal "inouse" Wood nouse (Apodemus		1:0 × 0.53	13.6	3.67
		Sugar beet BBCH ≥ 40	Large herbivorous mammal "lagomorph" Rabbit (Oryctolagus cuniculus)	3.6	1.0 × 0.53	3.43	14.6
			sylvatieus)		1.0 × 0.53	7.44	6.72
Control of invasive species	asive	Sugar beet BBCH≥40	Small omnivorous mammal "mouse" Wood mouse (Apodemus Sylvaticus)	1.9	1.0 × 0.53	1.81	27.6
			Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	4.2	1.0 × 0.53	4.01	12.5
		Sunflower 8 x	Small insectivorous mammal "shrew" Common shrew (<i>Sorex</i> <i>araneus</i>)	1.9	1.0 × 0.53	1.81	27.6
		Sunflower BBCH ≥ 40	Small herbivorous mammal "vole" Common vole (<i>Microtus</i> <i>arvalis</i>)	18.1	1.0 × 0.53	17.3	2.90
		Sunflower BBCH 10 – 19	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	14.3	1.0 × 0.53	13.6	3.67
		Sunflower BBCH 20 – 39	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	7.2	1.0 × 0.53	6.87	7.28
1 21 21 21 21 21 21 21 21 21 21 21 21 21		BBCH ≥ 20 Sumflower BBCH ≥ 40 Sunflower BBCH $10 - 19$ Sunflower BBCH $20 - 39$ Sunflower BBCH ≥ 40	Large herbivorous mammal "lagomorph" Rabbit (<i>Oryctolagus</i> <i>cuniculus</i>)	3.6	1.0 × 0.53	3.43	14.6

Active substance

MON 52276

PUC PUC Reprod. Toxicity (mg/kg 50 bw/d) N NO **TER** criterion **TER**tt Application Crop scenario SVm DDD_m GAP crop Generic focal species MAFm × TWA (mg/kg bw/d) rate Growth stage (g a.s./ha) Ma Violette In Sunflower Small omnivorous 7.8 $1.0 \times$ 6.72 BBCH 10 – 19 mammal "mouse" 0.53 Wood mouse (Apodemus sylvaticus) 0.530 G Sunflower Small omnivorous 3.9 13.4 BBCH 20 – 39 mammal "mouse" Wood mouse (Apodemus sylvaticus) 100 Lines $1.0 \times$ 27.6 Sunflower Small omnivorous 1.81 $BBCH \ge 40$ mammal "mouse" Wood mouse (Apodemus sylvaticus) 1.25 Vineyard Large herbivorous $1.0 \times$ 10.6 4.72 mammal "lagomorph" Application ground 0.53 20CUT Brown hare (Lepus 8 directed europaeus) Control of 1×1800 Vineyard Large herbivorous 6.7 $1.0 \times$ 6.39 7.82 BBCH 10 – 19 mammal "Jagomorph" invasive 0.53 Brown hare (Lepus species europaeus) Large herbivorous Vineyard 5.5 $1.0 \times$ 5.25 9.53 mammal "lagomorph" BBCH 20 - 39 0.53 Brown hare (Lepus europaeus) ALL C OF (B) Large herbivorous 3.3 1.0 × Vineyard 3.15 15.9 $BBCH \ge 40$ mammal "lagomorph" 0.53 Willie Color Brown hare (Lepus europaeus) Contraction of the second seco Vineyard BBCH 10-4.2 Small insectivorous $1.0 \times$ 4.01 12.5 mammal "shrew" 0.53 -rollino-Common shrew (Sorex araneus) Vineyard 1.9 27.6 Small insectivorous 1.81 $1.0 \times$ 8 LCI'S $BBCH \ge 20$ mammal "shrew" 0.53 NO COLORIS (STATION) COLORIS (S 0°2 Common shrew (Sorex araneus) Vineyard Small herbivorous 72.3 $1.0 \times$ 69.0 0.725 Application ground mammal "vole" 0.53 Common vole (Microtus directed arvalis) hitellocal est Vineyard Small omnivorous 7.8 7.44 6.72 $1.0 \times$ 100 100 Application ground mammal "mouse" 0.53 directed Wood mouse (Apodemus sylvaticus)

Table CP 10-03-10: Control of invasive species: Uses 8, 9 (1 × 1800 g a.s./ha)

Glyphosate

Annex to Regulation 284/2013

MON 52276

Annex M-CP 10-04: Aquatic risk assessment

Aquatic risk assessment for glyphosate, AMPA, HMPA for all proposed uses.

D4: Aquatic risk assessment <u>nt for glyphosate, AMPA, HMPA for all proposed uses.</u> Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and Table CP 10-04-1: 3 calculations for the use of MON 52276 in vegetables, root (1 × 720 g a.s./ha). Covers uses 1 a-c, 2 a-c, 6 a-c, 10 a-c. 5 20 Q,

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell.
•					prolonged	Algae 8 8	macrophytes		prolonged
Гest		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema	Myriophyllum		Chironomus
species		macrochirus	mykiss	gigas	~	eostatum	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErCs	ErC50	Endpoint	NOEC
μg/L)		47000	\geq 9630	40000	NOEC 12500	13500	10330	(µg/kg)	≥ 1000000
٩F		100	10	100	10	910	10	AF	10
RAC		470	≥ 963	400	1250 5 5	1350	1033	RAC	\geq 100000
(µg/L)					E & S			(µg/kg)	
FOCUS	PEC _{sw,max}							PEC sed,max	
Scenario	(µg/L)							(µg/kg)	
Step 1		·		lo.	10 0 0				i.
	42.672	0.091	0.044	0.107	10,034	0.032	0.041	1560.000	0.016
Step 2			·		(S)		·		·
N-Europe	17.648	0.038	0.018	0.044	0.014	0.013	0.017	727.897	0.007
S-Europe	14.397	0.031	0.015	0.036 20 3	0.012	0.011	0.014	590.246	0.006
Step 3				S. 5. 5					
D3/ditch	4.495	0.010	0.005	0.0115	0.004	0.003	0.004	4.151	< 0.001
D6/ditch	4.507	0.010	0.005	0.019	0.004	0.003	0.004	6.978	< 0.001
R1/pond	0.152	< 0.001	< 0.001	<a>€<0.001	< 0.001	< 0.001	< 0.001	6.540	< 0.001
R1/stream	2.962	0.006	0.003	0.007	0.002	0.002	0.003	68.110	< 0.001
R2/stream	3.976	0.008	0.004 8 5 5	0.010	0.003	0.003	0.004	513.500	0.005
R2/stream	3.976	0.008	0.004 5	0.010	0.003	0.003	0.004	396.100	0.004
nd			0.004 8 5 5 0.004 8 5 5 0.004 5 5 5						
R3/stream	4.183	0.009	0.004	0.010	0.003	0.003	0.004	14.380	< 0.001
R4/stream	2.924	0.006	ୠୖଡ଼ୢୠୖ	0.007	0.002	0.002	0.003	17.380	< 0.001
	1			1	1			1	

 K4/stream
 2.924
 0.006
 0.007
 0.002
 0.003
 17.380
 < 0.003</td>

 AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

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Table CP 10-04-2: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3</td> calculations for the use of MON 52276 in vegetables, root (3 × 720 g a.s./ha, with application interval of 28 days). Uses 2 a-c. 6

					1	× ×			
Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell.
					prolonged	13° ° °	macrophytes		prolonged
Test species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema	Myriophyllum		Chironomus
		macrochirus	mykiss	gigas		costatum 5	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC50	NOEC	E.C.50 S	ErC50	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	Edes 3	10330	(µg/kg)	≥ 1000000
AF		100	10	100	10 (1)	40 ×	10	AF	10
RAC (µg/L)		470	≥ 963	400	1250	1000	1033	RAC	≥ 100000
						₽ [−]		(µg/kg)	
FOCUS	PEC _{sw,max}							PEC _{sed,max}	
Scenario	(µg/L)							(µg/kg)	
Step 1									
	128.016	0.272	0.133	0.320	<u>6902</u> 0	0.095	0.124	4690.000	0.047
Step 2				J.o.	0.9102°°	•			
N-Europe	30.607	0.065	0.032	0.077	0.024	0.023	0.030	1260.000	0.013
S-Europe	25.017	0.053	0.026		0.020	0.019	0.024	1020.000	0.010
Step 3				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					•
D3/ditch	4.495	0.010	0.005		0.004	0.003	0.004	4.775	< 0.001
D6/ditch	4.507	0.010	0.005	0.047 2 03	0.004	0.003	0.004	21.890	< 0.001
R1/pond	0.705	0.002	< 0.001	0.002	< 0.001	< 0.001	< 0.001	30.830	< 0.001
R1/stream	2.962	0.006	0.003	0.007	0.002	0.002	0.003	271.200	0.003
R2/stream	3.976	0.008	0.004 🔆	0.010	0.003	0.003	0.004	1353.600	0.014
R2/stream 2nd	3.976	0.008		Ø .010	0.003	0.003	0.004	1370.300	0.014
R3/stream	4.183	0.009	0.004	0.010	0.003	0.003	0.004	296.300	0.003
R4/stream	3.495	0.007	0.004 5 5 5		0.003	0.003	0.003	173.000	0.002
		1		1		1			

.d's contraction of the contract AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold



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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and Table CP 10-04-3: 3 calculations for the use of MON 52276 in potatoes (1 × 720 g a.s./ha). Covers uses La-c, 2 a-c, 6 a-c, 10 a-c.

	1					 			
Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell.
					prolonged		macrophytes		prolonged
Fest species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema 5	Myriophyllum		Chironomus
		macrochirus	mykiss	gigas		costatum 8 8	aquaticum		riparius
Endpoint		LC_{50}	NOEC	EC ₅₀	NOEC	E ₁ C 5 5 5 13500 5 905 5	E_rC_{50}	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13500 5	10330	(µg/kg)	≥ 1000000
AF		100	10	100	10	90,5	10	AF	10
RAC (µg/L)		470	≥ 963	400	10 1250 1250 10 10 10 10 10 10 10 10 10 10 10 10 10	4350	1033	RAC	≥ 100000
						J.C.		(µg/kg)	
FOCUS	PEC _{sw,max}					<u>َ</u> ن		PEC _{sed,max}	
Scenario	(µg/L)							(µg/kg)	
Step 1	1	-			S. S. S	1	1		1
	42.672	0.091	0.044	0.107	0.00-0	0.032	0.041	1560.000	0.016
Step 2	T	-		-		r	•		I
N-Europe	17.648	0.038	0.018		0.014	0.013	0.017	727.897	0.007
S-Europe	14.397	0.031	0.015	0.036	0.012	0.011	0.014	590.246	0.006
Step 3				0.009	S.				
D3/ditch	3.704	0.008	0.004	0.009 ³⁴ 4 ⁵ 8	0.003	0.003	0.004	2.559	< 0.001
D4/pond	0.146	< 0.001	< 0.001	< 0.001 8 5	< 0.001	< 0.001	< 0.001	2.375	< 0.001
D4/stream	3.151	0.007	0.003	0.008 2 0	0.003	0.002	0.003	0.197	< 0.001
D6/ditch	3.729	0.008	0.004	0.009	0.003	0.003	0.004	7.716	< 0.001
D6/ditch 2 nd	3.741	0.008	0.004	0,009	0.003	0.003	0.004	13.680	< 0.001
R1/pond	0.160	< 0.001	< 0.001	€.0 01	< 0.001	< 0.001	< 0.001	10.110	< 0.001
R1/stream	2.568	0.005	0.003	9.006	0.002	0.002	0.002	107.400	0.001
R2/stream	3.448	0.007	0.004 65,55	0.009	0.003	0.003	0.003	613.100	0.006
R3/stream	3.626	0.008	0.004 5 5 5	0.009	0.003	0.003	0.004	200.500	0.002
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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and Table CP 10-04-4: 3 calculations for the use of MON 52276 in potatoes (3 × 720 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell
					prolonged		macrophytes		prolonged
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema costatum	Myriophyllum aquaticum		Chironomus riparius
Endpoint		LC ₅₀	NOEC	EC50	NOEC	E3C 50 5	ErC50	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13500	10330	(µg/kg)	≥ 1000000
AF		100	10	100	10 (1)	D Ot	10	AF	10
RAC (µg/L)		470	≥ 963	400		1350	1033	RAC (µg/kg)	≥ 100000
FOCUS	PEC _{sw,max}							PEC _{sed,max}	
Scenario	(µg/L)				5 6 5			(µg/kg)	
Step 1	•			·	R. C. J. C	·		•	
	128.016	0.272	0.133	0.320	67102 0 102 0 102 0 10.024	0.095	0.124	4690.000	0.047
Step 2			4	e e e e e e e e e e e e e e e e e e e					H
N-Europe	30.607	0.065	0.032	0.077	0,024	0.023	0.030	1260.000	0.013
S-Europe	25.017	0.053	0.026	0.063	69.020	0.019	0.024	1020.000	0.010
Step 3	•	4	4	0.005 N- K- K					
D3/ditch	3.704	0.008	0.004	0.009	0.003	0.003	0.004	3.823	< 0.001
D4/pond	0.162	< 0.001	< 0.001	< 0.0010 01 0.0028 01 0.0025	< 0.001	< 0.001	< 0.001	4.458	< 0.001
D4/stream	3.151	0.007	0.003	0.008	0.003	0.002	0.003	0.412	< 0.001
D6/ditch	3.729	0.008	0.004	0.009	0.003	0.003	0.004	7.716	< 0.001
D6/ditch 2nd	3.741	0.008		0.009	0.003	0.003	0.004	13.680	< 0.001
R1/pond	1.017	0.002		Ø.003	< 0.001	< 0.001	< 0.001	41.600	< 0.001
R1/stream	2.568	0.005	0.003 25 5	0.006	0.002	0.002	0.002	365.700	0.004
R2/stream	3.448	0.007	0.004 5 5 5	0.009	0.003	0.003	0.003	1280.700	0.013
R3/stream	3.626	0.008		0.009	0.003	0.003	0.004	684.700	0.007
ilyphosate Renev	val Group AIR 5 –	July 2020 BURNER	10.004 8 5° tal concentration; RA	C. Regulatory accept	able concentration; i		Doc ID	: 110054-MCP10_G	in bold GRG_Rev 1_Jul_2020

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		S X

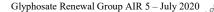
Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and Table CP 10-04-5: 3 calculations for the use of MON 52276 in vegetables, bulb (1 × 720 g a.s./ha). Covers uses 1 a-c, 2 a-c, 6 a-c, 10 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged				Sed. dwell. prolonged
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema & costatum & &	Myriophyllum aquaticum		Chironomus riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC	ErC50	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13500 5	10330	(µg/kg)	≥ 1000000
AF		100	10	100	10	E _r C ₁₀ , 5, 5 13500, 5 10, 5	10	AF	10
RAC (µg/L)		470	≥ 963	400		10, 3 \$350	1033	RAC (µg/kg)	≥ 100000
FOCUS	PEC _{sw,max}							PEC _{sed,max}	
Scenario	(µg/L)				L'ESSO			(µg/kg)	
Step 1					588			400	
	42.672	0.091	0.044	0.107	0.034	0.032	0.041	1560.000	0.016
Step 2	1					1	1		
N-Europe	17.648	0.038	0.018	0.044	0.014	0.013	0.017	727.897	0.007
S-Europe	14.397	0.031	0.015	0.036	0.012	0.011	0.014	590.246	0.006
Step 3					S.				
D3/ditch	4.479	0.010	0.005	0.011	0.004	0.003	0.004	2.921	< 0.001
D4/pond	0.150	< 0.001	< 0.001	< 0.001 . 8 . 5	< 0.001	< 0.001	< 0.001	2.431	< 0.001
D4/stream	3.541	0.008	0.004	0.009	0.003	0.003	0.003	0.169	< 0.001
D6/ditch	4.526	0.010	0.005	0.009 5 5	0.004	0.003	0.004	15.750	< 0.001
D6/ditch 2nd	4.526	0.010	0.005	0.011	0.004	0.003	0.004	15.930	< 0.001
R1/pond	0.156	< 0.001	< 0.001	< 6 .001	< 0.001	< 0.001	< 0.001	9.841	< 0.001
R1/stream	2.962	0.006	0.003	Ø .007	0.002	0.002	0.003	106.800	0.001
R2/stream	3.976	0.008	0.004 5 5	0.010	0.003	0.003	0.004	513.400	0.005
R3/stream	4.182	0.009	0.004 5 5 5	0.010	0.003	0.003	0.004	9.843	< 0.001
R4/stream	2.961	0.006		0.007	0.002	0.002	0.003	17.420	< 0.001
۹۲: Assessmen	u 1actor; PEC: Pi wal Group AIR 5 -	- July 2020	10.003 (% S ntal concentration; RA	C: Regulatory accep	able concentration; 1	r ευ/κάυ ratios abo	ve ine reievant trigg Doc II	ger of 1 are shown D: 110054-MCP10_C	in bold GRG_Rev 1_Jul_2020

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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and Table CP 10-04-6: 3 calculations for the use of MON 52276 in vegetables, bulb (3 × 720 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell.
эгоир		rish acute	rish protonged	inverted. acute	prolonged	Algae	Aquatic macrophytes		sea. awell. prolonged
Fest species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema	Myriophyllum		Chironomus
l est species		nacrochirus	mykiss	gigas	Daphnia magna	costatun 5	aquaticum		cntronomus riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC		ErC ₅₀	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	E2050 5 13500	10330	μg/kg)	≥ 1000000
μg/L) AF		100	10	100	10	40	10	AF	10
RAC (µg/L)		470	≥ 963	400	1250		1033	RAC	≥ 100000
NAC (µg/L)		470	<u>< 905</u>	400		1350	1055	KAC (μg/kg)	<u>< 100000</u>
FOCUS	PEC _{sw,max}							PECsed,max	
Scenario	(µg/L)							(µg/kg)	
Step 1					2 5 6				
	128.016	0.272	0.133	0.320	02 °	0.095	0.124	4690.000	0.047
Step 2	1	1	I	9 9	69102°°			-	1
N-Europe	30.607	0.065	0.032	0.077	00 69 4	0.023	0.030	1260.000	0.013
S-Europe	25.017	0.053	0.026	0.063	0.020	0.019	0.024	1020.000	0.010
Step 3				0.063	2				U
D3/ditch	4.479	0.010	0.005	0.011	0.004	0.003	0.004	4.608	< 0.001
D4/pond	0.173	< 0.001	< 0.001	< 0.000 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	< 0.001	< 0.001	< 0.001	4.681	< 0.001
D4/stream	3.541	0.008	0.004	0.009 1	0.003	0.003	0.003	0.401	< 0.001
D6/ditch	4.526	0.010	0.005	0,01,	0.004	0.003	0.004	20.250	< 0.001
D6/ditch 2 nd	4.526	0.010	0.005	0.011	0.004	0.003	0.004	24.750	< 0.001
R1/pond	1.006	0.002	0.001 50	9.003	< 0.001	< 0.001	< 0.001	40.690	< 0.001
R1/stream	2.962	0.006	0.003	0.007	0.002	0.002	0.003	366.300	0.004
R2/stream	3.976	0.008	0.004 5 5 5	0.010	0.003	0.003	0.004	1352.800	0.014
R3/stream	4.182	0.009	0.004 8	0.010	0.003	0.003	0.004	317.000	0.003
R4/stream	3.503	0.007	0.000	0.009	0.003	0.003	0.003	102.500	0.001
ilyphosate Rene	wal Group AIR 5 -	- July 2020	ntal concentration; RA	C. Regulatory accep	aute concentration; I	FEC/RAC TAILOS ADO	ve me relevant trigg Doc II	D: 110054-MCP10_C	m bold RG_Rev 1_Jul_2020



Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and Table CP 10-04-7: 3 calculations for the use of MON 52276 in vegetables, fruiting (1 × 720 g a.s./ha). Covers uses 1 a-c, 2 a-c, 6 a-c, 10 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell.
					prolonged	12 2 2 3	macrophytes		prolonged
ſest		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletønema &	Myriophyllum		Chironomus
species		macrochirus	mykiss	gigas		costatum 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E.E.507 13500	ErC50	Endpoint	NOEC
(μg/L)		47000	≥ 9630	40000	12500	13,500	10330	(µg/kg)	≥ 1000000
٩F		100	10	100	10 10	10.0	10	AF	10
RAC		470	≥ 963	400	1250	1350	1033	RAC	\geq 100000
(µg/L)					1250	1350		(µg/kg)	
FOCUS	PEC _{sw,max}							PEC _{sed,max}	
Scenario	(µg/L)				S. S. S			(µg/kg)	
Step 1		1		1	R. C. M.				
-	42.672	0.091	0.044	0.107	0 40 0 40 0 5 0 6 0 6 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0	0.032	0.041	1560.000	0.016
Step 2		-		0.044 JOT					1
N-Europe	17.648	0.038	0.018	0.044	0.014	0.013	0.017	727.897	0.007
S-Europe	14.397	0.031	0.015	0.036	0.012	0.011	0.014	590.246	0.006
tep 3		•		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1			•	
06/ditch	4.517	0.010	0.005	0.01	0.004	0.003	0.004	11.910	< 0.001
R2/stream	3.976	0.008	0.004	0.050 0.050	0.003	0.003	0.004	613.800	0.006
R3/stream	4.183	0.009	0.004	0.010	0.003	0.003	0.004	201.100	0.002
R4/stream	2.961	0.006	0.003	0.907	0.002	0.002	0.003	50.180	< 0.001
			10000000000000000000000000000000000000	£					
3lyphosate R	enewal Group AIR 5 -	- July 2020	tal concentration: RA				Doc II	D: 110054-MCP10_C	GRG_Rev 1_Jul_2020

Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 enlaylations for the use of MON 5227(in the last of the use of MON 5227(in the last of the use of MON 5227(in the last of the use of MON 5227(in the last of the use of MON 5227(in the last of the use of MON 5227(in the last of the use of MON 5227(in the last of the use of MON 5227(in the use of MON 5227(in the use of the use Table CP 10-04-8: 3 calculations for the use of MON 52276 in vegetables, fruiting (3 × 720 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

