Delivering Value Creation

Capital Markets Day
London, December 5, 2018

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CEO Bayer AG

Disclaimer

Cautionary Statements Regarding Forward-Looking Information

This presentation contains forward-looking statements. A forward-looking statement is any statement that does not relate to historical facts and events, but rather reflects Bayer's current beliefs, expectations and assumptions regarding the future. This applies, in particular, to statements in this presentation on revenue growth, including product introductions and peak sales potential, synergies, especially in relation to the acquisition and integration of Monsanto Company, portfolio adjustments, cost reduction, financial targets and earnings, cash flow generation, deleveraging and other similar statements relating to future performance, including with respect to the markets in which Bayer is active.

Although the forward-looking statements contained in this presentation are based upon what Bayer's management believes are reasonable assumptions, they necessarily involve known and unknown risks and uncertainties that could cause actual results and future events to differ materially from those anticipated in such statements. Forward-looking statements are not guarantees of future performance and undue reliance should not be placed on them. Bayer undertakes no obligation to update forward-looking statements if circumstances or management's estimates or opinions should change except as required by applicable securities laws.

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2018: Progress Across all Divisions

Delivering on Guidance Despite Headwinds

Group ✓

- 2018 on track
- Status of Glyphosate litigation
- Value crystallization of Covestro stake
- Net financial debt at ~€36bn by end of 2018, ~€3bn ahead of plan

Crop Science ✓

- Growth ahead of competition and best-in-class profitability[1]
- Full recovery in Brazil
- Successful start of integration

Pharmaceuticals ✓

- Growth at rate of competition[2]
- cGMP remediation in Leverkusen fully on track
- Xarelto approvals/launch in CAD/PAD in EU/US
- Progress with Larotrectinib and Darolutamide

Consumer Health ✓

- Growth acceleration plan with strengthened management underway
- Return to growth in H2 2018
- Portfolio further focused through divestiture of Rx dermatology

[1] Reported data peer group; [2] IQVIA; cGMP: current Good Manufacturing Practices; CAD: Coronary Artery Disease, PAD: Peripheral Artery Disease

We are Well-Positioned to Deliver Significant Value Creation

Science for a better life

// Address societal needs and benefit from global megatrends

A global leader in Health & Nutrition

// Well-positioned to shape the future of our industries

Leveraging our core competencies

// Capture long-term, above-GDP growth and deliver attractive returns

Executing on tangible, near- and medium-term value levers

// Drive value creation

Committed to be a responsible leader in sustainability

// Drive change in a sustainable manner

Global Megatrends in Health & Nutrition

Attractive Macro Drivers of Our Businesses

Megatrends through 2050

Aging Population

People 60+ more than doubling[1]

>20% of total population[1]

Growing Population

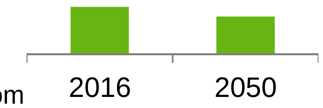
+2.2bn
people[1]

+50%
more food and feed required to meet growing demand[2]

Pressure on Ecosystems

-17%
Harvest losses from climate change[3]

-20%



Significant loss in arable land per capita[4]

Societal Needs

Preserve and restore health

Secure sufficient supply of quality food

Use natural resources more efficiently and responsibly

Our Mission

We leverage science to address these societal needs – with the ultimate goal to improve people's lives

Science For A Better Life

[1] UNDESA 2017 (United Nations Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision)
[2] FAO 2017, (FAO Global Perspective Studies)
[3] Nelson et. al, (2014); FAO 2016 "Climate change and food security"
[4] FAOSTAT (accessed Oct 30, 2018) for 1961-2016 data on land, FAO 2012 for 2030 and 2050 data on land, and UNDEDA 2017: World Population Prospects for world population data

Our Markets Have Highly Attractive Characteristics

Favorable Industry Environment

		Market Size 2017
Crop Science		~ €90bn[1]
Pharmaceuticals		~ €870bn[2]
Consumer Health		~ €140bn[3]

Characteristics

- ✓ Secular above-GDP growth trend
- ✓ Highly regulated, innovation-driven markets
- ✓ High market profitability
- ✓ Ability to achieve leading position and margins while growing ahead of competition

[1] Pro forma calculations Bayer; Bayer CS market model
[2] IQVIA
[3] Market model in-market sales OTC medicines, data from IQVIA, Nicholas Hall

We are a Global Leader in Health & Nutrition

Well-Positioned Across Our Businesses

~€45bn 2018 Pro-forma Sales[1]

Crop Science

~€19bn / ~43% of Group
#1 Position

Growing ahead of competition over last five years on average

Best-in-class profitability through the cycle

- Leading portfolio of seed & traits, crop protection and digital farming
- World-class R&D platform with best talent and technology in the industry
- Positioned to shape the future of agriculture: development of tailored solutions to address farmers' individual needs and challenges

Pharmaceuticals

~€17bn / ~38% of Group
#2 Position in Cardiovascular

One of the fastest growing Pharma businesses over the past five years

Xarelto and Eylea among the world's leading Pharma brands

- Innovative medicines in areas of high unmet medical need
- Therapeutic focus areas: Cardiology, Oncology, Gynecology, Hematology and Ophthalmology
- Strong position in emerging markets
- Leading in Radiology and Women's Health

Consumer Health

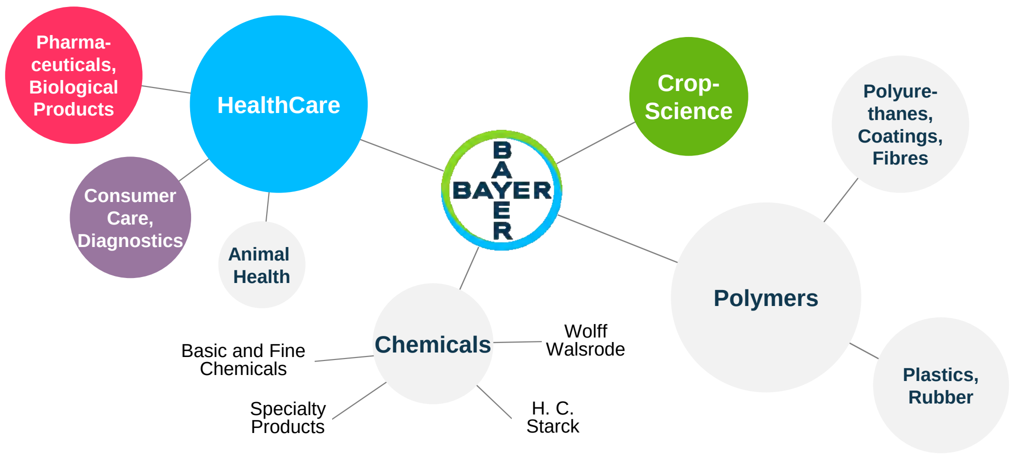
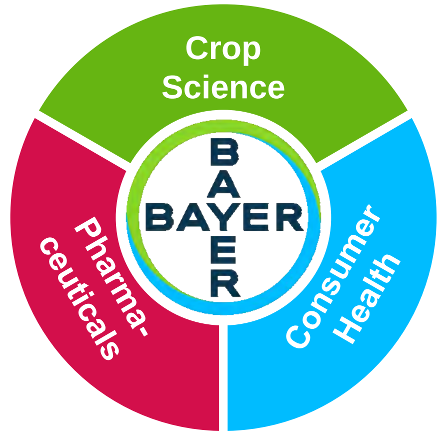
~€5bn / ~12% of Group
#2 Position

Leading Positions in 7 of the Top 10 OTC Markets

- Focus categories: Allergy & Cold, Cough, Sinus and Flu; Nutritionals; Dermatology; Pain and Cardio; Digestive Health
- Concentrated portfolio of 16 mega-brands with annual sales of >€100m

[1] The unaudited Pro-forma data are presented as if both the acquisition of Monsanto and the associated divestments had taken place as of January 1, 2018. Sales of Monsanto are presented in periods as per the Bayer fiscal year. One-time effects of business operations, the accounting for discontinued operations and the recognition and measurement of sales from certain business transactions have been adjusted in line with our accounting. Due to this simplified procedure, they explicitly do not reflect sales according to IFRS or IDW RH HFA 1.004, meaning they have not been audited.