			1	I	I	X			
Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell.
					prolonged	19 2° 2°	macrophytes		prolonged
Test		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletønema	Myriopnyllum		Chironomus
species		macrochirus	mykiss	gigas		costatum 5	aquaticum		riparius
Endpoint		LC_{50}	NOEC	EC_{50}	NOEC	E.C.50	E_rC_{50}	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500		10330	(µg/kg)	\geq 1000000
AF		100	10	100	10 (1)	\$0 × ~	10	AF	10
RAC		470	≥ 963	400	1250	1350	1033	RAC	≥ 100000
(µg/L)								(µg/kg)	
FOCUS	PEC _{sw,max}							PEC _{sed,max}	
Scenario	(µg/L)				S.S.S			(µg/kg)	
Step 1			1		1250 1250	1	L		
	128.016	0.272	0.133	0.320	$(\nabla \cdot 1 \otimes 2 \circ 0)$	0.095	0.124	4690.000	0.047
Step 2				0.077	0`0`				
N-Europe	30.607	0.065	0.032	0.077	0.024	0.023	0.030	1260.000	0.013
S-Europe	25.017	0.053	0.026	0.063	0.020	0.019	0.024	1020.000	0.010
Step 3	1		1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					L
-	4.517	0.010	0.005	0.01	0.004	0.003	0.004	20.410	< 0.001
R2/stream	3.976	0.008	0.004	0.000 2 0	0.003	0.003	0.004	1622.300	0.016
R3/stream	4.183	0.009	0.004	0.010 1	0.003	0.003	0.004	686.200	0.007
R4/stream	3.780	0.008	0.004		0.003	0.003	0.004	366.500	0.004
			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						
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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and Table CP 10-04-9: 3 calculations for the use of MON 52276 in vegetables, leafy (1 × 720 g a.s./ha). Covers uses 1 a-c, 2 a-c, 6 a-c, 10 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes		Sed. dwell. prolonged
Fest species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	costatum	Myriophyllum aquaticum		Chironomus riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	EC50	E _r C ₅₀	Endpoint	NOEC
μg/L)		47000	≥ 9630	40000	12500	13500	10330	(µg/kg)	\geq 1000000
4F		100	10	100	10 10	E E 50 7 6 13500	10	AF	10
RAC (µg/L)		470	≥ 963	400		1350	1033	RAC (µg/kg)	≥ 100000
FOCUS	PEC _{sw,max}					-		PEC _{sed,max}	
Scenario	(µg/L)				5 5 5 5 B			(µg/kg)	
Step 1					Lo L'I Co				
_	42.672	0.091	0.044	0.107		0.032	0.041	1560.000	0.016
Step 2		•		Jo Vo			•		
N-Europe	17.648	0.038	0.018		0.014	0.013	0.017	727.897	0.007
-Europe	14.397	0.031	0.015		0.012	0.011	0.014	590.246	0.006
tep 3				2742 6					
03/ditch	4.494	0.010	0.005	0.011	0.004	0.003	0.004	4.072	< 0.001
03/ditch 2 nd	4.491	0.010	0.005	0.041 2 2	0.004	0.003	0.004	3.719	< 0.001
04/pond	0.150	< 0.001	< 0.001	50,001	< 0.001	< 0.001	< 0.001	2.440	< 0.001
04/stream	3.612	0.008	0.004	0.009	0.003	0.003	0.003	0.212	< 0.001
D6/ditch	4.526	0.010	0.005	0.011	0.004	0.003	0.004	16.430	< 0.001
R1/pond	0.152	< 0.001	< 0.001	€ 0.001	< 0.001	< 0.001	< 0.001	5.981	< 0.001
R1/pond 2 nd	0.321	< 0.001	< 0.001 5 5 5	< 0.001	< 0.001	< 0.001	< 0.001	16.570	< 0.001
R1/stream	2.960	0.006	0.003 5 5	0.007	0.002	0.002	0.003	67.390	< 0.001
R1/stream 2 nd	2.959	0.006	0.003 8	0.007	0.002	0.002	0.003	357.400	0.004
	3.976	0.008	0.00	0.010	0.003	0.003	0.004	513.600	0.005
	3.976	0.008	0.004	0.010	0.003	0.003	0.004	548.900	0.005
R3/stream	4.183	0.009	0.064	0.010	0.003	0.003	0.004	208.400	0.002
R2/stream 2 nd R3/stream	3.976	0.008 0.009	0.004	0.010	0.003	0.003	0.004 0.004	548.900	0.005

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Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and Table CP 10-04-9: 3 calculations for the use of MON 52276 in vegetables, leafy (1 × 720 g a.s./ha). Covers uses 1 a-c, 2 a-c, 6 a-c, 10 a-c. 6000

Group		Etab a set	Eich and lear	Incorrect all and the	T4 - h				C. J. J. U
		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes		Sed. dwell prolonged
Fest species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema	Myriophyllum		Chironomus
		macrochirus	mykiss	gigas		costatum 8 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E _r C ₃₀ , 5, 5 13500, 5 10, 5	E_rC_{50}	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13500	10330	(µg/kg)	≥ 1000000
AF		100	10	100	10	10, 3	10	AF	10
RAC (µg/L)		470	≥ 963	400		4350 4350	1033	RAC (µg/kg)	≥ 100000
FOCUS	PEC _{sw,max}				5 KB			PEC _{sed,max}	
Scenario	$(\mu g/L)$							μg/kg)	
R3/stream 2 nd	4.183	0.009	0.004	0.010	0.003	0.003	0.004	201.000	0.002
D1/stroom	2 061	0.006	0.002	0.007	0.062 5 0	0.002	0.002	142 800	0.001
R4/stream 2 nd	2.961	0.006	0.003	0.007	0.002	0.002	0.003	264.300	0.003
AF: Assessment	factor; PEC: Pi	redicted environmer	ntal concentration; RA	C: Regulatory accept	table concentration;]	PEC/RAC ratios abov	ve the relevant trigge	er of 1 are shown	in bold
			200 10 10 10 10 10 10 10 10 10	1000 1000 1000 1000 1000 1000 1000 100		0.002 0.002 PEC/RAC ratios abov			

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Table CP 10-04-10: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</th> 3 calculations for the use of MON 52276 in vegetables, leafy (3 × 720 g a.s./ha, with application interval of 28 days). Uses 2 a-c. 6.0

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic 6		Sed. dwell.
~-~~~		I ISH acatt	1 ion protongeu	ucutt	prolonged	Algae	macrophytes		prolonged
Test species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema 5	Myriophyllum		Chironomus
		macrochirus	mykiss	gigas		costatum 8 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC 5 5 5 13500 5	E_rC_{50}	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13500 5	10330	(µg/kg)	≥ 1000000
AF		100	10	100	10	$90 \leq 1$	10	AF	10
RAC (µg/L)		470	≥963	400		\$350 \$350	1033	RAC	≥ 100000
								(µg/kg)	
FOCUS	PEC _{sw,max}				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	o`		PECsed,max	
Scenario	(µg/L)				10000000000000000000000000000000000000			(µg/kg)	
Step 1		-		•	E & S			<u>.</u>	
	128.016	0.272	0.133	0.320	0.102	0.095	0.124	4690.000	0.047
Step 2		-			0.10233 (1.10233 0.024 0.024 0.020	-		-	
N-Europe	30.607	0.065	0.032	0.077	0.024	0.023	0.030	1260.000	0.013
S-Europe	25.017	0.053	0.026	0.063	0.020	0.019	0.024	1020.000	0.010
Step 3				0.011	S.				
D3/ditch	4.494	0.010	0.005	0.011 345 5	0.004	0.003	0.004	4.962	< 0.001
D3/ditch 2 nd	4.491	0.010	0.005	0.0115	0.004	0.003	0.004	5.999	< 0.001
D4/pond	0.172	< 0.001	< 0.001	< 0.000	< 0.001	< 0.001	< 0.001	4.626	< 0.001
D4/stream	3.612	0.008	0.004	< 0.000 3 0.000 3 0.001 5	0.003	0.003	0.003	0.481	< 0.001
D6/ditch	4.526	0.010	0.005	0,011	0.004	0.003	0.004	20.770	< 0.001
R1/pond	0.492	0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	27.790	< 0.001
R1/pond 2 nd	1.243	0.003	0.001	Ø.003	< 0.001	< 0.001	0.001	48.270	< 0.001
R1/stream	2.960	0.006	0.003	0.007	0.002	0.002	0.003	267.100	0.003
R1/stream 2nd	2.959	0.006	0.003 5 5 5	0.007	0.002	0.002	0.003	486.800	0.005
R2/stream	3.976	0.008	0.003 5 5 10 0.004 10 0	0.010	0.003	0.003	0.004	1353.700	0.014
R2/stream 2nd	3.976	0.008	0.000	0.010	0.003	0.003	0.004	1300.300	0.013
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Table CP 10-04-10: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in vegetables, leafy (3 × 720 g a.s./ha, with application interval of 28 days). Uses 2 a-c. 6.0

Group		Et al.	Etab and 1	Terrer 4 - 1	I	Algae			
		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes		Sed. dwell prolonged
Test species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema	Myriophyllum		Chironomus
rest species		macrochirus	mykiss	gigas	Duphniu mughu	costatum 8 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E _r C ₃₀ 5 5 13500 5 105 5	E _r C ₅₀	Endpoint	NOEC
(μg/L)		47000	≥9630	40000	12500	13500 50	10330	(μg/kg)	≥ 1000000
AF		100	10	100	10	10	10	AF	10
RAC (µg/L)		470	≥ 963	400	1250 (13) 1250 (13) (10) (1	4350 5	1033	RAC	\geq 100000
								(µg/kg)	
FOCUS	PEC _{sw,max}					5		PEC _{sed,max}	
Scenario	(µg/L)							(µg/kg)	
R3/stream	4.183	0.009	0.004		0.0020 0.00	0.003	0.004	542.600	0.005
R3/stream 2nd	4.183	0.009	0.004	0.010	0.003 5	0.003	0.004	686.100	0.007
R4/stream	3.371	0.007	0.004	0.008	6.003 0	0.002	0.003	383.000	0.004
R4/stream 2nd	3.555	0.008	0.004	0.009	0.003	0.003	0.003	739.300	0.007
			0.004 0.004 tal concentration; RA	15 ° 3 ° 00 15 ° 0 ° 0 16 °					

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Table CP 10-04-11: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</th> 3 calculations for the use of MON 52276 in sugar beets, (1 × 720 g a.s./ha). Covers uses 1 a-c, 2 a-c, 6 a-c, 10 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes		Sed. dwell. prolonged
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema 5 costatum 8 8	Myriophyllum aquaticum		Chironomus riparius
 Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E _r C ₅₀ , 5, 5 13500, 6 10, 5	E _r C ₅₀	Endpoint	NOEC
(µg/L)		47000	≥9630	40000	12500	13500 50	10330	(µg/kg)	≥ 1000000
AF		100	10	100	10	10 3	10	AF	10
RAC		470	≥963	400	1250	\$3.50	1033	RAC	≥ 100000
(µg/L)								(µg/kg)	
FOCUS	PEC _{sw,max}					<u>}</u>		PEC _{sed,max}	
Scenario	(µg/L)							(µg/kg)	
Step 1			1	II.					
	42.672	0.091	0.044	0.107	0.034	0.032	0.041	1560.000	0.016
Step 2	1		1		5 0 <u>2</u> 5 2 0 5 2 0	1	1	1	
N-Europe	17.648	0.038	0.018	0.044	0.014	0.013	0.017	727.897	0.007
S-Europe	14.397	0.031	0.015	0.036	0.012	0.011	0.014	590.246	0.006
Step 3					S.				
D3/ditch	3.704	0.008	0.004	0.009	0.003	0.003	0.004	2.538	< 0.001
D4/pond	0.146	< 0.001	< 0.001	< 0.001 8 8	< 0.001	< 0.001	< 0.001	2.306	< 0.001
D4/stream	3.246	0.007	0.003	0.008	0.003	0.002	0.003	0.314	< 0.001
R1/pond	0.235	< 0.001	< 0.001	400.0 \$	< 0.001	< 0.001	< 0.001	13.340	< 0.001
R1/stream	2.568	0.005	0.003	0.006	0.002	0.002	0.002	156.200	0.002
R3/stream	3.626	0.008	0.004		0.003	0.003	0.004	200.500	0.002
			0.004						
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Table CP 10-04-12: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</td> 3 calculations for the use of MON 52276 in sugar beets (3 × 720 g a.s./ha, with application interval of 28 days). Uses 2a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes		Sed. dwell. prolonged
Test		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skelelonemu~	Myriophyllum		Chironomus
species		macrochirus	mykiss	gigas		costatum 5	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	costatum 5 Ere 58 13,500	ErC ₅₀	Endpoint	NOEC
(µg/L)		47000	≥9630	40000	12500	13,500	10330	(µg/kg)	≥ 1000000
AF		100	10	100	10 10	\$0,5°	10	AF	10
RAC		470	≥963	400	1250	1350	1033	RAC	≥ 100000
(µg/L)					10 (1) 1250 (1) 50 (1)	3		(µg/kg)	
FOCUS	PEC _{sw,max}							PECsed,max	
Scenario	(µg/L)				S. S. S.			(µg/kg)	
Step 1			L	1				L	I
	128.016	0.272	0.133	0.320	10.102 C	0.095	0.124	4690.000	0.047
Step 2	•	·	•	0.077	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	•		•	
N-Europe	30.607	0.065	0.032	0.077	0.024	0.023	0.030	1260.000	0.013
S-Europe	25.017	0.053	0.026	0.063	\$0.020	0.019	0.024	1020.000	0.010
Step 3			I	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	*	I.		1	l.
D3/ditch	3.704	0.008	0.004	0.009	0.003	0.003	0.004	4.056	< 0.001
D4/pond	0.148	< 0.001	< 0.001	< 0.000 0.0	< 0.001	< 0.001	< 0.001	4.542	< 0.001
D4/stream	3.246	0.007	0.003	0.008	0.003	0.002	0.003	0.516	< 0.001
R1/pond	1.230	0.003	0.001	0.003	< 0.001	< 0.001	0.001	46.500	< 0.001
R1/stream	2.568	0.005	0.003	0.006	0.002	0.002	0.002	459.800	0.005
R3/stream	3.626	0.008	0.004	0.009	0.003	0.003	0.004	684.800	0.007
лг. Assessi	nent factor, PEC: P		0.004 0.03 tal concentration; RAC	 Regulatory accept 	aore concentration; I	ECAN TAUOS ADO	ve me relevant trigg	er of 1 are snown h	
3lyphosate R	enewal Group AIR 5 -	- July 2020 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5					Doc ID	: 110054-MCP10_G	RG_Rev 1_Jul_2020

Table CP 10-04-13: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</td> 3 calculations for the use of MON 52276 in pome/stone fruit (1×720 g a.s./ha). Uses $4 u \approx c$.

Lepomis macrochirus LC ₅₀ 47000 100 470 Sw,max g/L) 0.091 0.038 0.031	Oncorhynchus mykiss NOEC ≥ 9630 10 ≥ 963 0.044 0.018 0.015	Crassostrea gigas EC ₅₀ 40000 100 400 0.001 0.044 0.036	<u><u><u></u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	Skeletoneina costatum 50 13500 40 5350	Myriophyllum aquaticum ErC50 10330 10 1033 0 0.041 0.017	Endpoint (μg/kg) AF RAC (μg/kg) PECsed,max (μg/kg) 1560.000	prolonged Chironomus riparius NOEC ≥ 1000000 10 ≥ 1000000 0.016 0.007
macrochirus LC50 47000 100 470 Sw,max g/L) 0.091 0.038 0.031	mykiss NOEC ≥ 9630 10 ≥ 963 0.044 0.018	gigas EC ₅₀ 40000 100 400 0.107 0.044 0.036	NOEC 12500 10 1250 1250 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Skeletonema costatum 13500 90 1350 90 1350 90 1350 90 1350 0.032 0.013	Myriophyllum aquaticum ErC50 10330 10 1033 0 0.041 0.017	(µg/kg) AF RAC (µg/kg) PECsed,max (µg/kg) 1560.000 727.897	riparius NOEC ≥ 1000000 10 ≥ 1000000 0.016 0.007
LC ₅₀ 47000 100 470 Csw,max g/L) 0.091 0.038 0.031	NOEC ≥ 9630 10 ≥ 963 0.044 0.018	EC ₅₀ 40000 100 400 0.107 0.044	12500 10 1250 0 0 0 0 0 0 0 0 0 0 0 0 0	EPE 50 50 13,500 90 90 50 13,500 100 90 100 13,500 100 13,500 100 13,500 100 13,500 100 10,032 100 0.013 100	ErC ₅₀ 10330 10 1033 0.041 0.041	(µg/kg) AF RAC (µg/kg) PECsed,max (µg/kg) 1560.000 727.897	NOEC ≥ 1000000 10 ≥ 1000000 0.016 0.007
47000 100 470 Csw,max g/L) 0.091 0.038 0.031		40000 100 400 0.107 0.044 0.036	12500 10 1250 0 0 0 0 0 0 0 0 0 0 0 0 0	0.032 0.013	10330 10 1033 0.041 0.017	(µg/kg) AF RAC (µg/kg) PECsed,max (µg/kg) 1560.000 727.897	≥ 1000000 10 ≥ 100000 0.016 0.007
100 470 Csw.max g/L) 0.091 0.038 0.031	10 ≥ 963 0.044 0.018	100 400 0.107 0.044 0.036	10 (1) 1250 (2) 1250 (2) (2) (2) (2) (2) (2) (2) (2)	0.032 0.013	10 1033 0.041 0.017	AF RAC (μg/kg) PECsed,max (μg/kg) 1560.000 727.897	10 ≥ 100000 0.016 0.007
470 Csw,max g/L) 0.091 0.038 0.031	≥ 963 0.044 0.018	400 0.107 0.044		0.032	0.041	RAC (μg/kg) PECsed,max (μg/kg) 1560.000	≥ 100000 0.016 0.007
Csw,max g/L) 0.091 0.038 0.031	0.044	0.107 0.044 50 0.036 50 50	6.034 o	0.032	0.041	(µg/kg) РЕСsed,max (µg/kg) 1560.000 727.897	0.016
g/L) 0.091 0.038 0.031	0.018	0.044 5 0.036 5 5	6.034 o	0.032	0.017	PECsed,max (μg/kg) 1560.000 727.897	0.007
g/L) 0.091 0.038 0.031	0.018	0.044 5 0.036 5 5	6.034 o	0.032	0.017	(μg/kg) 1560.000 727.897	0.007
0.091 0.038 0.031	0.018	0.044 5 0.036 5 5	0.034°	0.032	0.017	1560.000	0.007
0.038 0.031	0.018	0.044 5 0.036 5 5	0.034°	0.032	0.017	727.897	0.007
0.038 0.031	0.018	0.044 5 0.036 5 5	0.034°	0.013	0.017	727.897	0.007
0.031		0.044 5° 0.036 5° 5°	27 27 27				
0.031		0.044 5° 0.036 5° 5°	0.012				
	0.015	0.036	0.012	0.011	0.014	500 016	
0.004		6120			0.014	590.246	0.006
0.004		343 ¢			·		
	0.002	0.005 0 10 10 < 0.004 0 0.004 0	0.002	0.001	0.002	2.537	< 0.001
< 0.001	< 0.001	< 0.000 05	< 0.001	< 0.001	< 0.001	2.037	< 0.001
0.004	0.002		0.001	0.001	0.002	0.203	< 0.001
< 0.001	< 0.001	≈ 8,00 1	< 0.001	< 0.001	< 0.001	2.081	< 0.001
0.004	0.002	0.005	0.001	0.001	0.002	0.541	< 0.001
< 0.001	< 0.001	€ 0.001	< 0.001	< 0.001	< 0.001	2.024	< 0.001
0.003	0.001	0.003	0.001	< 0.001	0.001	1.358	< 0.001
0.004	0.002 5 5	0.004	0.001	0.001	0.002	13.100	< 0.001
0.004	0.002 8 8	0.005	0.001	0.001	0.002	23.140	< 0.001
0.003	0.008	0.003	0.001	< 0.001	0.001	7.161	< 0.001
r; PEC: Predicted environm	ental concentration; RA	C: Regulatory acce	ptable concentration;	PEC/RAC ratios ab	ove the relevant trigg	jer of 1 are shown -	in bold
	< 0.001 0.004 < 0.001 0.003 0.004 0.004 0.004	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

Table CP 10-04-14: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in normality of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in normality of the use of MON 52276 in norma 3 calculations for the use of MON 52276 in pome/stone fruit (3 × 720 g a.s./ha, with application interval of 28 days). Uses 4 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell
r			F		prolonged	Algae	Aquatic macrophytes		prolonged
Fest species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema costatum	Myriophyllum aquaticum		Chironomus riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	Exession of	ErC ₅₀	Endpoint	NOEC
μg/L)		47000	≥ 9630	40000	12500	EaC 50 5	10330	(μg/kg)	≥ 1000000
<u>+</u> •		100	10	100	10 5	wn. <	10	AF	10
RAC		470	≥ 963	400	1250 5 1250	<u>1</u> 350	1033	RAC	≥ 100000
(µg/L)	DEC				2° 2° 2° 2°			(µg/kg)	
FOCUS Scenario	PEC _{sw,max} (µg/L)				6.102 °			PEC _{sed,max} (µg/kg)	
Step 1	•				CC 23 M				
	128.016	0.272	0.133	0.320	0.102	0.095	0.124	4690.000	0.047
Step 2	•				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				
N-Europe	30.607	0.065	0.032	0.077 10 10 10 10 10 10 10 10 10 10 10 10 10	0.020	0.023	0.030	1260.000	0.013
-Europe	25.017	0.053	0.026	0.063	0.020	0.019	0.024	1020.000	0.010
tep 3									
03/ditch	1.899	0.004	0.002	0.005	0.002	0.001	0.002	3.362	< 0.001
04/pond	0.138	< 0.001	< 0.001	< 0.000 0	< 0.001	< 0.001	< 0.001	3.778	< 0.001
04/stream	1.679	0.004	0.002	0.004	0.001	0.001	0.002	0.337	< 0.001
05/pond	0.140	< 0.001	< 0.001	\$0,001	< 0.001	< 0.001	< 0.001	4.165	< 0.001
05/stream	1.854	0.004	0.002	20.005	0.001	0.001	0.002	1.010	< 0.001
1	0.134	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	4.958	< 0.001
R1/stream	1.388	0.003	0.001	0.003	0.001	0.001	0.001	4.428	< 0.001
R2/stream	1.762	0.004	0.0028 5 5	0.004	0.001	0.001	0.002	46.210	< 0.001
R3/stream	1.853	0.004	0.002 8 8	0.005	0.001	0.001	0.002	29.010	< 0.001
R4/stream	2.397	0.005	0.002	0.006	0.002	0.002	0.002	23.020	< 0.001
lyphosate Re	enewal Group AIR 5 -	- July 2020	U.Ugz & tal concontration; RA	e. Regulatory accep			Doc ID	: 110054-MCP10_GR	G_Rev 1_Jul_2020

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Table CP 10-04-15: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in olives (1 × 720 g a.s./ha). Uses 4 a -c.</td> Group Fish acute Fish prolonged Inverteb coute Inverteb cou

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae ,			Sed. dwell.
- · r			, Freedow		prolonged	Algae	macrophytes		prolonged
Test		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema?	Myriophyllum		Chironomus
species		macrochirus	mykiss	gigas		costatum 8 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC 3 5 5 13500 5 105 5	ErC ₅₀	Endpoint	NOEC
(µg/L)		47000	\geq 9630	40000	12500	13500 5	10330	(µg/kg)	\geq 1000000
AF		100	10	100	10	105 3	10	AF	10
RAC		470	≥ 963	400		4350 4350	1033	RAC	\geq 100000
(µg/L)								(µg/kg)	
FOCUS	PEC _{sw,max}				220	5		PECsed,max	
Scenario	(µg/L)							(µg/kg)	
Step 1		•	·						
	42.672	0.091	0.044	0.107	0.034	0.032	0.041	1560.000	0.016
Step 2		•	·		6.2.0			•	
N-Europe	17.648	0.038	0.018	0.044	0.014	0.013	0.017	727.897	0.007
S-Europe	14.397	0.031	0.015	0.036	0.012	0.011	0.014	590.246	0.006
Step 3				0.005	S.				
D6/ditch	1.907	0.004	0.002	0.005	0.002	0.001	0.002	6.973	< 0.001
R4/stream	1.311	0.003	0.001	0.003	0.001	< 0.001	0.001	9.064	< 0.001
		Ŕ	0.001 tal concentration; RA						
Glyphosate R	enewal Group AIR 5	- July 2020	\$ 				Doc ID	9: 110054-MCP10_C	GRG_Rev 1_Jul_2020

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Table CP 10-04-16: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</th> 3 calculations for the use of MON 52276 in olives $(3 \times 720 \text{ g a.s./ha}, \text{ with application interval of 28 days})$. Uses 4 a-c.