Transformation into a Leader in Health & Nutrition – Next Phase to Deliver Future Value Creation

	Past	Today
Group Profile		

Measures	// Organic top-line growth and profitability improvement
	// Transformational M&A in all of today's businesses
	// Synergies realized from strategic acquisitions
	// Value crystallized through optimally-timed divestments
		// Shaping the future of Health & Nutrition
		// Adjusted set-up for future value creation

Five Levers to Drive Value Creation

What We Do

Through our leading positions in Health & Nutrition we create value for our shareholders and society

Our Value Levers Are Designed to Deliver Attractive Returns

- **World-class innovation**
- **Drive operational excellence**
- **Disciplined capital allocation**
- **Renowned corporate brand**
- **Highest sustainability standards**

Innovation Will Deliver Sustained Growth

Our Reconfigured Innovation Approach

	Crop Science	Pharmaceuticals	Consumer Health

Major Innovation Drivers	// Meet required yield increases
	// Need for a responsible and sustainable use of natural resources
		// Underlying unmet medical need and added net clinical benefit
		// Novel platforms and technologies
		// Strong life cycle management
			// Brand life cycle management to maintain portfolio freshness
			// Rx-to-OTC switches

Divisional Pipelines	**>75 projects** **Peak Sales Potential: up to €30bn**	**~50 projects** **Significant peak sales potential of key late-stage pipeline assets**	**Double growth contribution from innovation** **(from 15% to 30% of growth)**

Focus Areas

1. **Accelerate output by intensified external sourcing of innovative technologies and assets**
2. **Advancing Digital transformation: Leverage computational science and digital at scale across the value chain**
3. **Drive disruptive technologies (Bayer-wide via LEAPS)**

Powerful Innovation Engine

- **€6.1bn** annual R&D investment[2]
- **~18,300** employees in R&D[2]
- Strong history of **collaborations with innovative partners** from academia and industry[1]
- **~450** inventions p.a.[3]

[1] Examples for collaboration partners from academia: German Cancer Research Centre, Tsinghua University, Broad Institute; examples for collaboration partners from industry: Loxo, Merck, Onyx, Orion
[2] Pro-forma 2018e (FTE, year-end)
[3] Any compound, device or alike for which Bayer starts seeking patent protection in any given year (reference: 2005-2017)

We Will Accelerate Sourcing Innovation Externally

Loxo Oncology – an Example for Instant Access to Innovation in a Well-Understood Therapeutic Area

1	Overview	Strategic Highlights

	// Larotrectinib is a novel tumor-agnostic targeted cancer therapy
	// Demonstrates impressive anti-tumor activity in a wide range of tumors
	// FDA approved for the treatment of adult and pediatric patients with solid tumors that have a neurotrophic receptor tyrosine kinase gene fusion
	// Peak sales potential of >€750m
		High unmet medical need ✓
		Growth area ✓
		Pioneering precision cancer therapy ✓

Full labeling information available at http://labeling.bayerhealthcare.com/html/products/pi/vitrakvi_PI.pdf

Advancing Digital Transformation Across all Businesses

2	Group-wide Digital Transformation	Advancing Digital / Evolution of Digital Farming

Digitize customer experience

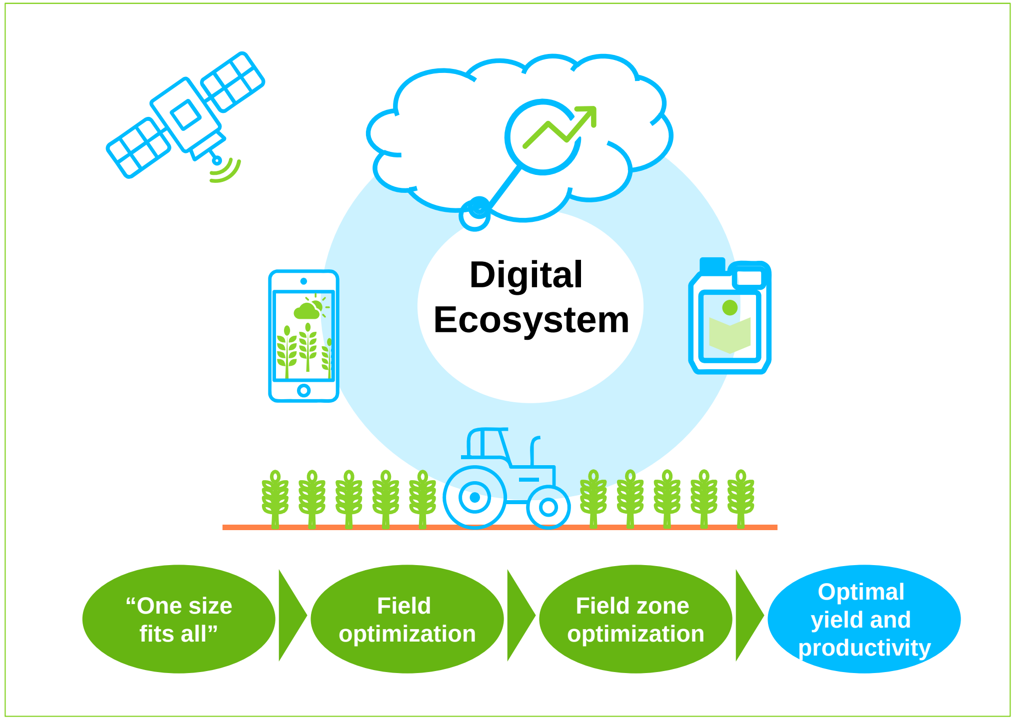
Drive additional growth & efficiency
- // Improve customer experience, add digital products and services
- // **Example Consumer Health:** e-commerce and precision marketing