Cara	Γ	T71-1 4		T T T	Tarana (1	Algae		Τ	0.1.1.1
Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes		Sed. dwell. prolonged
Test		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema	Myriophyllum		Chironomus
species		macrochirus	mykiss	gigas	- apinina mugnu	costatum 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E _r C ₅₀ , 5, 5 13500, 6 10, 5	E_rC_{50}	Endpoint	NOEC
(μg/L)		47000	≥ 9630	40000	12500	13500 50	10330	(µg/kg)	\geq 1000000
AF		100	10	100	10	10, 3	10	AF	10
RAC		470	≥ 963	400	1250 (1) 1250 (1) 5 (10, 3 \$350	1033	RAC	≥ 100000
(µg/L)					S.S.J.			(µg/kg)	
FOCUS	PEC _{sw,max}				220			PEC _{sed,max}	
Scenario	(µg/L)							(µg/kg)	
Step 1									
	128.016	0.272	0.133	0.320	0,102,002,00	0.095	0.124	4690.000	0.047
Step 2					§.024				
N-Europe		0.065	0.032	0.077	0.024	0.023	0.030	1260.000	0.013
S-Europe	25.017	0.053	0.026	0.063	0.020	0.019	0.024	1020.000	0.010
Step 3				0.005					
D6/ditch	1.907	0.004	0.002	0.005	0.002	0.001	0.002	12.080	< 0.001
R4/stream	2.733	0.006	0.003	0.007 8 5	0.002	0.002	0.003	27.420	< 0.001
			0.003 tal concentration; RAU	16 CC 29 D CO 20 C 16					
Glyphosate R	enewal Group AIR 5	- July 2020					Doc ID	0: 110054-MCP10_0	GRG_Rev 1_Jul_2020

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Table CP 10-04-17: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in vines (1 × 720 g a.s./ha). Uses 5 a-c.</td> Group Fish acute Fish prolonged Invorteb and 1

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae			Sed. dwell. prolonged
Test		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema &	Myriophyllum		Chironomus
species		macrochirus	mykiss	gigas		costatum 8 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E _r C ₅₅ , 5, 5 13500, 6 10,5	E_rC_{50}	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13500 0	10330	(µg/kg)	≥ 1000000
AF		100	10	100	10	10, 3	10	AF	10
RAC		470	≥ 963	400	1250	\$350	1033	RAC	≥ 100000
(µg/L)					1250	\$350 \$		(µg/kg)	
FOCUS	PEC _{sw,max}					<u>5</u>		PECsed,max	
Scenario	(µg/L)							(µg/kg)	
Step 1									
	42.672	0.091	0.044	0.107	0.034	0.032	0.041	1560.000	0.016
Step 2	•	- 4	•		6.8 0 6.8 0	•	•		
N-Europe	17.648	0.038	0.018	0.044	0.014	0.013	0.017	727.897	0.007
S-Europe	14.397	0.031	0.015	0.036	0.012	0.011	0.014	590.246	0.006
Step 3	1	I			S.		I		
D6/ditch	1.907	0.004	0.002	0.005	0.002	0.001	0.002	6.973	< 0.001
R1/pond	0.120	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	2.017	< 0.001
R1/stream	1.312	0.003	0.001	0.003	0.001	< 0.001	0.001	1.343	< 0.001
R2/stream	1.762	0.004	0.002	0.004	0.001	0.001	0.002	13.070	< 0.001
R3/stream	1.853	0.004	0.002	0,005	0.001	0.001	0.002	22.850	< 0.001
R4/stream	1.311	0.003	0.001		0.001	< 0.001	0.001	8.137	< 0.001
u . 100000			0.001 to the second sec				ve the relevant trigg		n oord
Jlyphosate Re	enewal Group AIR 5	- July 2020 50 50 50 50 50 50 50 50 50 50 50 50 50					Doc ID	: 110054-MCP10_G	RG_Rev 1_Jul_2020

Table CP 10-04-18: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in view (2 × 720 m = 1).</td> 3 calculations for the use of MON 52276 in vines (3 × 720 g a.s./ha, with application interval of 28 days). Uses 5 a-c. ~

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes		Sed. dwell. prolonged
Test		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema	Myriophyllum		Chironomus
species		macrochirus	mykiss	gigas		costatum 5 E.C. 50 13500	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E.C.50 5	E_rC_{50}	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13500	10330	(µg/kg)	≥ 1000000
AF		100	10	100	10 10	. training 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	10	AF	10
RAC		470	≥ 963	400	1250	1350	1033	RAC	\geq 100000
(µg/L)						22		(µg/kg)	
FOCUS	PEC _{sw,max}							PEC _{sed,max}	
Scenario	(µg/L)				26.5			(µg/kg)	
Step 1			•					•	
	128.016	0.272	0.133	0.320	10.1012 C1	0.095	0.124	4690.000	0.047
Step 2		•	•	0.077			•	•	
N-Europe	30.607	0.065	0.032	0.077	0.024	0.023	0.030	1260.000	0.013
S-Europe	25.017	0.053	0.026	0.063	0.020	0.019	0.024	1020.000	0.010
Step 3		1	I	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				1	
D6/ditch	1.907	0.004	0.002	0.005	0.002	0.001	0.002	12.080	< 0.001
R1/pond	0.134	< 0.001	< 0.001	< 0.000 0	< 0.001	< 0.001	< 0.001	4.933	< 0.001
R1/stream	1.353	0.003	0.001	0.003 3	0.001	0.001	0.001	4.386	< 0.001
R2/stream	1.762	0.004	0.002	0.004	0.001	0.001	0.002	46.280	< 0.001
R3/stream	1.853	0.004	0.002	0,005	0.001	0.001	0.002	28.620	< 0.001
R4/stream	2.775	0.006	0.003	0.007	0.002	0.002	0.003	25.340	< 0.001
n". ASSESSI	nent laciol, FEC: P		0.003 Contraction; RAG				ve me rerevant u'igg		
3lyphosate Ro	enewal Group AIR 5 -	- July 2020 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5					Doc ID	9: 110054-MCP10_G	RG_Rev 1_Jul_2020

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Table CP 10-04-19: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</td> 2 relevantion Steps 1, 2 and 3 calculations for the use of MON 52276 in vegetables, root (1 × 1440 g a.s./ha). Covers uses 1 a-c, 2 a-c, 6 a-c, 10 a-c.

-				1	× č	S. C	1	
	Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell.
					A CHARACT			prolonged
	Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema	Myriophyllum		Chironomus
	macrochirus	mykiss	gigas			aquaticum		riparius
	LC ₅₀	NOEC	EC50	NOEC	Ecco	E_rC_{50}	Endpoint	NOEC
	47000	\geq 9630	40000	12500	13500	10330	(µg/kg)	≥ 1000000
	100	10	100	10 (1)		10	AF	10
	470	≥ 963	400	1250	1350	1033	RAC (µg/kg)	≥ 100000
PEC _{sw,max}					1			
(µg/L)				S. S. S			(µg/kg)	
	•		1	R. C. N. C.	•	•	1	
85.344	0.182	0.089	0.213	£068 °	0.063	0.083	3130.000	0.031
			Jo.	N. C.	•	•		
35.296	0.075	0.037			0.026	0.034	1460.000	0.015
28.794	0.061	0.030	0.072		0.021	0.028	1180.000	0.012
			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	•		•		
9.019	0.019	0.009	0.023	0.007	0.007	0.009	8.284	< 0.001
9.043	0.019	0.009	0.023 2 2	0.007	0.007	0.009	13.850	< 0.001
0.307	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	13.290	< 0.001
5.945	0.013	0.006		0.005	0.004	0.006	114.900	0.001
7.979	0.017			0.006	0.006	0.008	973.300	0.010
7.979	0.017	0.008 5	<b>Ø</b> .020	0.006	0.006	0.008	736.800	0.007
8.393	0.018	0.009	0.021	0.007	0.006	0.008	25.250	< 0.001
5.870	0.012	0.006 5 5 5	0.015	0.005	0.004	0.006	29.270	< 0.001
	85.344 35.296 28.794 9.019 9.043 0.307 5.945 7.979 7.979 8.393	Lepomis macrochirus           LC ₅₀ 47000           100           470           PEC _{sw,max} (µg/L)           85.344           0.182           35.296           0.075           28.794           0.061           9.019           0.019           0.307           < 0.001	Lepomis macrochirusOncorhynchus mykissLC50 47000NOEC $\geq 9630$ 10010470 $\geq 963$ PECsw,max (µg/L) $\geq 963$ 85.3440.1820.08935.2960.0750.03728.7940.0610.0099.0190.0190.0090.307< 0.001	Lepomis macrochirusOncorhynchus mykissCrassostrea gigasLC50 47000NOECEC50 400001001010010010100470 $\geq 963$ 400PECsw,max (µg/L) $= 963$ 40085.3440.1820.0890.2130.0370.0890.213 $= 90.19$ 9.0190.0190.0090.0239.0190.0190.0090.0239.0430.0190.0090.0230.307< 0.001	Lepomis macrochirusOncorhynchus mykissCrassostrea gigasDaphnia magna $LC_{50}$ NOEC $EC_{50}$ NOEC $47000$ $\geq 9630$ $40000$ $12500$ $100$ 1010010 $470$ $\geq 963$ $400$ $12500$ $963$ $400$ $12500$ $1000$ $470$ $\geq 963$ $400$ $12500$ $963$ $400$ $12500$ $1000$ $963$ $0.089$ $0.213$ $9008$ $85.344$ $0.182$ $0.099$ $0.023$ $0.007$ $9.019$ $0.019$ $0.009$ $0.023$ $0.007$ $9.019$ $0.019$ $0.009$ $0.023$ $0.007$ $9.043$ $0.019$ $0.006$ $0.001$ $0.005$ $7.979$ $0.017$ $0.008$ $0.020$ $0.006$ $7.979$ $0.017$ $0.008$ $6020$ $0.006$ $8.393$ $0.018$ $0.009$ $0.021$ $0.007$	Fish acuteFish prolongedInverteb. acuteInverteb. prolongedAlgaeLepomis macrochirusOncorhynchus mykissCrassostrea gigasDaphnia magna costatumSkeletonema costatumLC50NOECEC50NOECEC50Steletonema costatum100101001010104700 $\geq$ 9634000012500135004700 $\geq$ 963400125014550PECsw,max (µg/L) $\sim$ 96340012501455085.3440.1820.0890.21360680.06355.2960.0750.0370.0880.9280.02628.7940.0610.0300.0726.0230.0079.0190.0190.0090.0230.0070.0079.0430.0190.0090.0230.001<0.001	Fish acuteFish prolongedInverteb. acuteInverteb. prolongedAlgasAquatic macrophytes $Lepomis$ macrochirusOncorhynchus mykissCrassostrea gigasDaphnia magna costatutSkeletonena o costatutMyriophyllum aquaticum $LC_{50}$ 47000NOECEC50 9630NOECEC50 12500TS50010330100101001010103304700 $\geq 963$ 40001250195010330PEC.w.max (µg/L)1010010101033PEC.sw.max (µg/L)0.0890.21360680.0630.0839.0190.1820.0890.21360280.0260.03428.7940.0610.0300.0726.0230.0210.0099.0190.1190.0090.0230.0070.0070.0090.307< 0.001	Fish acuteFish prolongedInverteb. acuteInverteb. prolongedAlgasAquatic macrophytesLepomis macrochirusOncorhynchus mykissCrassostrea gigasDaphnia magnaSkeletonema costaurMyriophyllum aquaticumLC50 47000NOEC $\geq 9630$ ECo 40000NOEC 12500ECo F1500ECo 10330Endpoint (µg/kg)1001010101010AF470 $\geq 963$ 400125013501033RAC (µg/kg)PECswmax (µg/L) $\sim$ $\sim$ $\sim$ $\sim$ $\sim$ 85.3440.1820.0890.213 $@068$ 0.0630.0833130.00035.2960.0750.0370.0880.02280.0260.0341460.00028.7940.0610.0090.023 $\sim$ 0.0070.0070.0098.2849.0430.0190.0090.023 $\sim$ 0.0070.001 $<$ 0.01113.8500.307 $<$ 0.0130.0660.0060.0040.00614.9005.9450.0130.0060.0060.0060.008973.3009.0190.0170.008 $<$ 0.0210.0060.0060.008973.6009.7970.0170.008 $<$ 0.0200.0060.0060.008973.6009.7970.0180.008 $<$ 0.0210.0060.0060.00825.250

J Contraction of the second se AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold



## Table CP 10-04-20: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</td> 2 relevantion Steps 1, 2 and 3 calculations for the use of MON 52276 in potatoes (1 × 1440 g a.s./ha). Covers uses 1/a-c, 2 a-c, 6 a-c, 10 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell
- · · · · <b>r</b> ′			Fi cronged		prolonged	Algae	macrophytes		prolonged
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema costatum	Myriophyllum aquaticum		Chironomus riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E8050	ErC ₅₀	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13,500	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	10 10	2 64	10	AF	10
RAC (µg/L)		470	≥ 963	400	10 1250	1350	1033	RAC (µg/kg)	≥ 100000
FOCUS	PEC _{sw,max}							PECsed,max	
Scenario	(µg/L)				6 5 5 6 6 8 5 6 6 8 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			(µg/kg)	
Step 1	•				No Child	•		•	
	85.344	0.182	0.089	0.213	£.068 °	0.063	0.083	3130.000	0.031
Step 2		-1		e e e e e e e e e e e e e e e e e e e				4	
N-Europe	35.296	0.075	0.037	0.088 5	0.028	0.026	0.034	1460.000	0.015
S-Europe	28.794	0.061	0.030	0.072	0.023	0.021	0.028	1180.000	0.012
Step 3		-1		0.088 K ^C K ^C	4			4	
D3/ditch	7.433	0.016	0.008	0.019	0.006	0.006	0.007	5.117	< 0.001
D4/pond	0.294	< 0.001	< 0.001	< 0.000	< 0.001	< 0.001	< 0.001	4.603	< 0.001
D4/stream	6.324	0.013	0.007	0.016 3	0.005	0.005	0.006	0.396	< 0.001
D6/ditch	7.484	0.016	0.008	0,019	0.006	0.006	0.007	15.270	< 0.001
D6/ditch 2nd	7.507	0.016	0.008	0.019	0.006	0.006	0.007	26.820	< 0.001
R1/pond	0.419	< 0.001		<b>Ø</b> .001	< 0.001	< 0.001	< 0.001	20.880	< 0.001
R1/stream	5.156	0.011	0.005	0.013	0.004	0.004	0.005	181.900	0.002
R2/stream	6.920	0.015	0.007.5 5 5	0.017	0.006	0.005	0.007	1185.300	0.012
R3/stream	7.277	0.015		0.018	0.006	0.005	0.007	346.200	0.003
Ar: Assessme	nt tactor; PEC: P	- July 2020	10.008 (8) 50° ntal concentration; RA	C: Kegulatory accept	able concentration; 1	ΥΈU/ΚΑÜ ratios abo	ve tne relevant trigge Doc ID	er of 1 are shown in : 110054-MCP10_GR	bold G_Rev 1_Jul_2020

		197 197 197 197 197 197
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Table CP 10-04-21:Aquatic organisms:3 calculations for the use of MON 52276 i	: acceptability of risk (PEC/RAC < 1) for glyphosate for in vegetables, bulb (1 × 1440 g a.s./ha). <i>Covers uses 1 a-c,</i>	each organism group based on FOCUS Steps 1, 2 and 2 a-c, 6 a-c, 10 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae 🖉			Sed. dwell.
1			r r s.		prolonged	Algae	macrophytes		prolonged
Test species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema 5	Myriophyllum		Chironomus
···· <b>I</b> ·····		macrochirus	mykiss	gigas		costatum 8 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E _r C ₁₀ , 5, 5 13500, 5 10, 5	E _r C ₅₀	Endpoint	NOEC
(µg/L)		47000	≥9630	40000	12500	13500 5	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	10	10, 3	10	AF	10
RAC (µg/L)		470	≥963	400		10, 3 \$350	1033	RAC (µg/kg)	≥ 100000
FOCUS	PEC _{sw,max}					^N		PEC _{sed,max}	
Scenario	(μg/L)							(μg/kg)	
Step 1					10 10 10 10 10 10 10 10 10 10 10 10 10 1			488/	
1	85.344	0.182	0.089	0.213	0.068 5 5	0.063	0.083	3130.000	0.031
Step 2					0.068 5 K				
N-Europe	35.296	0.075	0.037	0.088	0.028	0.026	0.034	1460.000	0.015
S-Europe	28.794	0.061	0.030	0.072 30 ⁰	0.023	0.021	0.028	1180.000	0.012
Step 3	1	1		0.022	S.	1	1	1	
D3/ditch	8.987	0.019	0.009	0.022 545 5	0.007	0.007	0.009	5.840	< 0.001
D4/pond	0.303	< 0.001	< 0.001	< 0.001 8	< 0.001	< 0.001	< 0.001	4.709	< 0.001
D4/stream	7.106	0.015	0.007	0.048 2 2	0.006	0.005	0.007	0.339	< 0.001
D6/ditch	9.082	0.019	0.009	0.023	0.007	0.007	0.009	30.900	< 0.001
D6/ditch 2nd	9.082	0.019	0.009	0.023	0.007	0.007	0.009	31.250	< 0.001
R1/pond	0.408	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	20.320	< 0.001
R1/stream	5.945	0.013	0.006	Ø.015	0.005	0.004	0.006	181.000	0.002
R2/stream	7.979	0.017	0.008 0.0	0.020	0.006	0.006	0.008	972.900	0.010
R3/stream	8.391	0.018	0.009	0.021	0.007	0.006	0.008	17.410	< 0.001
R4/stream	5.944	0.013		0.015	0.005	0.004	0.006	29.180	< 0.001
Ar: Assessmen Blyphosate Renev	wal Group AIR 5 -	July 2020	0.006 (* 8° tal consentration; RA	C: Regulatory accept	aole concentration; 1	r ευ/κάυ fatios ado	ve me reievant trigge Doc ID	r of 1 are shown ir : 110054-MCP10_GF	G_Rev 1_Jul_2020

## Table CP 10-04-22: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</td> 3 calculations for the use of MON 52276 in vegetables, fruiting (1 × 1440 g a.s./ha). Covers uses 1 a-c, 2 a-c, 6 a-c, 10 a-c.

<u> </u>		<b>F</b> ! 1	<b>D</b> '1 1 1		<b>T</b> ( <b>1</b>				<u> </u>
Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell.
<b>F</b> (				C i	prolonged	and a start of	macrophytes		prolonged
Гest		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna				Chironomus
species		macrochirus	mykiss	gigas		costatum 5	aquaticum		riparius
Endpoint		$LC_{50}$	NOEC	EC ₅₀	NOEC	E3C 58 5 13500	$E_rC_{50}$	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13500	10330	(µg/kg)	$\geq$ 1000000
AF		100	10	100	10 1	\$0 <u>5</u>	10	AF	10
RAC		470	≥ 963	400	1250	1350	1033	RAC	$\geq 100000$
(µg/L)					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			(µg/kg)	
FOCUS	PEC _{sw,max}							PECsed,max	
Scenario	(µg/L)							(µg/kg)	
Step 1					0.068 0 0.068 0 0.068 0 0.068 0			<u>.</u>	
	85.344	0.182	0.089	0.213	0.068 0	0.063	0.083	3130.000	0.031
Step 2	•	-		le l				•	1
N-Europe	35.296	0.075	0.037	0.088	0.028	0.026	0.034	1460.000	0.015
S-Europe	28.794	0.061	0.030	0.072	0.023	0.021	0.028	1180.000	0.012
Step 3				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					
<u> </u>	9.064	0.019	0.009	0.023	0.007	0.007	0.009	23.440	< 0.001
R2/stream	7.979	0.017	0.008	0.020	0.006	0.006	0.008	1186.900	0.012
R3/stream		0.018	0.009	0.021	0.007	0.006	0.008	347.100	0.003
л . лээсээl	nent factor, f EC. F				asic concentration, I		ve are relevant trigg		ni oolu
Glyphosate R&	enewal Group AIR 5 -	- July 2020 65 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0.006 E				Doc ID	: 110054-MCP10_C	RG_Rev 1_Jul_2020

## Table CP 10-04-23: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</td> 3 calculations for the use of MON 52276 in vegetables, leafy (1 × 1440 g a.s./ha). Covers uses 1 a-c, 2 a-c, 6 a-c, 10 a-c.

Test species Endpoint (µg/L)	Lepomis macrochirus LC ₅₀	Oncorhynchus mykiss	Crassostrea		Algae	macrophytes		prolonged
(μg/L)			gigas	Daphnia magna	Skeletonema costatum	Myriophyllum aquaticum		Chironomus riparius
		NOEC	EC ₅₀	NOEC	E30555	ErC50	Endpoint	NOEC
	47000	≥ 9630	40000	12500	13500	10330	(µg/kg)	$\geq 1000000$
AF	100	10	100	10 (11)	2 64	10	AF	10
RAC (µg/L)	470	≥ 963	400	1250 00 00 00 00 00 00 00 00 00 00 00 00 0	1350	1033	RAC (µg/kg)	≥ 100000
FOCUS PECs	w,max						PECsed,max	
Scenario (µg	/L)			0.028			(µg/kg)	
Step 1	·		·	R C N C	•			
85.344	0.182	0.089	0.213	6.068 0	0.063	0.083	3130.000	0.031
Step 2			e e					I
N-Europe 35.296	0.075	0.037	0.088	0.028	0.026	0.034	1460.000	0.015
Europe 28.794	0.061	0.030	0.072 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0.028	0.021	0.028	1180.000	0.012
tep 3			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	4				I.
03/ditch 9.017	0.019	0.009	0.023	0.007	0.007	0.009	8.127	< 0.001
D3/ditch 2 nd 9.010	0.019	0.009		0.007	0.007	0.009	7.427	< 0.001
04/pond 0.303	< 0.001	< 0.001	<0.001×	< 0.001	< 0.001	< 0.001	4.727	< 0.001
04/stream 7.249	0.015	0.008	0.018	0.006	0.005	0.007	0.425	< 0.001
06/ditch 9.082	0.019	0.009	0.023	0.007	0.007	0.009	32.200	< 0.001
R1/pond 0.308	< 0.001	< 0.001	€ 0.001	< 0.001	< 0.001	< 0.001	12.140	< 0.001
R1/pond 2 nd 0.801	0.002	< 0.001 20 20	0.002	< 0.001	< 0.001	< 0.001	33.560	< 0.001
R1/stream 5.942	0.013	0.006 5 5 5	0.015	0.005	0.004	0.006	117.100	0.001
21/stream 2 nd 5.939	0.013	0.006 5 5 5 0.006 5 5 0.008 5	0.015	0.005	0.004	0.006	672.800	0.007
2/stream 7.979	0.017	0.008	0.020	0.006	0.006	0.008	973.500	0.010
2/stream 2 nd 7.979	0.017	0,008	0.020	0.006	0.006	0.008	1026.000	0.010
R3/stream 8.393	0.018	.0.009	0.021	0.007	0.006	0.008	400.100	0.004

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#### Table CP 10-04-23: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in vegetables, leafy (1 × 1440 g a.s./ha). Covers uses 1 a-c, 2 a-c, 6 a-c, 10 a-c.

Group	1	Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell
		Tish acute	Fish prolonged	Inverteb. acute	prolonged	Algae	macrophytes		prolonged
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema 5 costatum 5 8	Myriophyllum aquaticum		Chironomus riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E _r C ₃₀ , 5, 5 13500, 5 10, 5	E _r C ₅₀	Endpoint	NOEC
(μg/L)		47000	≥ 9630	40000	12500	13500 50	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	10	10, 3	10	AF	10
RAC (µg/L)		470	≥963	400	10 1250 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1350	1033	RAC (µg/kg)	≥ 100000
FOCUS	PEC _{sw,max}					^N		PEC _{sed,max}	
Scenario	(µg/L)							(µg/kg)	
R3/stream 2nd		0.018	0.009	0.021	0.007	0.006	0.008	346.800	0.003
P//stream	5 0//	0.013	0.006	0.015	0.085 5 0	0.004	0.006	256 900	0.003
R4/stream 2nd	5.944	0.013	0.006	0.015	0.003	0.004	0.006	472.800	0.005
				6.6.2					
			0.000 0.000 1tal concentration; RA						

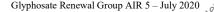
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		A A A A A A A A A A A A A A A A A A A	
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## Table CP 10-04-24: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</th> 3 calculations for the use of MON 52276 in sugar beets (1 × 1440 g a.s./ha). Covers uses f a.e., 2 a-c, 6 a-c, 10 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell
<b>T</b> (		<b>T</b>			prolonged		macrophytes		prolonged
Test		Lepomis	<b>Oncorhynchus</b>	Crassostrea	Daphnia magna	Skeletonema 5 costatum 8 8	Myriophyllum		Chironomus
species		macrochirus	<i>mykiss</i> NOEC	gigas	NOEC	costatum 8 8	aquaticum	Frader alter 4	riparius NOEC
Endpoint		LC ₅₀ 47000		EC ₅₀ 40000	12500	$E_r C_{\mathfrak{M}} $	E _r C ₅₀ 10330	Endpoint	
(µg/L) AF		100	≥ 9630 10	100	12300	E _r C ₅₅ , 5, 5 13500, 6 10, 5	10330	(µg/kg) AF	$\geq 1000000$ 10
AF RAC		470	$\geq$ 963	400	10 1250 k ¹⁵	10, 2 93,50	10	AF RAC	≥ 100000
		470	≥ 903	400	1250	84230	1055	RAC (µg/kg)	≥ 100000
(µg/L) FOCUS	PEC _{sw,max}					<u>j</u>		PECsed,max	
FOCUS Scenario					1000 100 100 100 100 100 100 100 100 10				
	(µg/L)				1250 Land Construction			(µg/kg)	
Step 1	85.344	0.182	0.089	0.213	0,06853,10	0.063	0.083	3130.000	0.031
Stop 2	03.344	0.102	0.007		0.66880 11.	0.005	0.005	5150.000	0.031
Step 2 N-Europe	35.296	0.075	0.037	0.088	1.028 ]0.028	0.026	0.034	1460.000	0.015
-				0.088	0.028				
S-Europe	28.794	0.061	0.030	0.072	0.023	0.021	0.028	1180.000	0.012
Step 3	7 422	0.016	0.000	0.019		0.000	0.007	5.076	.0.001
D3/ditch	7.432	0.016	0.008		0.006	0.006	0.007	5.076	< 0.001
D4/pond	0.294	< 0.001	< 0.001	< 100.0 >	< 0.001	< 0.001	< 0.001	4.461	< 0.001
D4/stream	6.516	0.014	0.007	0.016 2 2 0.002 2 0.013	0.005	0.005	0.006	0.630	< 0.001
R1/pond	0.617	0.001	< 0.001	0.002 ~	< 0.001	< 0.001	< 0.001	27.950	< 0.001
R1/stream		0.011	0:005	80 La	0.004	0.004	0.005	273.900	0.003
R3/stream	7.277	0.015	0.008	0,918	0.006	0.005	0.007	346.000	0.003
		50	0.008						
3lyphosate Ro	enewal Group AIR 5	– July 2020	÷				Doc ID	: 110054-MCP10_G	RG_Rev 1_Jul_2020

## 3 calculations for the use of MON 52276 in pome/stone fruit (1 × 1440 g a.s./ha). Uses 4 a-c. 8

	Fish acute	Fish prolonged	Inverteb. acute		Algae	Aquatic		Sed. dwell
				prolonged	No o o	macrophytes		prolonged
	Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Chalaton and a	Myriophyllum		Chironomus
	macrochirus	mykiss	gigas		costatum 8	aquaticum		riparius
	LC ₅₀		EC50	NOEC	E	ErC ₅₀	Endpoint	NOEC
	47000	≥9630	40000	12500	13,500		(µg/kg)	$\geq 1000000$
	100	10	100	10 10		10	AF	10
	470	≥963	400	1250	1350	1033	RAC	$\geq$ 100000
				10 20 C	Š		(µg/kg)	
PEC _{sw,max}							PECsed,max	
(µg/L)				E & S			(µg/kg)	
				17. 19.00 19.00				
85.344	0.182	0.089	0.213	10.000 m	0.063	0.083	3130.000	0.031
			e e	10°0				
35.296	0.075	0.037	0.000	0.028	0.026	0.034	1460.000	0.015
28.794	0.061	0.030	0.072	0.023	0.021	0.028	1180.000	0.012
·			_~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					
3.814	0.008	0.004	0.010 2 2	0.003	0.003	0.004	5.064	< 0.001
0.242	< 0.001	< 0.001	< 0.000	< 0.001	< 0.001	< 0.001	3.951	< 0.001
3.372	0.007	0.004	0.008	0.003	0.002	0.003	0.408	< 0.001
0.242	< 0.001	< 0.001	\$0.001	< 0.001	< 0.001	< 0.001	4.040	< 0.001
3.724	0.008	0.004	0.009	0.003	0.003	0.004	1.086	< 0.001
0.242	< 0.001	< 0.001	≪ 0.001	< 0.001	< 0.001	< 0.001	3.983	< 0.001
2.635	0.006	0.003 03 5	0.007	0.002	0.002	0.003	2.348	< 0.001
3.538	0.008	0.004 5 5 5	0.009	0.003	0.003	0.003	23.880	< 0.001
3.721	0.008	0.004	0.009	0.003	0.003	0.004	41.680	< 0.001
2.635	0.006	0.003	0.007	0.002	0.002	0.003	12.200	< 0.001
enewal Group AIR 5 -	- July 2020		8 7 1			Doc ID	: 110054-MCP10_GR	G_Rev 1_Jul_2020
	(μg/L) 85.344 35.296 28.794 3.814 0.242 3.372 0.242 3.724 0.242 2.635 3.538 3.721 2.625	Lepomis macrochirus $LC_{50}$ 47000           100           470           85.344           0.182           35.296           0.075           28.794           0.008           0.242           < 0.001	Lepomis macrochirus         Oncorhynchus mykiss $LC_{50}$ NOEC           47000 $\geq$ 9630           100         10           470 $\geq$ 963 <b>PECsw,max</b> (µg/L) $=$ 963           85.344         0.182         0.089           35.296         0.075         0.037           28.794         0.061         0.030           3.814         0.008         0.004           0.242         < 0.001	Lepomis         Oncorhynchus         Crassostrea $\mu acrochirus$ mykiss         gigas $LC_{50}$ NOEC $EC_{50}$ 47000 $\geq$ 9630         40000           100         10         100           470 $\geq$ 963         400 $\Psi 70$ $\geq$ 963         0.01 $\Psi 70$ $\geq$ 963         0.01 $\Psi 70$ $\geq$ 963         0.01 $\Psi 70$ $\geq$ 963         0.088 $\Psi 70$ $=$ 963         0.213 $35.296$ $0.075$ $0.037$ $0.088$ $28.794$ $0.008$ $0.004$ $0.010$ </td <td>Lepomis         Oncorhynchus         Crassostrea         Daphnia magna           $LC_{50}$         NOEC         $EC_{50}$         NOEC         $IC_{50}$         NOEC           $100$         10         100         10         100         10         100           $470$ $\geq 963$ $40000$         12500         1250         100         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         <t< td=""><td>Lepomis macrochirusOncorhynchus mykissCrassostrea gigasDaphnia magna costatum costatum solutionLC $_{50}$NOECEC $_{50}$NOECEG $_{50}$47000$\geq 9630$40000125001350010010100100470$\geq 963$40012501350PEC sw.max (µg/L)2963400125035085.3440.1820.0890.21360680.0635.2960.0750.0370.0880.0220.02628.7940.0610.0300.0726.0230.0213.8140.0080.0040.010$\leq 0.001$&lt;0.001</td>3.720.0070.0040.0080.0030.0020.242&lt; 0.001</t<></td> < 0.001	Lepomis         Oncorhynchus         Crassostrea         Daphnia magna $LC_{50}$ NOEC $EC_{50}$ NOEC $IC_{50}$ NOEC $100$ 10         100         10         100         10         100 $470$ $\geq 963$ $40000$ 12500         1250         100         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10 <t< td=""><td>Lepomis macrochirusOncorhynchus mykissCrassostrea gigasDaphnia magna costatum costatum solutionLC $_{50}$NOECEC $_{50}$NOECEG $_{50}$47000$\geq 9630$40000125001350010010100100470$\geq 963$40012501350PEC sw.max (µg/L)2963400125035085.3440.1820.0890.21360680.0635.2960.0750.0370.0880.0220.02628.7940.0610.0300.0726.0230.0213.8140.0080.0040.010$\leq 0.001$&lt;0.001</td>3.720.0070.0040.0080.0030.0020.242&lt; 0.001</t<>	Lepomis macrochirusOncorhynchus mykissCrassostrea gigasDaphnia magna costatum costatum solutionLC $_{50}$ NOECEC $_{50}$ NOECEG $_{50}$ 47000 $\geq 9630$ 40000125001350010010100100470 $\geq 963$ 40012501350PEC sw.max (µg/L)2963400125035085.3440.1820.0890.21360680.0635.2960.0750.0370.0880.0220.02628.7940.0610.0300.0726.0230.0213.8140.0080.0040.010 $\leq 0.001$ <0.001	Leponis         Oncorhynchus         Crassostrea         Daphnia magna         Skeletonema         Myriophyllum $LC_{50}$ NOEC $E_{50}$ NOEC $E_{50}$ NOEC $E_{50}$ $Costauar$ $aquaticum$ $100$ 10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         10         100         100         100         100         100         100         100         100         100         100         100         100         100	Leponis macrochirusOncorhynchus mykissCrassostrea gigasDaphnia magna costatuaSkelegienas costatuaMyriophyllum aquaticumLC30 47000NOECEC30 9630NOECEC30 10330Endpoint (µg/kg)10010100101350010330 (µg/kg)470 $\geq 963$ 400012500135001033 10330RAC (µg/kg)PECsw.max (µg/L) $\geq 963$ 4001250 $\$50$ 1033RAC (µg/kg)PECsw.max (µg/L) $\geq 963$ 4001250 $\$50$ 1033RAC (µg/kg)PECsw.max (µg/L) $\geq 963$ 4001250 $\$50$ 1033RAC (µg/kg)PECsw.max (µg/L) $\geq 963$ 0.00110 $\$50$ 1033RAC (µg/kg)Skele 0.0750.0370.0880.0630.0833130.00035.2960.0750.0370.0880.0260.0341460.00028.7940.0610.001 $< 0.001$ $< 0.001$ $< 0.001$ $< 0.001$ $< 0.001$ 3.8140.0080.0040.0050.0030.0030.004 $< 0.001$ 3.7200.0070.004 $$0.008$ 0.0030.0030.0041.0860.242 $< 0.001$ $< 0.001$ $< 0.001$ $< 0.001$ $< 0.001$ $< 0.001$ $< 0.001$ 3.7240.0080.004 $0.006$ 0.0030.0030.0030.004 $< 0.001$ 3.5350.0060.003 $0.007$ <td< td=""></td<>



## Table CP 10-04-26: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in normality of mile (2) 1440 3 calculations for the use of MON 52276 in pome/stone fruit (2 × 1440 g a.s./ha, with application interval of 28 days). Uses 4 a-c. 488

Fish acute         Lepomis         macrochirus         LC ₅₀ 47000         100         470         ax         0.363         0.112         0.092         0.008         < 0.001	Fish prolonged         Oncorhynchus         mykiss         NOEC         ≥ 9630         10         ≥ 963         0.0         0.177         0.055         0.045	0.132 50 ft 0.108 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1250	Algae Skeletonema costatum ESE 50 13500 1350 0.126 0.039 0.032	Aquatic           macrophytes           Myriophyllum           aquaticum           ErC50           10330           10           1033           0.165           0.051           0.042	Endpoint (μg/kg) AF RAC (μg/kg) PEC _{sed,max} (μg/kg) 6260.000 2170.000 1770.000	Sed. dwell           prolonged           Chironomus           riparius           NOEC           ≥ 1000000           10           ≥ 1000000           0           0.063           0.022           0.018
macrochirus           LC ₅₀ 47000           100           470           ax           0.363           0.112           0.092           0.008	mykiss         NOEC         ≥ 9630         10         ≥ 963         0.177         0.055         0.045	gigas           EC ₅₀ 40000           100           400           0.000           0.132           0.108           0.108	Daphnia magna NOEC 12500 10 1250 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Skeletonema costatum 13500 13500 1350 0.126 0.039	Myriophyllum aquaticum           ErC ₅₀ 10330           10           1033           0.165           0.051	(µg/kg) AF RAC (µg/kg) PECsed,max (µg/kg) 6260.000 2170.000	Chironomus         riparius         NOEC         ≥ 1000000         10         ≥ 100000         0.063         0.022
LC ₅₀ 47000 100 470 ax 0.363 0.112 0.092 0.008	NOEC         ≥ 9630         10         ≥ 963         0.177         0.055         0.045	EC ₅₀ 40000 100 400 0.427 0.132 0.108 0.108	12500 10 1250 0 0 0 0 0 0 0 0 0 0 0 0 0	costajun         6           E         5           13500         6           40         5           40         5           1350         6           0.126         0.039	aquaticum ErC ₅₀ 10330 10 1033 0.165 0.051	(µg/kg) AF RAC (µg/kg) PECsed,max (µg/kg) 6260.000 2170.000	NOEC         ≥ 1000000         10         ≥ 100000         0.063         0.022
47000 100 470 ax 0.363 0.112 0.092 0.008	$\geq 9630$ 10 $\geq 963$ 0.177 0.055 0.045	40000 100 400 0.427 0.132 0.108 0.00 0.108	12500 10 1250 0 0 0 0 0 0 0 0 0 0 0 0 0	0.126 0.039	10330         10         1033         0.165         0.051	(µg/kg) AF RAC (µg/kg) PECsed,max (µg/kg) 6260.000 2170.000	≥ 1000000 10 ≥ 100000 0.063
100         470         ax         0.363         0.112         0.092         0.008	10         ≥ 963         0.177         0.055         0.045	100       400       0.427       0.132       0.108       0.5	10 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 12	0.126 0.039	10 1033 0.165 0.051	AF RAC (μg/kg) PECsed,max (μg/kg) 6260.000	10         ≥ 100000         0.063         0.022
470 ax 0.363 0.112 0.092 0.008	≥ 963 0.177 0.055 0.045	400 0.427 0.132 0.108 0.108 0.108	1250	0.126 0.039	0.165	RAC         (μg/kg)           PECsed,max         (μg/kg)           6260.000         2170.000	≥ 100000 0.063
ax 0.363 0.112 0.092 0.008	0.177 0.055 0.045	0.427 0.132 0.108 0.108	0.035	0.126	0.165	(µg/kg) PECsed,max (µg/kg) 6260.000 2170.000	0.063
0.363	0.055 0.045	0.132 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108	0.035	0.126	0.051	PECsed,max (μg/kg) 6260.000 2170.000	0.022
0.363	0.055 0.045	0.132 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108	0.035	0.126	0.051	(µg/kg) 6260.000 2170.000	0.022
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0.008		0.108	0.035	0.032	0.042	1770.000	0.018
	0.004	_~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					0.010
	0.004	0.010			·		
< 0.001		0.010	0.003	0.003	0.004	6.511	< 0.001
~ 0.001	< 0.001	< 0.001°, 00	< 0.001	< 0.001	< 0.001	6.084	< 0.001
0.007	0.004	0.008	0.003	0.002	0.003	0.522	< 0.001
< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	6.473	< 0.001
0.008	0.004	20,009	0.003	0.003	0.004	1.686	< 0.001
< 0.001	< 0.001	≪ 0.001	< 0.001	< 0.001	< 0.001	7.076	< 0.001
0.006	0.003	0.007	0.002	0.002	0.003	4.937	< 0.001
0.008	0.004 5 5	0.009	0.003	0.003	0.003	54.810	< 0.001
0.008	0.004 8 8	0.009	0.003	0.003	0.004	41.680	< 0.001
0.007	0.003	0.008	0.003	0.002	0.003	23.160	< 0.001
C: Predicted environmen	tal concontration; RA	C: Regulatory accept	able concentration; I	PEC/RAC ratios abo	ve the relevant trigge Doc ID	er of 1 are shown	in bold ;RG_Rev 1_Jul_2020
	0.007 C: Predicted environmer	C: Predicted environmental concentration; RA	0.007     0.008       C: Predicted environmental concentration; RAC: Regulatory accept       R 5 – July 2020	0.007     0.008     0.003       C: Predicted environmental concentration; RAC: Regulatory acceptable concentration; I       R 5 – July 2020	0.007     0.003     0.002       C: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios about the second	0.007     0.008     0.003     0.002     0.003       C: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger       R 5 – July 2020     0.003     0.003     0.002     0.003	0.007       0.008       0.003       0.003       23.160         C: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown         R 5 – July 2020       Doc ID: 110054-MCP10_C

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Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes		Sed. dwell prolonged
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema costatum	Myriophyllum aquaticum		Chironomus riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	EXC	E _r C ₅₀	Endpoint	NOEC
μg/L)		47000	≥ 9630	40000	12500	E3C 50 5 13500	10330	(µg/kg)	≥ 1000000
4F		100	10	100	10 🔊	80.5	10	AF	10
RAC		470	$\geq$ 963	400	1250	1350	1033	RAC	≥ 100000
(μg/L)							1000	(µg/kg)	_ 100000
FOCUS	PEC _{sw,max}							PEC _{sed,max}	
Scenario	$(\mu g/L)$				S.S.S.			(μg/kg)	
Step 1	(148, 2)			I		I	1	(r*8'-*8/	
r -	85.344	0.182	0.089	0.213	0.068	0.063	0.083	3130.000	0.031
Step 2	1 -	-		le l					
N-Europe	35.296	0.075	0.037	0.088	0.028	0.026	0.034	1460.000	0.015
S-Europe	28.794	0.061	0.030	0.072	0.023	0.021	0.028	1180.000	0.012
Step 3						-			
D6/ditch	3.830	0.008	0.004	0.010 20 20	0.003	0.003	0.004	13.750	< 0.001
				0.007					
		80,	0.003 tal concentration; RA						
Glyphosate R	enewal Group AIR 5 -	- July 2020	Q.				Doc ID	: 110054-MCP10_G	RG_Rev 1_Jul_2020