New business models

Open new sources of value
- // Enable disruptive business models based on data and platforms
- // **Example Crop Science:** Outcome-based business models

Digitize operations

Improve cost and quality
- // Leverage data and analytics at scale across the value chain and operations
- // **Example Pharma:** Established first digital plant in Italy[1]



[1] Identified by World Economic Forum in Sept. 2018 as one of the nine best factories in the world

Differentiated Approach to Co-create Disruptive Technologies

With LEAPS, we are Driving Disruptive Technologies

3 Approach	Current key ventures		Addressable market
Focus on **game-changing technologies** to address fundamental challenges and **shift the core paradigms in Health and Nutrition**	CASEBIA	**Access to gene editing (CRISPR)**	$25bn[1]
Health: From treatment to **cure/ prevention**	BlueRock Therapeutics	**Access to stem cell technology**	$180bn[1]
Agriculture: Advancing **sustainable farming**	JOYN BIO	**Access to microbe technology**	$100bn[2]

[1] Frost & Sullivan, market by 2030
[2] Mordor Intelligence: Nitrogen fertilizer market (2020)

Bayer 2022 Synergy & Efficiency Programs

Crop Science

Realization of Crop Science sales and cost synergies

Pharmaceuticals

Re-alignment of R&D activities towards external innovation / Adjustment of the hematology manufacturing footprint

Consumer Health

Comprehensive growth acceleration program

Platform cost reduction

Adjustment of corporate platform

- ✓ **Targeted overall contribution of ~€2.6bn by 2022**
- ✓ **Global FTE impact ~12,000**

We Have Clear Priorities for Capital Allocation

Focus on Shareholder Return, Deleveraging, and Innovation

Free Cash Flow[1] Targeted

~€23bn
2019e-2022e

+

Divestment proceeds

Disciplined capital allocation

- Shareholder Return
- Deleveraging
- Innovation & Acquisitions

[1] Free cash flow (FCF) defined as = Net cash flow provided by operating activities - CAPEX (PPE and Intangible assets) + interest & dividends received - interest paid + interest received from interest rate swaps; excluding contributions from divested businesses

Bayer Stands for Trust, Reliability and Quality

Driving Brand Awareness and Elevating Perception

Value-accretive umbrella brand[2]

// Aided awareness well above industry norms[1]

// Bayer brand accounts for ~30% of product brands' trustworthiness

// Endorses quality and drives premium pricing

// Value accretive to **all** divisions

// Recommend up to 3x more often

// Pay up to 2x more for a Bayer product

// Signals regulatory responsibility and societal commitment

Leading product brands

Crop Science

Arize, FOX, PROSARO, BELT, Luna, Xpro, FLINT, CropStar, CORVUS, SERENADE, ADENGO, NEMASTRIKE, De Ruiter, Roundup PowerMAX, SmartStax, XTENDIMAX, ASGROW, Maxforce, K-Othrine, DEKALB, DELTAPINE, Seminis

Pharmaceuticals

Xarelto, EYLEA, Mirena, Adempas, Stivarga, KOGENATE Bayer, Kovaltry, Nexavar, BETAFERON, Adalat, YAZ, yasmin, Yasminelle, Xofigo, ASPIRIN CARDIO, Gadovist 1.0, Avelox, Glucobay