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## Table CP 10-04-28: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</th> 3 calculations for the use of MON 52276 in olives (2 × 1440 g a.s./ha, with application interval of 28 days). Uses 4 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	S & Aquatic		Sed. dwell.
Group		Fish acute	rish protongeu	inverteb. acute	prolonged	Algae	macrophytes		prolonged
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema &	Myriophyllum aquaticum		Chironomus riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC Strate	E _r C ₅₀	Endpoint	NOEC
(μg/L)		47000	≥ 9630	40000	12500	13500	10330	μg/kg)	$\geq$ 1000000
AF		100	10	100		E _r C ₅₅ 5 5 13500 5 105 5	10	AF	10
RAC		470	≥ 963	400	1250 الألك	\$350	1033	RAC	≥ 100000
(µg/L)								(µg/kg)	
FOCUS	PEC _{sw,max}					S ^a		PEC _{sed,max}	
Scenario	(μg/L)				AL AND			(µg/kg)	
Step 1	(18)								
•	170.688	0.363	0.177	0.427	0.1370	0.126	0.165	6260.000	0.063
Step 2					1 2 2 2 1 2 2 2 2 1 2 2 2 2 1 2 2 2				
N-Europe	52.829	0.112	0.055	0.132	0.042	0.039	0.051	2170.000	0.022
S-Europe	43.176	0.092	0.045	0.108	0,035	0.032	0.042	1770.000	0.018
Step 3					S.				
D6/ditch	3.830	0.008	0.004	0.010 0 4 6	0.003	0.003	0.004	20.590	< 0.001
R4/stream	4.511	0.010	0.005	0.015 8 5	0.004	0.003	0.004	30.420	< 0.001
			0.005 tal concentration; RAU	16 CC 29 D CO 20 C 16					
Glyphosate R	tenewal Group AIR 5	- July 2020					Doc IE	D: 110054-MCP10_0	GRG_Rev 1_Jul_2020

# Table CP 10-04-29: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in vines (1 × 1440 g a.s./ha). Uses 5 a-c.</td> Group Fish acute Fish prolonged Invorteb Invorte

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell
					prolonged	Algae	macrophytes		prolonged
Гest		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skolotonom a S	Myriophyllum		Chironomus
species		macrochirus	mykiss	gigas		costatum 8 8	aquaticum		riparius
Endpoint		$LC_{50}$	NOEC	EC ₅₀	NOEC	ErC 3 6 6	$E_rC_{50}$	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13500 6	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	10	10	10	AF	10
RAC		470	≥ 963	400	1250 (1250	\$350	1033	RAC	$\geq 100000$
(µg/L)						\$350 \$350		(µg/kg)	
FOCUS	PEC _{sw,max}				2			PEC _{sed,max}	
Scenario	(µg/L)							(µg/kg)	
Step 1					660				
	85.344	0.182	0.089	0.213	0.0685	0.063	0.083	3130.000	0.031
Step 2				3					
N-Europe	35.296	0.075	0.037	0.088	0.028	0.026	0.034	1460.000	0.015
S-Europe	28.794	0.061	0.030	0.072	0.023	0.021	0.028	1180.000	0.012
Step 3					S.				
D6/ditch	3.830	0.008	0.004	0.010 0 4 6	0.003	0.003	0.004	13.750	< 0.001
R1/pond	0.242	< 0.001	< 0.001	< 0.091 % 50	< 0.001	< 0.001	< 0.001	3.967	< 0.001
R1/stream	2.635	0.006	0.003	0.007 0 0	0.002	0.002	0.003	2.318	< 0.001
R2/stream	3.538	0.008	0.004	0.007 5 5 0.009 5 0.009	0.003	0.003	0.003	23.830	< 0.001
R3/stream	3.721	0.008	0.004	0.009	0.003	0.003	0.004	41.180	< 0.001
R4/stream	2.635	0.006	0.003		0.002	0.002	0.003	14.000	< 0.001
		0 0	0.003 to the formation of the formation	, ·					
Glyphosate Re	enewal Group AIR 5	- July 2020					Doc ID	: 110054-MCP10_G	RG_Rev 1_Jul_2020

### Table CP 10-04-30: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</td> 3 calculations for the use of MON 52276 in vines (2 × 1440 g a.s./ha, with application interval of 28 days). Uses 5 a-c. ~

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algan	Aquatic		Sed. dwell.
Group		risii acute	rish protonged	Inverteb. acute	prolonged	Algae	macrophytes		prolonged
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas		Skeletonema costatum	Myriophyllum aquaticum		Chironomus riparius
 Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	Ed 50	ErC ₅₀	Endpoint	NOEC
(µg/L)		47000	≥9630	40000	12500	E3C 50 5	10330	(µg/kg)	$\geq$ 1000000
AF		100	10	100	10 10	\$0	10	AF	10
RAC (µg/L)		470	≥ 963	400	1250	1350	1033	RAC (µg/kg)	≥ 100000
FOCUS Scenario	PEC _{sw,max} (µg/L)				S S S			PECsed,max (µg/kg)	
Step 1	•	·			ICH DO WIN			·	
	170.688	0.363	0.177	0.427	0.137 0 0.137 0	0.126	0.165	6260.000	0.063
Step 2				^o					
N-Europe	52.829	0.112	0.055	0.132	0.042	0.039	0.051	2170.000	0.022
S-Europe	43.176	0.092	0.045	0.108	0.035	0.032	0.042	1770.000	0.018
Step 3					•				·
D6/ditch	3.830	0.008	0.004	0.010 6 5	0.003	0.003	0.004	20.590	< 0.001
R1/pond	0.267	< 0.001	< 0.001	0.010 2 5 < 0.004 5 0.007 5	< 0.001	< 0.001	< 0.001	7.041	< 0.001
R1/stream	2.635	0.006	0.003	0.0	0.002	0.002	0.003	4.889	< 0.001
R2/stream	3.538	0.008	0.004	0,009	0.003	0.003	0.003	54.840	< 0.001
R3/stream	3.721	0.008	0.004	0.009	0.003	0.003	0.004	41.180	< 0.001
R4/stream	4.363	0.009	0.005	0.011	0.003	0.003	0.004	27.890	< 0.001
		A CONTROLLING	0.005 6 5 tal concentration; RA	e. regulatory accept			ie nie reievant urgg		
Glyphosate R	enewal Group AIR 5 -	- July 2020 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5					Doc II	D: 110054-MCP10_G	RG_Rev 1_Jul_2020

## Table CP 10-04-31: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</td> 3 calculations for the use of MON 52276 in vegetables, root ( $1 \times 540$ g a.s./ha). Uses 3a - e.

	1			1	1	×° ×			1
Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell.
					prolonged		macrophytes		prolonged
Test species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema	Myriophyllum		Chironomus
		macrochirus	mykiss	gigas		costatun 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E.C.50 S	ErC ₅₀	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13500	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	10 (1)	40 ×	10	AF	10
RAC (µg/L)		470	≥963	400	1250	1350	1033	RAC	≥ 100000
FOCUS	PEC _{sw,max}					5		(µg/kg) PECsed,max	
Scenario	(µg/L)							(µg/kg)	
Step 1	T	1	1	1			T	1	
	32.004	0.068	0.033		£.026°	0.024	0.031	1170.000	0.012
Step 2				Contraction of the second seco	 				
N-Europe	13.236	0.028	0.014		0.011	0.010	0.013	545.923	0.005
S-Europe	10.798	0.023	0.011	0.027	0.009	0.008	0.010	442.684	0.004
Step 3				2745 6	•				
D3/ditch	3.366	0.007	0.003	0.008	0.003	0.002	0.003	3.114	< 0.001
D6/ditch	3.375	0.007	0.004	0.008 0 0	0.003	0.003	0.003	5.245	< 0.001
R1/pond	0.113	< 0.001	< 0.001	<0.0012	< 0.001	< 0.001	< 0.001	4.885	< 0.001
R1/stream	2.218	0.005		0.006	0.002	0.002	0.002	54.310	< 0.001
R2/stream	2.978	0.006	0.003	0.007	0.002	0.002	0.003	392.400	0.004
R2/stream 2nd	2.978	0.006		<b>9</b> .007	0.002	0.002	0.003	304.700	0.003
R3/stream	3.132	0.007	0.003 0.003	0.008	0.003	0.002	0.003	11.300	< 0.001
R4/stream	2.189	0.005	0.002 5 5 5	0.005	0.002	0.002	0.002	13.950	< 0.001
	1	1		1		1	1		1

Jetter of the state of the stat AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold



Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes		Sed. dwell prolonged
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema costatum	Myriophyllum aquaticum		Chironomus riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E2C563 6 13500	ErC50	Endpoint	NOEC
(µg/L)		47000	$\geq$ 9630	40000	12500	13500	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	10 (1)	40 ×	10	AF	10
RAC (µg/L)		470	≥ 963	400	1250	1350	1033	RAC (µg/kg)	≥ 100000
FOCUS	PEC _{sw,max}							PEC _{sed,max}	
Scenario	(μg/L)				5.5.5			(µg/kg)	
Step 1					6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2				
	32.004	0.068	0.033	0.080		0.024	0.031	1170.000	0.012
Step 2				e and a second					L
N-Europe	13.236	0.028	0.014	0.000	0 01 1	0.010	0.013	545.923	0.005
S-Europe	10.798	0.023	0.011	0.027	0.009	0.008	0.010	442.684	0.004
Step 3				0.027	0.009				
D3/ditch	2.773	0.006	0.003	0.007	0.002	0.002	0.003	1.918	< 0.001
D4/pond	0.109	< 0.001	< 0.001	< 0.000	< 0.001	< 0.001	< 0.001	1.802	< 0.001
D4/stream	2.359	0.005	0.002	0.006	0.002	0.002	0.002	0.148	< 0.001
D6/ditch	2.792	0.006	0.003	0,007	0.002	0.002	0.003	5.806	< 0.001
D6/ditch 2 nd	2.801	0.006	0.003	0.007	0.002	0.002	0.003	10.330	< 0.001
R1/pond	0.110	< 0.001	< 0.001	€ 0.001	< 0.001	< 0.001	< 0.001	7.503	< 0.001
R1/stream	1.922	0.004	0.002	0.005	0.002	0.001	0.002	85.520	< 0.001
R2/stream	2.582	0.005	0.003 5 5 5	0.006	0.002	0.002	0.002	465.200	0.005
R3/stream	2.715	0.006	0.003	0.007	0.002	0.002	0.003	158.600	0.002
lyphosate Renev	val Group AIR 5 -	- July 2020	10.003 (89 50 ntal concentration; RA	er regumer) are p			Doc ID	: 110054-MCP10_0	GRG_Rev 1_Jul_2020

## Table CP 10-04-33: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</th> 2 relevant 1 and 3 calculations for the use of MON 52276 in vegetables, bulb ( $1 \times 540$ g a.s./ha). Uses $3a \approx c$

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.		Aquatia		Sed. dwell.
			1 0		prolonged	Algae	macrophytes		prolonged
Test species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema S	Myriophyllum		Chironomus
		macrochirus	mykiss	gigas		costatum 8 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC 5 6 6 13500 6 105 6	$E_rC_{50}$	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13500 5	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	10	105 3	10	AF	10
RAC (µg/L)		470	≥ 963	400		4350	1033	RAC (µg/kg)	≥ 100000
FOCUS	PEC _{sw,max}					6 [°]		PEC _{sed,max}	
Scenario	(µg/L)							(µg/kg)	
Step 1	•	-1			S.S.S			-	4
	32.004	0.068	0.033	0.080	0.026	0.024	0.031	1170.000	0.012
Step 2		•				•			-
N-Europe	13.236	0.028	0.014	0.033	0.011	0.010	0.013	545.923	0.005
S-Europe	10.798	0.023	0.011	10.027 8 2	0,009	0.008	0.010	442.684	0.004
Step 3					S.	1			
D3/ditch	3.354	0.007	0.003	0.008 545 5	0.003	0.002	0.003	2.190	< 0.001
D4/pond	0.112	< 0.001	< 0.001	< 0.001 8 5	< 0.001	< 0.001	< 0.001	1.844	< 0.001
D4/stream	2.651	0.006	0.003	0.007 2 0	0.002	0.002	0.003	0.127	< 0.001
D6/ditch	3.390	0.007	0.004	0.008 3	0.003	0.003	0.003	11.890	< 0.001
D6/ditch 2nd	3.390	0.007	0.004	0.008	0.003	0.003	0.003	12.030	< 0.001
R1/pond	0.113	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	7.301	< 0.001
R1/stream	2.218	0.005	0.002	Ø.006	0.002	0.002	0.002	84.970	< 0.001
R2/stream	2.978	0.006	0.003 0 5	0.007	0.002	0.002	0.003	392.300	0.004
R3/stream	3.132	0.007	0.003 5 5 5	0.008	0.003	0.002	0.003	7.717	< 0.001
R4/stream	2.217	0.005	0.000	0.006	0.002	0.002	0.002	13.990	< 0.001
AF: Assessmen	t Iactor; PEC: P	- July 2020	10.002 (89.50) ntal concentration; RA	C: Regulatory accept	able concentration;	ΥΕC/ΚΑC ratios abo	ve the relevant trigg Doc ID	er of 1 are shown in 9: 110054-MCP10_GR	bold G_Rev 1_Jul_2020

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### Table CP 10-04-34: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</td> A coloradiations for the new of MON 52256. 3 calculations for the use of MON 52276 in vegetables, fruiting (1 × 540 g a.s./ha), Uses 3u - c. 8

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell.
Group		Fish acute	r isn proiongeu	inverteb. acute	prolonged	Algae	macrophytes		prolonged
Гest		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonetia	Myriophyllum		Chironomus
species		macrochirus	mykiss	gigas		costatum 5	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC		ErC ₅₀	Endpoint	NOEC
(μg/L)		47000	≥ 9630	40000	12500	E2C505 5 135005	10330	(μg/kg)	$\geq$ 1000000
AF		100	10	100	10 10	10,0	10	AF	10
RAC		470	≥ 963	400	1250	1350	1033	RAC	$\geq$ 100000
(µg/L)								(µg/kg)	
FOCUS	PEC _{sw,max}							PEC _{sed,max}	
Scenario	(µg/L)				S S S S S S S S S S S S S S S S S S S			(µg/kg)	
Step 1		•			Ch Los M	•			H
	32.004	0.068	0.033	0.080	0.026	0.024	0.031	1170.000	0.012
Step 2		1	1	le la		1		1	1
N-Europe	13.236	0.028	0.014	0.033	0011	0.010	0.013	545.923	0.005
S-Europe	10.798	0.023	0.011	0.027	0.009	0.008	0.010	442.684	0.004
Step 3				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					
D6/ditch	3.383	0.007	0.004	0.008 8 5	0.003	0.003	0.003	8.982	< 0.001
R2/stream	2.978	0.006	0.003	0.007 0 0	0.002	0.002	0.003	465.800	0.005
R3/stream		0.007	0.003	0.008	0.003	0.002	0.003	159.100	0.002
R4/stream	2.217	0.005	0.002	0,006	0.002	0.002	0.002	39.820	< 0.001
		8.	0.002 Concentration: RAM	**					
Glyphosate Ro	enewal Group AIR 5 -	- July 2020	ð`				Doc ID	: 110054-MCP10_C	GRG_Rev 1_Jul_2020

## 3 calculations for the use of MON 52276 in vegetables, leafy ( $1 \times 540$ g a.s./ha). Uses $3.0 \approx c$ .

Test species Endpoint	Lepomis macrochirus	0		Inverteb. prolonged	Algae	Aquatic macrophytes		Sed. dwell. prolonged
*	much o chini mb	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonemia costatum	Myriophyllum aquaticum		Chironomus riparius
-	$LC_{50}$	NOEC	EC ₅₀	NOEC	EC 50 S	ErC ₅₀	Endpoint	NOEC
(µg/L)	47000	≥ 9630	40000	12500	EaC 50 5 13500	10330	(µg/kg)	$\geq 1000000$
AF	100	10	100	10	and the second second	10	AF	10
RAC (µg/L)	470	≥ 963	400	10 1250 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (	1350	1033	RAC (µg/kg)	≥ 100000
FOCUS PEC	sw,max						PEC _{sed,max}	
Scenario (µg	g/L)			6 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5			(µg/kg)	
Step 1		·	•	R C N C	•			
32.004	0.068	0.033	0.080		0.024	0.031	1170.000	0.012
Step 2		1	lo l			1	1	
N-Europe 13.236	0.028	0.014	0.033 50	0.011	0.010	0.013	545.923	0.005
Europe 10.798	0.023	0.011		0.011 0.009	0.008	0.010	442.684	0.004
tep 3		1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	4		1	1	I.
03/ditch 3.366	0.007	0.003	$0.008 \times0^{\circ} .0^{\circ}$	0.003	0.002	0.003	3.055	< 0.001
D3/ditch 2 nd 3.363	0.007	0.003		0.003	0.002	0.003	2.789	< 0.001
0.112 0.112	< 0.001	< 0.001	S0.001	< 0.001	< 0.001	< 0.001	1.851	< 0.001
04/stream 2.705	0.006	0.003	0.007	0.002	0.002	0.003	0.159	< 0.001
06/ditch 3.390	0.007	0.004	0.008	0.003	0.003	0.003	12.400	< 0.001
R1/pond 0.113	< 0.001	< 0.001 6 5	€ 0.001	< 0.001	< 0.001	< 0.001	4.468	< 0.001
R1/pond 2 nd 0.221	< 0.001	< 0.001 5 5 5	< 0.001	< 0.001	< 0.001	< 0.001	12.370	< 0.001
R1/stream 2.216	0.005	0.002 5 5 5	0.006	0.002	0.002	0.002	53.170	< 0.001
R1/stream 2 nd 2.215	0.005	0.002 5 5 5 0.002 5 5	0.006	0.002	0.002	0.002	273.800	0.003
2/stream 2.978	0.006	0.003	0.007	0.002	0.002	0.003	392.400	0.004
2/stream 2 nd 2.978	0.006	0,003	0.007	0.002	0.002	0.003	421.600	0.004
R3/stream 3.132	0.007	0.003	0.008	0.003	0.002	0.003	158.600	0.002

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## Table CP 10-04-35: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organismi group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in vegetables, leafy (1 × 540 g a.s./ha). Uses 3a

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae 💊			Sed. dwell
Group		risii acute	rish protongeu	Inverteb. acute	prolonged	Algae	macrophytes		prolonged
Test species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skalaton	Myriophyllum		Chironomus
i est species		<i>macrochirus</i>	mykiss	gigas	Dapania magna	Skeletonema & costatum & &	aquaticum		riparius
Endpoint		LC ₅₀		EC ₅₀	NOEC	E.C.	E _r C ₅₀	Endpoint	NOEC
(μg/L)		47000	≥ 9630	40000	12500	13500	10330	(µg/kg)	≥ 1000000
AF		100	10	100	10	E _r C ₃₀ , 5, 5 13500, 5 10, 5	10	(µg/kg) AF	10
AAC (µg/L)		470	$\geq$ 963	400	1250	100 0	1033	RAC	≥ 100000
Kite (µg/L)		170	_ )05	100	1250 juint	4350 5	1055	(μg/kg)	_ 100000
FOCUS	PEC _{sw,max}							PEC _{sed,max}	
Scenario	(µg/L)							(µg/kg)	
R3/stream 2nd		0.007	0.003	0.008	0.003	0.002	0.003	159.000	0.002
P//stream	2 217	0.005	0.002	0.006	0.000 ~ ~ ~	0.002	0.002	112.300	0.001
R4/stream 2nd	2.217	0.005	0.002	0.006	0.002	0.002	0.002	206.300	0.002
			0.002 0.002 ntal concentration; RA						
		Ś							

# Table CP 10-04-36: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in sugar beets (1 × 540 g a.s./ha). Uses 3 a-cc</td> Group Fish acute Fish prolonged Inverteb courte Inverteb courte

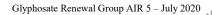
Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic Records Aquatic		Sed. dwell. prolonged
Test		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema 5	Myriophyllum		Chironomus
species		macrochirus	mykiss	gigas		costatum 8 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E _r C ₅₀ , 5, 5 13500, 6 10, 5	$E_rC_{50}$	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13500 5	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	10	10, 3	10	AF	10
RAC		470	≥963	400		10, 3 \$350	1033	RAC	$\geq 100000$
(µg/L)								(µg/kg)	
FOCUS	PEC _{sw,max}							PECsed,max	
Scenario	(µg/L)							(µg/kg)	
Step 1									
	32.004	0.068	0.033	0.080	0,026	0.024	0.031	1170.000	0.012
Step 2					£ 2.0				
N-Europe	13.236	0.028	0.014	0.033	0.091	0.010	0.013	545.923	0.005
S-Europe	10.798	0.023	0.011	0.027	0.009	0.008	0.010	442.684	0.004
Step 3	•				S.				
D3/ditch	2.773	0.006	0.003	0.027 $5$ $6$ $6$ $1007$ $5$ $6$ $6$ $1007$ $5$ $6$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $5$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $1007$ $10007$ $10007$ $10007$ $10007$ $1007$ $1$	0.002	0.002	0.003	1.903	< 0.001
D4/pond	0.109	< 0.001	< 0.001	1 0.001 X 1	< 0.001	< 0.001	< 0.001	1.751	< 0.001
D4/stream	2.431	0.005	0.003	0.006	0.002	0.002	0.002	0.235	< 0.001
R1/pond	0.157	< 0.001	< 0.001	< 100.0	< 0.001	< 0.001	< 0.001	9.834	< 0.001
R1/stream	1.922	0.004	0.002	0,005	0.002	0.001	0.002	122.800	0.001
R3/stream	2.715	0.006	0.003	0.907	0.002	0.002	0.003	158.600	0.002
	,		0.003						
Glyphosate Re	enewal Group AIR 5 -	- July 2020 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5					Doc ID	: 110054-MCP10_C	RG_Rev 1_Jul_2020

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## Table CP 10-04-37: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</td> 3 calculations for the use of MON 52276 in vegetables, root (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

	1		1		1	×° ×	<u>0.00</u>	1	
Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell.
					prolonged	N. 7 9	macrophytes		prolonged
Test species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema	Myriophyllum		Chironomus
		macrochirus	mykiss	gigas		costatum 5	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC50	NOEC	E.C.56 S	ErC ₅₀	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	13500	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	10 (1)	40 ×	10	AF	10
RAC (µg/L)		470	≥ 963	400	1250	1440	1033	RAC (µg/kg)	≥ 100000
FOCUS	PEC _{sw,max}							PEC _{sed,max}	
Scenario	(µg/L)							(µg/kg)	
Step 1		•		I.			•	1	
	128.016	0.272	0.133	0.320	<u>&amp;102 °</u>	0.095	0.124	4690.000	0.047
Step 2	1				~ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			1	
N-Europe	39.622	0.084	0.041		0.032	0.029	0.038	1630.000	0.016
S-Europe	32.382	0.069	0.034	0.081	0.026	0.024	0.031	1330.000	0.013
Step 3	-1	•		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	•			4	
D3/ditch	6.756	0.014	0.007		0.005	0.005	0.007	7.557	< 0.001
D6/ditch	6.774	0.014	0.007		0.005	0.005	0.007	26.450	< 0.001
R1/pond	0.542	0.001	< 0.001	0.001 1	< 0.001	< 0.001	< 0.001	25.090	< 0.001
R1/stream	4.453	0.009	0.005	0.011	0.004	0.003	0.004	203.100	0.002
R2/stream	5.977	0.013		0.015	0.005	0.004	0.006	1316.700	0.013
R2/stream 2nd	5.977	0.013	0.006	Ø.015	0.005	0.004	0.006	1275.000	0.013
R3/stream	6.287	0.013	0.007 0.007	0.016	0.005	0.005	0.006	77.270	< 0.001
R4/stream	4.396	0.009	0.005 5 5 5	0.011	0.004	0.003	0.004	97.080	< 0.001
	C DEC D	1	- <u>~</u> ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	1	. 1 1		1	1	1 11

Jecondo de la construcción de la AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold



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#### Table CP 10-04-38: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</th> 3 calculations for the use of MON 52276 in potatoes (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c. × 8 2

			- 1			N N			
Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell.
					prolonged		macrophytes		prolonged
Test species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema	Myriophyllum		Chironomus
		macrochirus	mykiss	gigas		costatum 8 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC	ErC ₅₀	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	ErC ₁₀ 5 5	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	110		10	AF	10
RAC (µg/L)		470	≥963	400	1250	\$350	1033	RAC	$\geq$ 100000
					1250 juint	¥350		(µg/kg)	
FOCUS	PEC _{sw,max}				10 4 8 10 4 8			PECsed,max	
Scenario	(µg/L)				A C.S			(µg/kg)	
Step 1	•			•	De S	•	•	•	
	128.016	0.272	0.133	0.320	0.102 3 8	0.095	0.124	4690.000	0.047
Step 2					6 6 6 8 2 2				
N-Europe	39.622	0.084	0.041	0.099	0.032	0.029	0.038	1630.000	0.016
S-Europe	32.382	0.069	0.034		0.026	0.024	0.031	1330.000	0.013
Step 3	•	1			S.	•	•	•	
D3/ditch	5.567	0.012	0.006	0.014 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	0.004	0.004	0.005	5.402	< 0.001
D4/pond	0.252	< 0.001	< 0.001	< 0.001 8	< 0.001	< 0.001	< 0.001	5.458	< 0.001
D4/stream	4.736	0.010	0.005	0.042 2 2	0.004	0.004	0.005	0.440	< 0.001
D6/ditch	5.605	0.012	0.006	0.014	0.004	0.004	0.005	11.510	< 0.001
D6/ditch 2nd	5.622	0.012	0.006	0,014	0.004	0.004	0.005	20.290	< 0.001
R1/pond	0.902	0.002	< 0.001	0,002	< 0.001	< 0.001	< 0.001	38.010	< 0.001
R1/stream	3.861	0.008		<b>9</b> .010	0.003	0.003	0.004	320.200	0.003
R2/stream	5.183	0.011	0.005 5 5	0.013	0.004	0.004	0.005	1156.400	0.012
R3/stream	5.451	0.012	0.006 5 5 5	0.014	0.004	0.004	0.005	585.200	0.006
		1		1				1	

.d's contraction of the contract AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

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### Table CP 10-04-39: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in vegetables, bulb (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatia		Sed. dwell
					prolonged	Algae	macrophytes		prolonged
Test species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema 8	Myriophyllum		Chironomus
		macrochirus	mykiss	gigas		costatum 8 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E _r C ₃₀ , 5, 5 13500, 6 10,5 5	$E_rC_{50}$	Endpoint	NOEC
(µg/L)		47000	$\geq$ 9630	40000	12500	13500 5	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	10	10	10	AF	10
RAC (µg/L)		470	≥963	400		4350 4350	1033	RAC (μg/kg)	$\geq$ 100000
FOCUS	PEC _{sw,max}				6	<u>s</u>		PECsed,max	
Scenario	ι ECsw,max (μg/L)							ι ECsed,max (µg/kg)	
Step 1	(µg/L)				S S S			(µg/ Kg)	
sup 1	128.016	0.272	0.133	0.320	0 162 2 2	0.095	0.124	4690.000	0.047
Step 2	120.010	0.272	0.155	0.520	0.102 5 5 0.032 0.032 0.026	0.075	0.124	4090.000	0.047
N-Europe	39.622	0.084	0.041	0.099	0.032	0.029	0.038	1630.000	0.016
S-Europe	32.382	0.069	0.034	0.081	0.026	0.024	0.031	1330.000	0.013
Step 3				A 12	Store Store				
D3/ditch	6.732	0.014	0.007	0.017 545 5	0.005	0.005	0.007	6.022	< 0.001
D4/pond	0.260	< 0.001	< 0.001	< 0.001 .0 .0	< 0.001	< 0.001	< 0.001	5.620	< 0.001
D4/stream	5.323	0.011	0.006	0.013 0 0	0.004	0.004	0.005	0.411	< 0.001
D6/ditch	6.803	0.014	0.007	0.017	0.005	0.005	0.007	34.230	< 0.001
D6/ditch 2nd	6.803	0.014	0.007	0.017	0.005	0.005	0.007	34.130	< 0.001
R1/pond	0.888	0.002	< 0.001	0,002	< 0.001	< 0.001	< 0.001	37.120	< 0.001
R1/stream	4.453	0.009	0.005	Ø.011	0.004	0.003	0.004	320.200	0.003
R2/stream	5.977	0.013	0.006	0.015	0.005	0.004	0.006	1316.200	0.013
R3/stream	6.286	0.013	0.007.5 5 5	0.016	0.005	0.005	0.006	70.680	< 0.001
R4/stream	4.452	0.009	0.000	0.011	0.004	0.003	0.004	46.370	< 0.001
AF: Assessment	t tactor; PEC: Pr	July 2020	0.005 (%) Some final concentration; RA	C: Regulatory accept	able concentration; l	PEC/RAC ratios abo	ve the relevant trigg Doc ID	er of 1 are shown i : 110054-MCP10_G	n bold RG_Rev 1_Jul_2020

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## Table CP 10-04-40: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organismi group based on FOCUS Steps 1, 2 and</th> 3 calculations for the use of MON 52276 in vegetables, fruiting (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae			Sed. dwell. prolonged
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema 5 costatum 8	Myriophyllum aquaticum		Chironomus riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC 50 5 5	$E_rC_{50}$	Endpoint	NOEC
(μg/L)		47000	≥ 9630	40000	12500	13500 5	10330	(μg/kg)	$\geq$ 1000000
AF		100	10	100	10	E _r C ₅₀ , 5, 5 13500, 6 10, 5	10	AF	10
RAC		470	≥ 963	400	1250	\$350	1033	RAC	≥ 100000
(µg/L)						10, 3 \$350 (		(µg/kg)	
FOCUS	PEC _{sw,max}					S.		PEC _{sed,max}	
Scenario	(µg/L)				00 10 10 10 10 10 10 10 10 10 10 10 10 1			(µg/kg)	
Step 1			1						
	128.016	0.272	0.133	0.320	0.102	0.095	0.124	4690.000	0.047
Step 2		1	1		1 2 2 2 1 2 2 2 1 2 2 2			1	
N-Europe	39.622	0.084	0.041	0.099	Q.032	0.029	0.038	1630.000	0.016
S-Europe	32.382	0.069	0.034	0.081 100	0.026	0.024	0.031	1330.000	0.013
Step 3		1	1					1	I
D6/ditch	6.789	0.014	0.007	0.017	0.005	0.005	0.007	35.550	< 0.001
R2/stream	5.977	0.013	0.006	0.015	0.005	0.004	0.006	1478.500	0.015
R3/stream	6.287	0.013	0.007	0.016 2 0	0.005	0.005	0.006	586.500	0.006
R4/stream	4.452	0.009	0.005	0.011 3	0.004	0.003	0.004	418.300	0.004
		6.	0.005 tal concentration; RA						
Glyphosate Ro	enewal Group AIR 5 -	- July 2020 50 50 50 50 50 50 50 50 50 50 50 50 50	2				Doc ID	D: 110054-MCP10_GR	G_Rev 1_Jul_2020

## Table CP 10-04-41: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</th> 3 calculations for the use of MON 52276 in vegetables, leafy (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell
I			_		prolonged	Algae	macrophytes		prolonged
<b>Fest species</b>		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema	Myriophyllum		Chironomus
		macrochirus		gigas		costatura 5	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E.C.505 5 13500	ErC50	Endpoint	NOEC
μg/L)		47000	≥ 9630	40000	12500	13500	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	10 (1)	120 × C	10	AF	10
RAC (µg/L)		470	≥ 963	400		1350	1033	RAC (µg/kg)	≥ 100000
FOCUS	PEC _{sw,max}							PEC _{sed,max}	
cenario	(µg/L)				5 5 S			(µg/kg)	
tep 1				·	No. J. Co			•	
	128.016	0.272	0.133	0.320	$0.102 \circ$	0.095	0.124	4690.000	0.047
step 2				e e	N. N. N.				F
N-Europe	39.622	0.084	0.041		0,032	0.029	0.038	1630.000	0.016
-Europe	32.382	0.069	0.034	0.001 8 8.	ตั กา (	0.024	0.031	1330.000	0.013
tep 3		4	ł		4	•	4		
03/ditch	6.755	0.014	0.007	0.017	0.005	0.005	0.007	6.211	< 0.001
03/ditch 2 nd	6.750	0.014	0.007	0.047 8 8	0.005	0.005	0.007	8.348	< 0.001
04/pond	0.260	< 0.001	< 0.001	<0.001 ²	< 0.001	< 0.001	< 0.001	5.596	< 0.001
04/stream	5.430	0.012	0.006	0,014	0.004	0.004	0.005	0.515	< 0.001
06/ditch	6.803	0.014	0.007	0.017	0.005	0.005	0.007	32.370	< 0.001
1/pond	0.451	< 0.001		<b>Ø</b> .001	< 0.001	< 0.001	< 0.001	24.620	< 0.001
1/pond 2 nd	1.201	0.003	0.001	0.003	< 0.001	< 0.001	0.001	47.090	< 0.001
1/stream	4.451	0.009	0.005 5 5 5	0.011	0.004	0.003	0.004	233.300	0.002
1/stream 2nd	4.448	0.009	0.005 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0.011	0.004	0.003	0.004	655.200	0.007
2/stream	5.977	0.013	0.000	0.015	0.005	0.004	0.006	1317.100	0.013
2/stream 2 nd	5.977	0.013	0,006	0.015	0.005	0.004	0.006	1501.400	0.015
3/stream	6.287	0.013	0.007	0.016	0.005	0.005	0.006	599.200	0.006

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#### Table CP 10-04-41: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</th> 3 calculations for the use of MON 52276 in vegetables, leafy (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell
					prolonged	Algae	macrophytes		prolonged
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema & costatum & &	Myriophyllum aquaticum		Chironomus riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC to C	E _r C ₅₀	Endpoint	NOEC
(μg/L)		47000	≥ 9630	40000	12500	13500 5	10330	(μg/kg)	$\geq 1000000$
AF		100	10	100	10	E ₇ C 5 5 5 13500 5 105 5	10	AF	10
RAC (µg/L)		470	≥ 963	400	10 1250 0.0050 5 5	\$350	1033	RAC	≥ 100000
						N. C.		(µg/kg)	
FOCUS	PEC _{sw,max}				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	, ,		PECsed,max	
Scenario	(µg/L)				A A A A A A A A A A A A A A A A A A A			(µg/kg)	
R3/stream 2nd		0.013	0.007	0.016	22		0.006	586.400	0.006
R4/stream	4.452	0.009	0.005	0.011	0.004	0.003	0.004	374.800	0.004
R4/stream 2nd	4.452	0.009	0.005	0.011	0.004	0.003	0.004	670.800	0.007
			0.005 0.005 ntal concentration; RA						

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		1. 0 . 1. 10 . 1. 10
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#### Table CP 10-04-42: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and</th> 3 calculations for the use of MON 52276 in sugar beets (2 × 1080 g a.s./ha, with application interval of 28 days) 0.0

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes		Sed. dwell. prolonged
Test species		Lepomis macrochirus	Oncorhynchus mykiss	Crassostrea gigas	Daphnia magna	Skeletonema 5 costatum 8 8	Myriophyllum aquaticum		Chironomus riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E _r C ₅₀ , 5, 5 13500, 6 10, 5	E _r C ₅₀	Endpoint	NOEC
(μg/L)		47000	≥9630	40000	12500	13500 50	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	10	10	10	AF	10
RAC		470	≥963	400	1250	\$3.50	1033	RAC	$\geq$ 100000
(µg/L)								(µg/kg)	
FOCUS	PEC _{sw,max}					<u>,</u>		PECsed,max	
Scenario	(µg/L)							(µg/kg)	
Step 1	· · · · · · ·			I.		1			I.
	128.016	0.272	0.133	0.320	0,102	0.095	0.124	4690.000	0.047
Step 2	1		1	1		1	J	-	1
N-Europe	39.622	0.084	0.041	0.099	0.032	0.029	0.038	1630.000	0.016
S-Europe	32.382	0.069	0.034	0.081	0.026	0.024	0.031	1330.000	0.013
Step 3	1				S.				
D3/ditch	5.567	0.012	0.006	0.014	0.004	0.004	0.005	5.255	< 0.001
D4/pond	0.256	< 0.001	< 0.001	< 0.001 %	< 0.001	< 0.001	< 0.001	5.289	< 0.001
D4/stream	4.880	0.010	0.005	0.012	0.004	0.004	0.005	0.918	< 0.001
R1/pond	1.165	0.002	0.001	0.012 2 2 0.003 2 0.014	< 0.001	< 0.001	0.001	45.150	< 0.001
R1/stream	3.861	0.008	0.004	0.010	0.003	0.003	0.004	408.600	0.004
			0.006	0.914					0.006
u . Assessi	nont lactor, F EC. F		0.006	G. Regulatory accep	aore concentration, f		ve the relevant u igg		0010
3lyphosate Ro	enewal Group AIR 5 -	- July 2020 57 57 57	~				Doc ID	: 110054-MCP10_GR	G_Rev 1_Jul_2020

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## Table CP 10-04-43: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on HardSPEC</th> calculations for the use of MON 52276 to railways, 1 x 1800 g a.s./ha. Uses 7a-b, 8 and 9

Group	1		1.1 1 1	T 4 T ·	T / 1				
		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Alga	• Aquatic		Sed. dwell
<b>T</b> (					prolonged				prolonged
Test species		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna		Myriophyllum		Chironomus
		macrochirus	mykiss	gigas		costatum 5	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	EC.9	$E_rC_{50}$	Endpoint	NOEC
(µg/L)		47000	≥9630	40000	12500	13500	10330	(µg/kg)	$\geq 1000000$
AF		100	10	100	10 11	वे0ू	10	AF	10
RAC (µg/L)		470	≥ 963	400	10 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 1250 125	4350	1033	RAC (µg/kg)	≥ 100000
HardSPEC	PEC _{sw,max}							PECsed,max	
Scenario	(µg/L)				5.5.5			(µg/kg)	
Railway ditch	4.729	0.010	0.005	0.012	0.0045 5	0.004	0.005	16.992	< 0.001
leaching									
Dailway ditah	4.729	0.010	0.005	0.012 0.012	0.004 Shle concentration: P	0.004	0.005	17.000	< 0.001
runoff				10 ¹ 0	6. O.				
			, d						
			al concentration; RAC						

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## Table CP 10-04-44: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on HardSPEC calculations for the use of MON 52276 to railways, 1 x 3600 g a.s./ha. Uses 7a-b.</td> Group Fish acute Fish prolonged Invertebrance Invertebrance

Group		Etab (	Etab and 1	T	T				<b>C.J</b> 1
		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic macrophytes		Sed. dwell
T ( '		7 .		<i>C i</i>	prolonged		macrophytes		prolonged
Test species		Lepomis	<b>Oncorhynchus</b>	Crassostrea	Daphnia magna	Skeletonema &	Myriophyllum		Chironomus
		macrochirus	mykiss	gigas	NOLO	Costatumo o	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC50 5 5	$E_rC_{50}$	Endpoint	NOEC
(µg/L)		47000	≥ 9630	40000	12500	B3560 0	10330	(µg/kg)	≥ 1000000
AF		100	10	100	10	10	10	AF	10
RAC (µg/L)		470	≥ 963	400	1250 just	4350	1033	RAC	$\geq 100000$
					1250 E Concentration: P	K ^o		(µg/kg)	
HardSPEC	PEC _{sw,max}				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	>		PECsed,max	
Scenario	(µg/L)				Star Co. S			(µg/kg)	
Railway ditch	9.458	0.020	0.010	0.024	0.008 8 5	0.007	0.009	33.984	< 0.001
leaching									
Railway ditch	9.458	0.020	0.010	0.024	0.008	0.007	0.009	34.000	< 0.001
runoff				le la					
			ć						
			20, 11 1, 10, 10 1,					r of 1 are shown in b 110054-MCP10_GRC	

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## Annex to Regulation 284/2013 MON 52276 Table CP 10-04-45: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for glyphosate for each organism group based on FOCUS Steps 1, 2 and 3 calculations for the use of MON 52276 in grass/alfalfa, (1 × 1800 g a.s./ba). Uses 7a-5. & and 9. 3 calculations for the use of MON 52276 in grass/alfalfa, (1 × 1800 g a.s./ha). Uses 7a-b, 8 and 9.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb.	Algae	Aquatic		Sed. dwell
					prolonged		macrophytes		prolonged
Test		Lepomis	Oncorhynchus	Crassostrea	Daphnia magna	Skeletonema 5	Myriophyllum		Chironomus
species		macrochirus	mykiss	gigas		costatum 8 8	aquaticum		riparius
Endpoint		LC ₅₀	NOEC	$EC_{50}$	NOEC	ErC 5 5 5	$E_rC_{50}$	Endpoint	NOEC
μg/L)		47000	≥9630	40000	12500	13500 0	10330	(µg/kg)	$\geq 1000000$
4F		100	10	100	10	201 2	10	AF	10
RAC		470	≥963	400		10, 3 9350	1033	RAC	$\geq 100000$
(µg/L)						in the second seco		(µg/kg)	
FOCUS	PEC _{sw,max}							PECsed,max	
Scenario	(µg/L)							(µg/kg)	
Step 1					220				
	106.680	0.227	0.111	0.267	0,0855	0.079	0.103	3910.000	0.039
Step 2		·		,	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2				
N-Europe	44.120	0.094	0.046	0.110	0.035	0.033	0.043	1820.000	0.018
S-Europe	35.993	0.077	0.037	0.090	0.029	0.027	0.035	1480.000	0.015
Step 3	•	l			E.	ц	I.	1	
D1/ditch	11.400	0.024	0.012	0.029	0.009	0.008	0.011	63.590	< 0.001
D1/stream	9.964	0.021	0.010	0.025	0.008	0.007	0.010	6.604	< 0.001
D2/ditch	11.410	0.024	0.012	0.029	0.009	0.008	0.011	61.080	< 0.001
D2/stream	10.150	0.022	0.011	0.025	0.008	0.008	0.010	47.820	< 0.001
D3/ditch	11.300	0.024	0.012		0.009	0.008	0.011	12.530	< 0.001
D4/pond	0.380	< 0.001	< 0.001	< 9.001	< 0.001	< 0.001	< 0.001	6.245	< 0.001
D4/stream	9.736	0.021	0.010	0.024	0.008	0.007	0.009	2.160	< 0.001
D5/pond	0.380	< 0.001	< 0.001 6 5	< 0.001	< 0.001	< 0.001	< 0.001	6.190	< 0.001
D5/stream	10.510	0.022	0.011 (2000) 0.010 (2000) 0.010 (2000)	0.026	0.008	0.008	0.010	3.062	< 0.001
R2/stream		0.021	0.010	0.025	0.008	0.007	0.010	5.558	< 0.001
2/1	10.400	0.022	0.018	0.026	0.008	0.000	0.010	11 (20	< 0.001
AF: Assessn Glyphosate Re	nent factor; PEC: F	- July 2020	10.025 S	C: Regulatory accep	table concentration;	PEC/RAC ratios abov	ve the relevant trigg Doc ID	er of 1 are shown in : 110054-MCP10_GI	n bold RG_Rev 1_Jul_20

#### Risk assessment for the metabolite AMPA

## distribution, eotobolion Table CP 10-04-46:Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in field crops¹ (1 × 720 g a.s./ha). Covers uses 1 a-c, 2 a-c, 6 a-colored acceptability of the steps of 10 91 10 91 10 10 10 10 10 a-c.