Consumer Health

Claritin, ASPIRIN, Bepanthen, Actron, Alka-Seltzer, ALEVE, Canesten, elevit, Redoxon, ONE A DAY, AKTREN, Berocca, Iberogast, Afrin, Priorin, Rennie, FLINTSTONES VITAMINS, MiraLAX, Midol, Talcid

Source: Company Information, EvaluatePharma, Euromonitor
[1] Bayer's score is ~87%. "Aided Awareness" is an industry standard metric used to understand brand strength, and it refers to the level of recognition of the Bayer brand in a survey of the population. Data collection performed by Dialego
[2] Brand Spillover Study October 2018, Bayer AG & Ludwig-Maximilians-Universität München

Group Targets - Value Creation from Strengthened Base

Triple leverage

		2018e[1]	2019 IndicativeGuidance	Target 2022	CAGR 2018-2022
Sales	€bn	~44.6	~46	~52	**~4%**
EBITDA **before special items**	€bn	~11.5	~12.2	~16	**~9%**
Core EPS	€	~6.7	~6.8	~10	**~10%**
FCF	€bn	~4.1[2]	~3-4	~8	**~18%**

2022 targets at constant currencies, not including portfolio measures (except for Consumer Health)

[1] The unaudited pro-forma data are presented as if both the acquisition of Monsanto and the associated divestments had taken place as of January 1, 2018. Sales of Monsanto are presented in periods as per the Bayer fiscal year. One-time effects of business operations, the accounting for discontinued operations and the recognition and measurement of sales from certain business transactions have been adjusted in line with our accounting. Due to this simplified procedure, they explicitly do not reflect sales according to IFRS or IDW RH HFA 1.004, meaning they have not been audited; [2] Standalone cash flow

Key Priorities

Enhance Our Operating Performance and Drive Value Creation

1. **Achieve operational targets**
2. **Integrate Crop Science and leverage #1 industry platform**
3. **Continue strengthening of internal pipeline and intensify external sourcing of innovative technologies and assets**
4. **Performance improvement of Consumer Health**
5. **Further focus our business**
6. **Adjust infrastructure across the Group**

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Financial Targets through 2022: Focus on Value Creation

//////////

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Wolfgang Nickl
CFO Bayer AG

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We Will Create Significant Value Through 2022 and Beyond

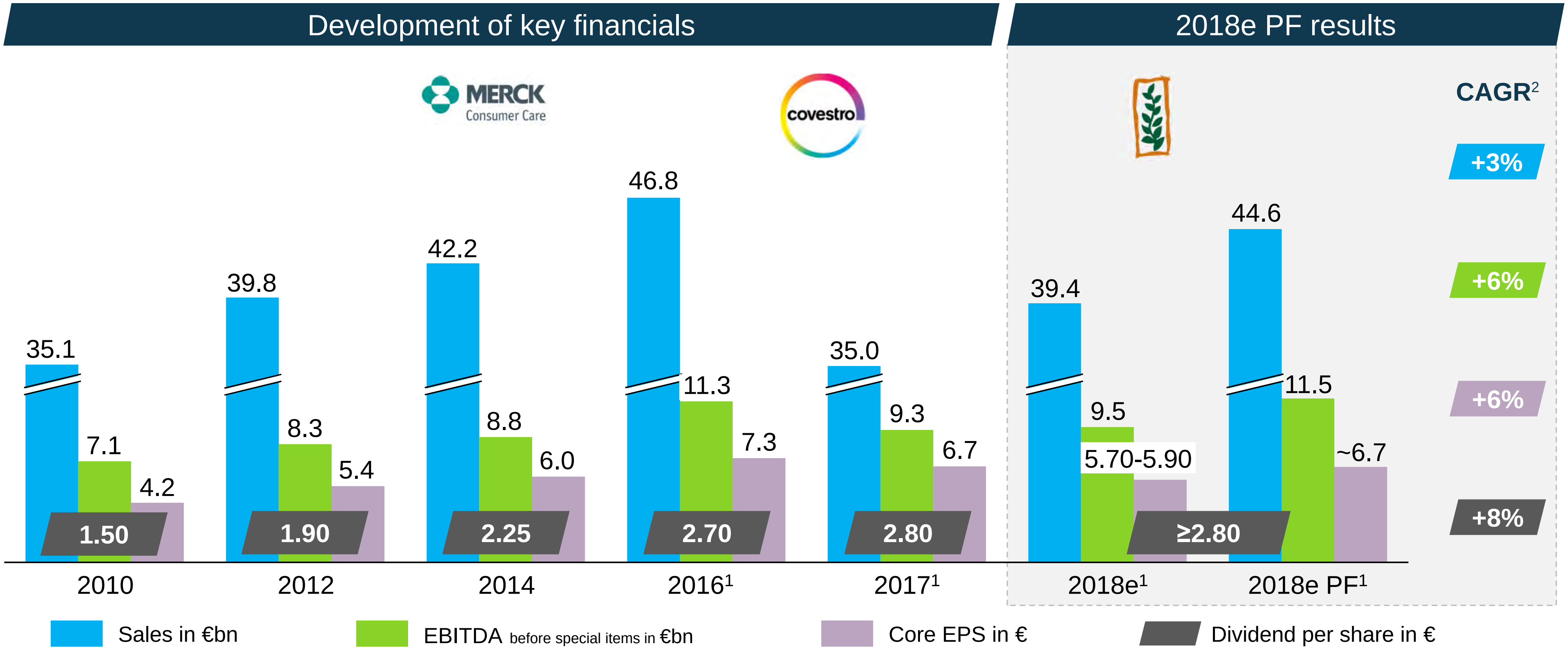
Focus on Execution and Driving Sustained Profitable Growth…