						1. 2
	Fish acute	Fish	Inverteb.	Inverteb.	Algae	Aquatie
		prolonged	acute	prolonged		macrophytes
	Oncorhynchus	Pimephales	Daphnia	Daphnia	Pseudokirchneriella	Myriophyllum
	mykiss	promelas	magna	magna		aquaticum
	LC ₅₀	NOEC	EC ₅₀	NOEC	ErC50 Coo	ErC50
	520000	$\geq$ 12000	690000	15000		72000
	100	10	100	10	10 5 5 5	10
	5200	≥ 1200	6900	1500	19100 5 5	7200
					O The w	
PEC _{sw,max}				2 22		
(µg/L)						
				\$0°. (0°	2 2	
34.546	0.007	0.029	0.005	0.023	0.002	0.005
				S. S. S.		
15.904	0.003	0.013	0.002	d.0110	< 0.001	0.002
12.825	0.002	0.011	0.002	0.009	< 0.001	0.002
		Oncorhynchus mykiss           LC ₅₀ 520000           100           5200           400           9EC _{sw,max} (µg/L)           34.546           0.003	prolonged           Oncorhynchus         Pimephales           mykiss         promelas           LC50         NOEC           520000         ≥ 12000           100         10           5200         ≥ 12000           2000         ≥ 1200           9         2000           100         10           5200         ≥ 1200           9         200           9         200           100         0.003	prolonged         acute           Oncorhynchus         Pimephales         Daphnia           mykiss         promelas         magna           LC50         NOEC         EC50           520000 $\geq$ 12000         690000           100         10         100           5200 $\geq$ 1200         6900           Question $\geq$ 1200         6900           S200 $\geq$ 1200         6900           900 $=$ 1200         6900           900 $=$ 1200 $=$ 1200           900 $=$ 1200 $=$ 1200           900 $=$ 1200 $=$ 1200           900 $=$ 1200 $=$ 1200	prolonged         acute         prolonged           Oncorhynchus         Pimephales         Daphnia         Daphnia           mykiss         promelas         magna         magna           LC ₅₀ NOEC         EC ₅₀ NOEC           520000         ≥ 12000         690000         15000           100         10         100         10           \$5200         ≥ 1200         6900         1500           PECsw,max         μg/L)         0.007         0.029         0.005         0.023           34.546         0.003         0.013         0.002         0.023         0.023	prolongedacuteprolongedOncorhynchusPimephalesDaphniaDaphniamykisspromelasmagnasubcapitata $LC_{50}$ NOEC $EC_{50}$ NOEC $520000$ $\geq 12000$ 690000150001001010010 $100$ $100$ 10 $52000$ $\geq 1200$ 69000 $52000$ $\geq 1200$ 6900 $52000$ $\geq 1200$ 6900 $5200$ $\geq 1200$ $= 0000$ $5200$ $\geq 1200$ $= 00000$ $5200$ $\geq 1200$ $= 000000$ $5200$ $\geq 12000$ $= 000000$ $5200$ $= 0000000$ $= 000000000000000000000000000000000000$

AF: Assessment factor; PEC: Predicted environmental concentration; RAG: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

¹ covering all corresponding uses in root vegetables, potatoes, bulb vegetables, fruiting vegetables, leafy vegetables and sugar Charles and Charle or Ho

### Table CP 10-04-47: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in field crops¹ (3 × 720 g a.s./ha, with application interval of 28 10 though days). Uses 2 a-c Ś

Group		10 F	Fish Grolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes
Test		Oncorhynchus	Pimephales	Daphnia	Daphnia	Pseudokirchneriella	Myriophyllum
species		Oncorhynchus mykiss	promelas	magna	magna	subcapitata	aquaticum
Endpoint		LO505 5	NOEC	EC ₅₀	NOEC	ErC ₅₀	ErC50
(µg/L)		520000	$\geq 12000$	690000	15000	191000	72000
AF		001	10	100	10	10	10
RAC	Š,	5200	≥ 1200	6900	1500	19100	7200
(µg/L)		5					
FOCUS	PECswimax						
Scenario	(µg/L)						
Step 1				•	•		•
NOC NOC	103.639	0.020	0.086	0.015	0.069	0.005	0.014
Step 2	2			•			
N-Europe	35.129	0.007	0.029	0.005	0.023	0.002	0.005
SEurope	28.289	0.005	0.024	0.004	0.019	0.001	0.004
AF. Assess	ment factor; Pl	EC: Predicted env	ironmental con	centration; RA	AC: Regulatory	0.005 0.002 0.001 acceptable concentration regetables, leafy vegetab	n; PEC/RAC

#### Table CP 10-04-48: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in orchards¹ ( $1 \times 720$ g a.s./ha). Uses 4 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes
Test		Oncorhynchus	Pimephales	Daphnia	Daphnia	Pseudokirchneriella	Myriophyllum
species		mykiss	promelas	magna	magna	subcapitata	aquaticum
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC50	ErC ₅₀
(µg/L)		520000	$\geq$ 12000	690000	15000		72000
AF		100	10	100	10	10 6 6 6	10
RAC		5200	≥ 1200	6900	1500		7200
(µg/L)							
FOCUS	PEC _{sw,max}						
Scenario	(µg/L)						
Step 1							•
	34.546	0.007	0.029	0.005	0.023	0.002	0.005
Step 2		•	•	•	50.0	2	•
N-Europe	15.904	0.003	0.013	0.002	0.018 5 5	< 0.001	0.002
S-Europe	12.825	0.002	0.011	0.002	0.909	< 0.001	0.002

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC Color Color Color Color

## Table CP 10-04-49: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in orchards (3×720 g a.s./ha, with application interval of 28 - Cliffi days). Uses 4 a-c.

			<b>T</b> • 1			<b>I-</b>	1	
	Group		Fish acute	Fish 8	Inverteb.	Inverteb.	Algae	Aquatic
					acute	prolonged		macrophytes
	Test		Oncorhynchus		Daphnia	Daphnia	Pseudokirchneriella	
	species		mykiss 200	promelas	magna	magna		aquaticum
	Endpoint		LC50 5	NOEC	$EC_{50}$	NOEC	$E_rC_{50}$	$E_rC_{50}$
	(µg/L)			$\geq$ 12000	690000	15000	191000	72000
	AF		1000 % 0	10	100	10	10	10
	RAC		5200 5 5200 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	≥ 1200	6900	1500	19100	7200
	(µg/L)	~						
	FOCUS	PECsw,max						
	Scenario	(μg/L)	6					
	Step 1	A S	-					
		103.639	0.020	0.086	0.015	0.069	0.005	0.014
	Step 2	2.5						
	N-Europe	35,129	0.007	0.029	0.005	0.023	0.002	0.005
	S-Europe	28.289	0.020 0.007 0.005 EC: Predicted envirigger of 1 are shong uses in pome/st	0.024	0.004	0.019		0.004
	AF: Assess	ment factor; PI	EC: Predicted envi	ironmental con	centration; RA	C: Regulatory	acceptable concentration	n; PEC/RAC
	ratios above	the relevant ti	rigger of 1 are sho	own in bold	lives			
	govering a	in correspondin	ig uses in poine/si		11 VCS			
×.	2							
	<i>o</i> .							
S. S. S.								
10 JO								
10	Glyphosate R	enewal Group A	IR 5 – July 2020			D	oc ID: 110054-MCP10_GR	G_Rev 1_Jul_2020
3								

## in the second se Table CP 10-04-50: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in vines (1 × 720 g a.s./ha). Uses 5 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic 3 ( macrophytes
Test		Oncorhynchus	Pimephales	Daphnia	Daphnia	Pseudokirchneriella	Myriophyllum
species		mykiss	promelas	magna	magna	subcapitata	aquaticum
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC ₅₀	ErC 50
(µg/L)		520000	$\geq$ 12000	690000	15000	191000	
AF		100	10	100	10	10 0.0	10
RAC		5200	≥ 1200	6900	1500	19100	7200
(µg/L)							
FOCUS	PEC _{sw,max}						
Scenario	(µg/L)					2 2 5 5 S	
Step 1		•				S & S	•
	34.546	0.007	0.029	0.005	0.023		0.005
Step 2		•	•	•	A. C.		•
N-Europe	15.904	0.003	0.013	0.002	0.011	< 0.001	0.002
S-Europe	12.825	0.002	0.011	0.002	0.009 5	< 0.001	0.002

AF: Assessment factor; PEC: Predicted environmental concentration; RAC Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold 20^{CC} ratios above the relevant trigger of 1 are shown in bold of the

## Table CP 10-04-51: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on EOCUS Steps 1 and 2 calculations for the use of MON 52276 in vines (3 × 720 g a.s./ha, with application interval of 28 days). Uses 5 a-c. 10.0 0.0 0.0

Group			Fish 5	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes
Test		Oncorhynchus	- (0 0F V)		Daphnia	Pseudokirchneriella	
species		mykiss d	prometas	magna	magna	subcapitata	aquaticum
Endpoint			NQEC	$EC_{50}$	NOEC	$E_rC_{50}$	$E_rC_{50}$
(µg/L)		520000 8 5	≥Î2000	690000	15000	191000	72000
AF		100 20 6	10	100	10	10	10
RAC		5200	≥ 1200	6900	1500	19100	7200
(µg/L)		5200 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5					
FOCUS	PECsw,max	S. (1) S.					
Scenario	(µg/L)	10,80					
Step 1	6						
	103.639	0.020	0.086	0.015	0.069	0.005	0.014
Step 2	K1 8 3		•	•	•	•	
N-Europe	35.129	0.007	0.029	0.005	0.023	0.002	0.005
S-Europe	28.289	0.005	0.024	0.004	0.019	0.001	0.004

Asses In a solution the solution of the solu AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

#### Table CP 10-04-52: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in field crops¹ ( $1 \times 1440$ g a.s./ha). Covers uses 1 a-c, 2 a-c, 6 a-c, 10 a-c.

0		<b>D1</b>	<b>F</b> . 1		<b>.</b>	4.7	Aquatic
Group		Fish acute	Fish	Inverteb.	Inverteb.	Algae	2.5
			prolonged	acute	prolonged		macrophytes
Test		Oncorhynchus	Pimephales	Daphnia	Daphnia	Pseudokirchneriella	Myriophyllum
species		mykiss	promelas	magna	magna	subcapitata	aquaticum
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC ₅₀	$E_rC_{50}$
(µg/L)		520000	$\geq$ 12000	690000	15000	191000	97000
AF		100	10	100	10	10 6 5 5	10
RAC		5200	≥ 1200	6900	1500	19100 4 5 5	7200
(µg/L)							
FOCUS	PEC _{sw,max}					12 9 50 F	
Scenario	(µg/L)					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Step 1					× 0		•
	69.092	0.013	0.058	0.010	0.046	0.004	0.010
Step 2		-	•	•	500	n n n n n n n n n n n n n n n n n n n	
N-Europe	31.809	0.006	0.027	0.005		0.002	0.004
S-Europe	25.650	0.005	0.021	0.004	0.917	0.001	0.004

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

¹ covering all corresponding uses in root vegetables, potatoes, bulb vegetables, fruiting vegetables, leafy vegetables and sugar beets No Color

#### Table CP 10-04-53: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in orchards¹ (1 × 1440 g a.s./ha). Uses 4 a-c.

				<u> </u>	2			
(	Group		Fish acute	Fish	Inverteb.	Inverteb.	Algae	Aquatic
					acute	prolonged		macrophytes
7	ſest		Oncorhynchus	Pimephales	Daphnia	Daphnia	Pseudokirchneriella	
S	pecies		mykiss నే	promelas	magna	magna	subcapitata	aquaticum
I	Endpoint		LC50	NOEC	$EC_{50}$	NOEC	$E_rC_{50}$	$E_rC_{50}$
(	μg/L)		520000 2000	$\geq$ 12000	690000	15000	191000	72000
A	<b>\F</b>		<b>Oncorhynchus</b> mykiss 5 LC ₅₀ 520000 5 1005 6 52006 6	10	100	10	10	10
ŀ	RAC		52005 6	≥1200	6900	1500	19100	7200
(	μg/L)	No.	52006 61					
I	FOCUS	PEC _{sw,max}	6.1					
S	Scenario		<u>`</u>					
	Step 1	Co al						
		69.092	0.013	0.058	0.010	0.046	0.004	0.010
S	Step 2	, Q. O						
١	N-Europe	31,809	0.006	0.027	0.005	0.021	0.002	0.004
S	S-Europe	25.650	0.005	0.021	0.004	0.017	0.001	0.004
A	AF: Assessr	nent factor; PE	C: Predicted envi	ronmental con	centration; RA	C: Regulatory	acceptable concentration	n; PEC/RAC
r 1	atios above	the relevant tr	igger of 1 are shown uses in pome/st	wn 1n bold one fruit and o	lives			
ċ	Sovering a	n conception	is uses in point/st	one fruit allu 0				
. S	3							
0								
G	lyphosate Ro	enewal Group A	IR 5 – July 2020			D	oc ID: 110054-MCP10_GR	.G_Rev 1_Jul_2020
			0.013 0.006 0.005 C: Predicted envirigger of 1 are shoring uses in pome/sto IR 5 – July 2020					

#### Table CP 10-04-54: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of di initiality initiality MON 52276 in orchards¹ ( $2 \times 1440$ g a.s./ha, with application interval of 28 days). Uses 4 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquaties macrophytes
Test		Oncorhynchus	Pimephales	Daphnia	Daphnia	Pseudokirchneriella	Myriophyllum
species		mykiss	promelas	magna	magna	subcapitata	aquaticum
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC50	ErC ₅₀
(µg/L)		520000	$\geq$ 12000	690000	15000	191000	72000
AF		100	10	100	10		10
RAC		5200	≥ 1200	6900	1500	19100 4 5 5	7200
(µg/L)							
FOCUS	PEC _{sw,max}					12 2 5	
Scenario	(µg/L)					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Step 1					0.	S S S	
	138.185	0.027	0.115	0.020	0.092	0.007	0.019
Step 2	•	·	•	•	200	a de la compañía de la	•
N-Europe	53.986	0.010	0.045	0.008	0.036 5	0.003	0.007
S-Europe	43.514	0.008	0.036	0.006	0.029	0.002	0.006

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC 

## Table CP 10-04-55: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in vines (1 × 1440 g a.s./ha). Uses 5 a-c.

Group		Fish acute	Fish No. 2 prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes
Test		Oncorhynchus	Pimephales	Daphnia	Daphnia	Pseudokirchneriella	Myriophyllum
species		mykiss S	promelas	magna	magna	subcapitata	aquaticum
Endpoint		LC ₅₀	NOEC $\ge 12000$	EC ₅₀	NOEC	ErC50	$E_rC_{50}$
(µg/L)		520000 5 5	≥ 12000	690000	15000	191000	72000
AF		100 5 2.5	10	100	10	10	10
RAC		5200 5	≥ 1200	6900	1500	19100	7200
(µg/L)		5200 5 5					
FOCUS	PEC _{sw,max} <						
Scenario	(µg/L)	1.9					
Step 1	20	5					•
	69.092 ⁵ 5	0.013	0.058	0.010	0.046	0.004	0.010
Step 2	2 f		•	•	•	•	•
N-Europe	31,809	0.006	0.027	0.005	0.021	0.002	0.004
S-Europe _{&gt;}	25,650	0.005	0.021	0.004	0.017	0.001	0.004

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

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#### Table CP 10-04-56: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in vines (2 × 1440 g a.s./ha, with application interval of 28 days). Uses 5 a-c.

Group		Fish acute	Fish	Inverteb.	Inverteb.	Algae	Aquatic
Test species		Oncorhynchus mykiss	prolonged Pimephales promelas	acute Daphnia magna	prolonged Daphnia magna	Pseudokirchneriella subcapitata	macrophytes Myriophyllum aquaticum
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	E C S	$E_rC_{50}$
(µg/L)		520000	$\geq 12000$	690000	15000	191000	72000
AF		100	10	100	10	10 4 5 5	10
RAC (µg/L)		5200	≥ 1200	6900	1500		7200
FOCUS	PEC _{sw,max}						
Scenario	(µg/L)						
Step 1					2%		
	138.185	0.027	0.115	0.020	0.092		0.019
Step 2		•	•	•	50	2	•
N-Europe	53.986	0.010	0.045	0.008	0.036 5 5	0.003	0.007
S-Europe	43.514	0.008	0.036	0.006	0.029	0.002	0.006

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC -t(s) OF HEN ratios above the relevant trigger of 1 are shown in bold

#### ratios above the relevant trigger of 1 are shown in bold **Table CP 10-04-57:** Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in field crops^t (P× 540 g a.s./ha). Uses 3 a-b. 2 3, `

Group			~ ~ ~ ~ ~	Anverteb.	Inverteb.	Algae	Aquatic
			protonged		prolonged		macrophytes
Test		Oncorhynchus	Pimephales	Daphnia	Daphnia	Pseudokirchneriella	Myriophyllum
species		mykiss 🤞	prometas	magna	magna	subcapitata	aquaticum
Endpoint		LC50	NQEC	EC ₅₀	NOEC	$E_rC_{50}$	$E_rC_{50}$
(µg/L)		520000 5	≥Î2000	690000	15000	191000	72000
AF		100	10	100	10	10	10
RAC		5200	≥ 1200	6900	1500	19100	7200
(µg/L)							
FOCUS	PECsw,max						
Scenario	(µg/L)	10,00					
Step 1	6						
	25.910 25.9	0.005	0.022	0.004	0.017	0.001	0.004
Step 2	17 25		•	•	•		•
N-Europe	11,928	0.002	0.010	0.002	0.008	< 0.001	0.002
S-Europe	9,619	0.002	0.008	0.001	0.006	< 0.001	0.001

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

¹ covering all corresponding uses in root vegetables, potatoes, bulb vegetables, fruiting vegetables, leafy vegetables and sugar

r: A ratios ab ' covering beets beets beets beets contraction the beets contraction the beets covering cover Glyphosate Renewal Group AIR 5 - July 2020

#### Table CP 10-04-58: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in field crops¹ (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatica and and and and and and and and and an
Test		Oncorhynchus	Pimephales	Daphnia	Daphnia	Pseudokirchneriella	Myriophyllum
species		mykiss	promelas	magna	magna	subcapitata	aquaticum
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC ₅₀	ErC ₅₀
(µg/L)		520000	$\geq$ 12000	690000	15000	ErC 50 191000	72000
AF		100	10	100	10	10 0 5 5	10
RAC		5200	≥ 1200	6900	1500		7200
(µg/L)							
FOCUS	PEC _{sw,max}					19 2 2 2	
Scenario	(µg/L)						
Step 1					; 0		
	103.639	0.020	0.086	0.015	0.069		0.014
Step 2	•		•	•	500	2	
N-Europe	40.490	0.008	0.034	0.006	0.025 5	0.002	0.006
S-Europe	32.636	0.006	0.027	0.005	0.022	0.002	0.005

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

¹ covering all corresponding uses in root vegetables, potatoes, bulb vegetables, fruiting vegetables, leafy vegetables and sugar beets

# Table CP 10-04-59: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on HardSPEC calculations for the use of MON 52276 to railways, 1 x 1800 g a.s. Ana. Uses 7 a-b, 8 and 9.

				E.	,		
Group		Fish acute	Fish S	Inverteb.	Inverteb.	Algae	Aquatic
			prolonged	acute	prolonged		macrophytes
Test		Oncorhynchus	Pimephales	Daphnia	Daphnia	Pseudokirchneriella	Myriophyllum
species			promelas	magna	magna	subcapitata	aquaticum
Endpoint		LC50 ST	NOEC	EC50	NOEC	ErC ₅₀	ErC ₅₀
(µg/L)		520000 S S	$\geq 12000$	690000	15000	191000	72000
AF		100 5 6 5	10	100	10	10	10
RAC		52005 6	≥1200	6900	1500	19100	7200
(µg/L)	, second s						
HardSPEC	PEC _{sw,max}	200 00 00					
Scenario	(µg/L) 🖑						
Railway	1.956 کې	< 0.001	0.002	< 0.001	0.001	< 0.001	< 0.001
ditch	12 8 S						
leaching	(μg/L) 1.956						
Railway 👌	1,956	< 0.001	0.002	< 0.001	0.001	< 0.001	< 0.001
ditch runoff	0						

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

#### Table CP 10-04-60: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each organism group based on HardSPEC calculations for the use of MON 52276 dit. to railways, 1 x 3600 g a.s./ha. Uses 7 a-b.

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic S macrophytes Myrionhyllum
Test		Oncorhynchus	Pimephales	Daphnia	Daphnia	Pseudokirchneriella	Myriophyllum
species		mykiss	promelas	magna	magna	subcapitata	aquaticum
Endpoint		LC ₅₀	NOEC	EC ₅₀	NOEC	ErC ₅₀	ErC 50
(µg/L)		520000	$\geq$ 12000	690000	15000	191000 _ک . رة	72000
AF		100	10	100	10	10	90
RAC		5200	≥ 1200	6900	1500	19100	7200
(µg/L)						4.5 °	
HardSPEC	PEC _{sw,max}					11 00 00 00 00 00 00 00 00 00 00 00 00 00	
Scenario	(µg/L)						
Railway	3.913	0.001	0.003	0.001	0.003	<0,0010	0.001
ditch					.0		
leaching					0 ×		
Railway	3.913	0.001	0.003	0.001	0.003 5 2	0.001	0.001
ditch runoff						(a	

AF: Assessment factor; PEC: Predicted environmental concentration; RAC; Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold Table CP 10-04-61: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for AMPA for each

#### organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in grass/alfalfa, (1 × 1800 g a.s./ha). Uses 7 a-b, 8 and 9. 01

Group		Fish acute	Fish prolonged	Inverteb. acute	Inverteb. prolonged	Algae	Aquatic macrophytes
Test		Oncorhynchus	Pimephales	Daphnia	Daphnia	Pseudokirchneriella	Myriophyllum
species		mykiss	prometas	magna	magna	subcapitata	aquaticum
Endpoint		LC50	NOÉC	EC ₅₀	NOEC	$E_rC_{50}$	ErC50
(µg/L)		520000	≥ 12000	690000	15000	191000	72000
AF			10	100	10	10	10
RAC (µg/L)		5200 5 C C	≥ 1200	6900	1500	19100	7200
FOCUS Scenario	PEC _{sw,max} (µg/L)						
Step 1	~	10,80					
	86.366 ో	0.017	0.072	0.013	0.058	0.005	0.012
Step 2		0	•	•	•	•	•
N-Europe	39.76	0.008	0.033	0.006	0.027	0.002	0.006
S-Europe	32.062	0.006	0.027	0.005	0.021	0.002	0.004

Hondo philipping AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

#### **Risk assessment for the metabolite HMPA**

# id shiping to the state of the Table CP 10-04-62: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each set in the set of the set o ð organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in field crops¹ (1 × 720 g a.s./ha). Covers uses 1 a-c, 2 a-c, 6 a-c, 10 10.01 *a-c*.

Group		Inverteb. acute	Algae	Aquatic macrophytes
Test		Daphnia magna	Pseudokirchneriella	Lemna gibba 🚫
species			subcapitata	
Endpoint		EC ₅₀	$E_rC_{50}$	ErQ\$0,0°, %
(µg/L)		> 100000	> 120000	≈123000
AF		100	10	\$ 10 5°
RAC		> 1000	≥ 12000	\$ 32300
(µg/L)			, de la	
FOCUS	PEC _{sw,max}		S. 20	^o
Scenario	(µg/L)		L. J. C.	Ď
Step 1				
	16.128	0.016	0.001 6 6	0.001
Step 2	•			
N-Europe	7.507	0.008	< 0.0015	< 0.001
S-Europe	6.093	0.006	< 0.001	< 0.001

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

¹ covering all corresponding uses in root vegetables, potatoes, bulb vegetables, fruiting vegetables, leafy vegetables and sugar 111 1000 (ino beets

#### Table CP 10-04-63: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in field crops¹ ( $3 \times 720$ g a.s./ha, with application interval of 28 days). Uses 2 a-a

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Group		Inverteb. acute	Algae	Aquatic macrophytes
Test	-0- -	Daphnia magna	Pseudokirchneriella	Lemna gibba
species	J. S.		subcapitata	
Endpoint		EC ₅₀	$E_rC_{50}$	$E_rC_{50}$
(µg/L)		> 100000	> 120000	> 123000
AF		100	10	10
RAC		> 1000	≥ 12000	> 12300
(µg/L)	2.6			
FOCUS	PECsw,max			
Scenario	(μg/L) ႏ			
Step 1	A B B			
	48.385	0.048	0.004	0.004
Step 2			·	
N-Europe	18.101	0.013	0.001	0.001
S-Europe	10.668	0.011	< 0.001	< 0.001

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

Herd do Covering all corresponding uses in root vegetables, potatoes, bulb vegetables, fruiting vegetables, leafy vegetables and sugar

#### Table CP 10-04-64: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of -olio MON 52276 in orchards¹ ( $1 \times 720$ g a.s./ha). Uses 4 a-c.

Group		Inverteb. acute	Algae	Aquatic macrophytes
Test		Daphnia magna	Pseudokirchneriella	Lemna gibba
species			subcapitata	Demna gibba
Endpoint		EC ₅₀	$E_rC_{50}$	ErC ₅₀ > 123000
(µg/L)		> 100000	> 120000	> 123000 00000000000000000000000000000000
AF		100	10	$10 \times c^{\circ} \sim$
RAC		> 1000	≥ 12000	> £2300 0 2 5 5
(µg/L)				Le B B
FOCUS	PEC _{sw,max}			
Scenario	(µg/L)			
Step 1				
	16.128	0.016	0.001	0.001
Step 2		•		
N-Europe	7.507	0.008	< 0.001	< 0.001
S-Europe	6.093	0.006	< 0.001	< 0.001

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC LOON CONT 8000 and ratios above the relevant trigger of 1 are shown in bold

# Table CP 10-04-65: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in orchards¹ (3 × 720 g a.s./ha, with application interval of 28 days). Uses 4 a-c. to the second

Group		Inverteb. acute	Algae	Aquatic macrophytes
Test		Daphnia magna	Pseudokirchneriella	Lemna gibba
species		A S S L	subcapitata	
Endpoint		ECto	ErC ₅₀	ErC ₅₀
(µg/L)		\$ 100000	> 120000	> 123000
AF	, o	100	10	10
RAC	5	000£	≥ 12000	> 12300
(µg/L)	1 C 1	8		
FOCUS	PEC _{sw,max}			
Scenario	(µg/L)			
Step 1	N. S. S			
	48.385	0.048	0.004	0.004
Step 2	0 0 0 0			
N-Europe	13.101 5	0.013	0.001	0.001
S-Europe	10.668	0.011	< 0.001	< 0.001

AF: Assessment factor, PEC: Predicted environmental concentration, RAC: Regulatory acceptable concentration, PEC/RAC s. ering alle ering alle the objection of and on the objection of the objection of and the objection of and the objection of ratios above the relevant trigger of 1 are shown in bold

¹ covering all corresponding uses in pome/stone fruit and olives



# to distinguistic to the state of the state o Table CP 10-04-66: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in vines (1 × 720 g a.s./ha). Uses 5 a-c.

Group		Inverteb. acute	Algae	Aquatic macrophytes
Test		Daphnia magna	Pseudokirchneriella	Lemna gibba
species			subcapitata	12.0
Endpoint		EC50	$E_rC_{50}$	ErC ₅₀ > 123000
(µg/L)		> 100000	> 120000	> 123000
AF		100	10	$10 \times c^{\circ}$
RAC		> 1000	≥ 12000	> \$2300,00
(µg/L)				10 00 D
FOCUS	PEC _{sw,max}			
Scenario	(µg/L)		and the second sec	
Step 1			A A	
	16.128	0.016	0.001	§ 0.001
Step 2			Start 10	
N-Europe	7.507	0.008	< 0.001	< 0.001
S-Europe	6.093	0.006	< 0.001	< 0.001

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ALL ALL The CONTRACT ratios above the relevant trigger of 1 are shown in bold

## Table CP 10-04-67: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FQCUS Steps 1 and 2 calculations for the use of MON 52276 in vines $(3 \times 720$ g a.s./ha, with application interval of 28 days). Uses 5 a-c.

Group		Inverteb. acute	Algae	Aquatic macrophytes
Test		Daphnia magna	Pseudokirchneriella	Lemna gibba
species		1 2 4 0 C	subcapitata	
Endpoint		EC50 NO N	$E_rC_{50}$	ErC ₅₀
(µg/L)		>100000	> 120000	> 123000
AF	0,	100 5	10	10
RAC	l'ho	\$ 1000 S	≥ 12000	> 12300
(µg/L)				
FOCUS	PEC _{sw,max}	~		
Scenario	$(\mu g' L) \qquad \otimes \otimes \otimes$			
Step 1				
	48.385	0.048	0.004	0.004
Step 2				
N-Europe	13.101	0.013	0.001	0.001
S-Europe	10.668	0.011	< 0.001	< 0.001

Hrado public in the provide the provide the providence of the prov AF: Assessmen Stactor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

Glyphosate Renewal Group AIR 5 - July 2020

#### Table CP 10-04-68: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in field crops¹ (1 × 1440 g a.s./ha). *Covers uses 1 a-c, 2 a-c, 6 a-c,* 10 a-c.

Group		Inverteb. acute	Algae	Aquatic macrophytes
Test		Daphnia magna	Pseudokirchneriella	Lemma groon
species			subcapitata	
Endpoint		EC ₅₀	$E_rC_{50}$	ErC ₅₀
(µg/L)		> 100000	> 120000	$E_r C_{50}$ $> 123000$ $0$
AF		100	10	100 0 0
RAC		> 1000	≥ 12000	₹12300
(µg/L)				W S St
FOCUS	PEC _{sw,max}		C.	
Scenario	(µg/L)		A. C.	
Step 1	•			^o
	32.256	0.032	0.003	0.003
Step 2	•			
N-Europe	15.015	0.015	0.001	0.001
S-Europe	12.185	0.012	0.001	< 0.001

AF: Assessment factor; PEC: Predicted environmental concentration; RAC Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold S 20

¹ covering all corresponding uses in root vegetables, potatoes, bulb vegetables, bruiting vegetables, leafy vegetables and sugar beets

#### Table CP 10-04-69: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in orchards¹ (1× 1440 g a.s./ha). Uses 4 a-c. S' é 3

Group		Inverteb acute	Algae	Aquatic macrophytes
Test		Daphnia magna	Pseudokirchneriella	Lemna gibba
species			subcapitata	
Endpoint		BC 10 M	$E_rC_{50}$	ErC ₅₀
(µg/L)	- A	>100000	> 120000	> 123000
AF	S.S.S.	900	10	10
RAC	L'ALL	\$ 1000	≥ 12000	> 12300
(µg/L)		*		
FOCUS	PEC _{sw,max}			
Scenario	(µg/L) (1.5)			
Step 1	5.5		·	
	32.256	0.032	0.003	0.003
Step 2	A SO	•		•
N-Europe	15.015	0.015	0.001	0.001
S-Europe	12,985	0.012	0.001	< 0.001

AF: Assessment actor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

¹ covering all corresponding uses in pome/stone fruit and olives

Glyphosate Renewal Group AIR 5 - July 2020

#### Table CP 10-04-70: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of di initiality initiality MON 52276 in orchards¹ ( $2 \times 1440$ g a.s./ha, with application interval of 28 days). Uses 4 a-c.

Group		Inverteb. acute	Algae	Aquatic macrophytes
Test		Daphnia magna	Pseudokirchneriella	Lemma gibba
species			subcapitata	E-Cso
Endpoint		EC ₅₀	$E_rC_{50}$	$E_r C_{50}$ > 123000
(µg/L)		> 100000	> 120000	> 123000
AF		100	10	10, 0, 5
RAC		> 1000	≥ 12000	\$ 1,2300
(µg/L)				L S S
FOCUS	PEC _{sw,max}		o.	
Scenario	(µg/L)		- Allo	
Step 1				
	64.513	0.065	0.005	0.005
Step 2			Strain Strain	
N-Europe	22.523	0.023	0.002	0.002
S-Europe	18.322	0.018	0.002	0.001

AF: Assessment factor; PEC: Predicted environmental concentration; RAC Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold 20°C 2 Marian No of Ho, 20

¹ covering all corresponding uses in pome/stone fruit and olives

## Or Hills Table CP 10-04-71: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FQCUS Steps 1 and 2 calculations for the use of MON 52276 in vines (1 * 1440 g a.s./ha). Uses 5 a-c.

Group		Inverteb, acute	Algae	Aquatic macrophytes
Test		Daphnia magna	Pseudokirchneriella	Lemna gibba
species		A B B	subcapitata	
Endpoint		EC30	ErC ₅₀	ErC ₅₀
(µg/L)		3 100000	> 120000	> 123000
AF	0	2100	10	10
RAC	\$ S	\$\$\$ <b>000</b>	≥ 12000	> 12300
(µg/L)	PECsw,max			
FOCUS	PECsw,max			
Scenario	PEC _{sw,max} (μg/L)			
Step 1	11. 5 °C			
	32.256	0.032	0.003	0.003
Step 2	6 6			
N-Europe	15.015 5	0.015	0.001	0.001
S-Europe	12.185	0.012	0.001	< 0.001

AF: Assessment factor, PEC: Predicted environmental concentration, RAC: Regulatory acceptable concentration, PEC/RAC ratios above the relevant trigger of 1 are shown in bold

# distribution, eological Table CP 10-04-72: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in vines (2 × 1440 g a.s./ha, with application interval of 28 days). Uses 5 a-c.

Group		Inverteb. acute	Algae	Aquatic macrophytes
Test		Daphnia magna	Pseudokirchneriella	Lemna gibba 🔊 🕺
species			subcapitata	
Endpoint		$EC_{50}$	$E_rC_{50}$	$E_{r}C_{50}$ > 123000 21
(µg/L)		> 100000	> 120000	> 123000
AF		100	10	10000
RAC		> 1000	≥ 12000	\$ 12300
(µg/L)				455
FOCUS	PEC _{sw,max}		S. S	
Scenario	(µg/L)		No.	
Step 1				°
	64.513	0.065	0.005	0.005
Step 2	•	•		
N-Europe	22.523	0.023	0.002	0.002
S-Europe	18.322	0.018	0.002 5 5 5	0.001

AF: Assessment factor; PEC: Predicted environmental concentration; RAC Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold 20°C 20 ratios above the relevant trigger of 1 are shown in bold of the

## Table CP 10-04-73: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in field crops^a (f × 540 g a.s./ha). Uses 3 a-b. ie o

Group		Inverteb. acute	Algae	Aquatic macrophytes
Test		Daphnia magna	Pseudokirchneriella	Lemna gibba
species		10 5. 0°	subcapitata	
Endpoint		EC50 LE	ErC ₅₀	ErC ₅₀
(µg/L)		>100000	> 120000	> 123000
AF	0,	100 5	10	10
RAC	S. S	\$ 1000 S	≥ 12000	> 12300
(µg/L)		^o		
FOCUS				
Scenario	$(\mu g' L) \qquad \otimes \otimes \otimes \otimes$			
Step 1	Star Star			
		0.012	0.001	< 0.001
Step 2		•	•	
N-Europe	5.631	0.006	< 0.001	< 0.001
S-Europe	4.569	0.005	< 0.001	< 0.001

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

JSL Jove ty ring all of s the of the ¹ covering all corresponding uses in root vegetables, potatoes, bulb vegetables, fruiting vegetables, leafy vegetables and sugar

# id shipiton to the state of the Table CP 10-04-74: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on FOCUS Steps 1 and 2 calculations for the use of Join Colifor. MON 52276 in field crops¹ (2 × 1080 g a.s./ha, with application interval of 28 days). Uses 2 a-c.

Group		Inverteb. acute	Algae	Aquatic macrophytes
Test		Daphnia magna	Pseudokirchneriella	Lemna gibba
species			subcapitata	E.C.o.
Endpoint		EC ₅₀	$E_rC_{50}$	$E_rC_{50}$ > 123000
(µg/L)		> 100000	> 120000	> 123000
AF		100	10	10, 0. 5
RAC		> 1000	≥ 12000	\$ 12300
(µg/L)				WS St
FOCUS	PEC _{sw,max}		Ś	
Scenario	(µg/L)		and the second sec	
Step 1				S [©]
	48.385	0.048	0.004	0.004
Step 2	•	•		
N-Europe	16.892	0.017	0.001	0.001
S-Europe	13.741	0.014	0.001 5 5 5	0.001

AF: Assessment factor; PEC: Predicted environmental concentration; RAC Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold S 20

¹ covering all corresponding uses in root vegetables, potatoes, bulb vegetables, bruiting vegetables, leafy vegetables and sugar beets

### Table CP 10-04-75: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on HardSPEC calculations for the use of MON 52276 to railways, 1 x 1800 ga.s./ha. Uses 7 a-b, 8 and 9. ŝ 5.5

Group		Inverteb acute	Algae	Aquatic macrophytes
Test species		Daphnia magna	Pseudokirchneriella	Lemna gibba
		A ST IT	subcapitata	
Endpoint		EC	$E_rC_{50}$	$E_rC_{50}$
(µg/L)		≥ 100000	> 120000	> 123000
AF	ж. 	100	10	10
RAC (µg/L)	il n	> 1000	≥ 12000	> 12300
HardSPEC	PECsw,max	1		
Scenario	(μg/L) δ δ δ			
Railway ditch	0.313 1 5 2	< 0.001	< 0.001	< 0.001
leaching	2.5			
Railway ditch	0.319	< 0.001	< 0.001	< 0.001
runoff	A SE			

Hradooning to the second of th AF: Assessment factor, PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold

#### Table CP 10-04-76: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each organism group based on HardSPEC calculations for the use of MON 52276 idio, to railways, 1 x 3600 g a.s./ha. Uses 7 a-b.

Group		Inverteb. acute	Algae	Aquatic macrophytes
Test species		Daphnia magna	Pseudokirchneriella subcapitata	Lemna gibba
Endpoint		EC ₅₀	$E_rC_{50}$	ErC ₅₀ 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
(µg/L)		> 100000	> 120000	> 123000
AF		100	10	10
RAC (µg/L)		> 1000	≥ 12000	> 12300 0
HardSPEC	PEC _{sw,max}			10,00,0
Scenario	(µg/L)			
Railway ditch	0.627	0.001	< 0.001	€ <b>0</b> .001
leaching			R	No Co
Railway ditch	0.627	0.001	< 0.001	∞ < 0.001
runoff				j

AF: Assessment factor; PEC: Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant trigger of 1 are shown in bold Table CP 10-04-77: Aquatic organisms: acceptability of risk (PEC/RAC < 1) for HMPA for each

## organism group based on FOCUS Steps 1 and 2 calculations for the use of MON 52276 in grass/alfalfa, (1 × 1800 g a.s./ha). Uses 7 a-b, 8 and 9

		, o g. uss/, (1-6		
Group		Inverteb. acute	Algae	Aquatic macrophytes
Test		Daphnia magna (	Pseudokirchneriella	Lemna gibba
species		E C O	subcapitata	
Endpoint		EC ₅₀	ErC50	$E_rC_{50}$
(µg/L)		> 1000000 0 10 10	> 120000	> 123000
AF		100 0 0 0	10	10
RAC		> 1000	≥ 12000	> 12300
(µg/L)				
FOCUS	PEC _{sw,max}			
Scenario	(μg/L)	S LE		
Step 1	12 S			
	40.321	0.040	0.003	0.003
Step 2	800			
N-Europe	18.768	0.019	0.002	0.002
S-Europe		0.015	0.001	0.001

AF: Assessment factor; PEC Predicted environmental concentration; RAC: Regulatory acceptable concentration; PEC/RAC ratios above the relevant frigger of 1 are shown in bold

#### Annex M-CP 10-05: Non-target terrestrial plant risk assessment

All uses – all rates covering deterministic and probabilistic assessments are presented below.

in the second se MON 52276. All rates covering all GAP table uses considering downward ground directed spray - PER (g a.e./ha) based on drift rate (%) at 1 m from application area = 2.77 %; MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days) Non.

		1			1		and the second sec
	Crop scenario	Appl. Rate [g a.e./ha]	ER50 [g a.e./ha]		MAF	PER [g	TER 5 5 (criterion: TER ≥ 5)
						a.e./ha]	
	Vegetative vigour						LI S S S
	All uses considering downward ground	1 x 540	28.5	2.77	1	14.96	
	directed spray	1 x 720				19.94	<b>4</b> .43
		1 x 1080				29,92	0.95
		1 x 1440				39.89	0.71
		1 x 1800			V 97 V 10 VIII V 11 VIIII V 11 VIIII	49,86	0.57
		3 x 720				्री9.94	1.43
		2 x 1080		( ()		29.92	0.95
		2 x 1440				49,86 49,94 29.92 39.89 49.86 14.96 19.94	0.71
		2 x 1800	20		, ,	49.86	1.91
	Seedling emergence		here in	80 0 10			
	All uses considering	1 x 540	3610¢ 00 100 00 10000000000	\$2.77	1	14.96	241.34
	downward ground directed spray	1 x 720				19.94	181.01
	1 5	1 x 1080	JUST CL			29.92	120.67
		1 x 1440				39.89	90.50
		1 x 1800	201.			49.86	72.40
		3 x 720				19.94	181.01
		2 x 1080 5 5				29.92	120.67
		2 x 440				39.89	90.50
		2 x 48,00				49.86	72.40
Š.	PER: Predicted environment PER: PER: PER: PER: PER: PER: PER: PER:	ing rate, 1 EK: toxicity t	o exposure rat	10. IEK	values sno	wn in <b>Dold</b> fa	ll below the relevant trigger.
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Contraction of the state of the Table CP 10-05-2: Deterministic assessment of the risk for non-target plants due to the use of MON 52276. All rates covering all GAP table uses considering downward ground directed spray - PER (g a.e./ha) based on drift rate (%) at 5 m from application area = 0.57 %; MAF = 1.00 (considering at least a 28 day interval and a DT50 of 2.8 days)

	Crop scenario	Appl. Rate [g a.e./ha]	ER ₅₀ [g a.e./ha]	Drift [%]	MAF	PER [g a.e./ha]	TER (criterion: TER ≥\$)
	Vegetative vigour					,	\$. 0 20 0
	All uses considering	1 x 540	28.5	0.57	1	3.08	9.26 5
	downward ground directed spray	1 x 720				4.10	6.94 0
	un conce spray	1 x 1080				6.16	4.63
		1 x 1440				8.21	3.47
		1 x 1800				10.26	2.78
		3 x 720				4.30	6.94
		2 x 1080			in s	°6€1°6	4.63
		2 x 1440				8.21	3.47
		2 x 1800		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		10.26	2.78
	to an or a state of the state o	A His of the to the tot					TER (criterion: TER 5)         9.26         9.26         4.63         3.47         2.78         6.94         4.63         3.47         2.78         Il below the relevant trigger.
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N. HAR THE TRANSPORT Table CP 10-05-3: Probabilistic assessment of the risk for non-target plants due to the use of PER (g a.e./ha) based on drift rate (%) at 1 m (= 2.77 %) and 5 m (= 0.57 %) from application of area; MAF = 1.00 (considering at least a 28 day interval and a DT₅₀ of 2.8 days)
 Cron/Annl. Rate

	Crop/Appl. Rate [g a.s./ha]	HC5 [g a.s./ha]	Drift	PER [g a.s./ha]	TER (criterion: TER ≥ 1)	
	Vegetative vigour	[g a.s./11a]	[%]	[g a.s./118]	(criterion: TER≥1) S 12 S 10 S 10	
	1 x 540	21.6	2.77 % - at 1 m	14.96	1.44 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	1 x 720			19.94	1.44 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	1 x 1080			29.92	0.72	
	1 x 1440	-		39.89	0.54	
	1 x 1800	-		49.86	0.438 0	
	3 x 720	-		19.94	1080	
	2 x 1080	-		29.92	N ON	
	2 x 1440			39.89	0.54	
	2 x 1800			49.86	0.43	
	1 x 540	21.6	0.57 % - at 5 m	3.080	7.02	
	1 x 720		Š	490	5.26	
	1 x 1080		and a second	616	3.51	
	1 x 1440			8.21	2.63	
	1 x 1800	-	the co. o. o.	10.26	2.11	
	3 x 720	-		4.10	5.26	
	2 x 1080	1	C 42 6 C 42 6	6.16	3.51	
	2 x 1440	A.		8.21	2.63	
	2 x 1800			10.26	2.11	
2 x 1080         2 x 140         3.89         0.54           2 x 1800         1 x 540         21.6         0.57 % - at 5 m         3.09 % 0         7.02           1 x 520         1 x 140         1 x 140         1 x 160         1 x 140         1 x 160           3 x 720         2 x 1440         2 x 160         0.57 % - at 5 m         3.09 % 0         7.02           2 x 1080         1 x 140         1 x 160         1 x 160         1 x 160         1 x 160           3 x 720         2 x 1440         2 x 160         0.57 % - at 5 m         3.09 % 0         7.02           2 x 1080         1 x 160           3 x 720         1 x 160           2 x 1400         1 x 160           2 x 1600         1 x 160           2 x 1600         1 x 160           1 x 160         1 x 160         1 x 160         1 x 160         1 x 160         1 x 160           1 x 160         1						
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