1. **We have completed Bayer's portfolio transformation into a global leader in Health & Nutrition**
2. **The next phase is focused on driving value creation through (i) growth ahead of competition enabled by innovation and portfolio measures (ii) profitability enhancement through Bayer 2022 synergy and efficiency programs and (iii) strong cash generation**
3. **We target Sales, Core EPS and FCF CAGR* until 2022 of 4%, 10% and 18%, respectively**
4. **Strong FCF along with proceeds from divestments enable (i) growing dividends, (ii) quick deleveraging of our balance sheet and (iii) selective bolt-ons and in-licensing transactions**

2018e PF used for Sales and Core EPS; 2018e used for FCF

Steady Growth until Today…

Profile Improvement Through Strategic Portfolio Measures



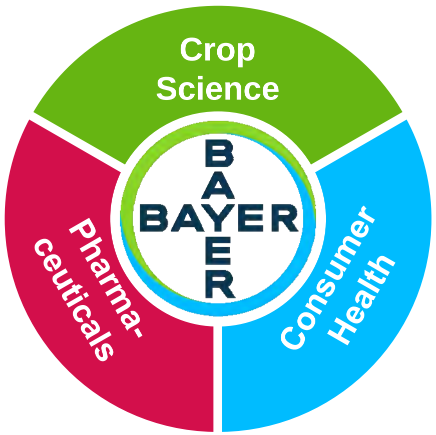
[1] As reported in the respective year; 2016 incl. Covestro; 2017ff ex. Covestro; 2018 incl. Monsanto
[2] CAGR from 2010 to 2018e PF

We Will Make Further Portfolio Adjustments: Crystallizing Value of Non-core Assets

Portfolio assets		Rationale	Financials (2018e) Sales	EBITDA before special items
Animal Health	// Explore strategic exit options for **Animal Health**	// Inorganic investments required to build a leading position will be shifted to other investment priorities	**~€1.5bn**	**~€0.35bn**
CURRENTA Leistung für Chemie und Industrie	// Explore strategic options for share in **Currenta**	// Non-core business; mismatch between Bayer's ownership share (60%) and demand of services (20%)	**~€1.2bn**	**~€0.2bn**
Coppertone, Dr.Scholl's	// Explore strategic options for **Suncare & Footcare**	// Crystallize value of consumer care brands to focus capital allocation on core OTC brands	**~€0.4bn**	**N/A**
		Total:	**~€3.1bn**	**>€0.6bn**

Transformation into a Global Leader in Health & Nutrition - Next Phase to Deliver Value Creation

Transformation Completed



Next Phase Focused on …

1. Growth ahead of competition in Health and Nutrition
2. Consistent profitability enhancement
3. Strong free cash flow generation
4. Disciplined capital allocation

Delivering Value through Relentless Execution on 4 Focus Areas

1 Growth ahead of competition

- We are operating in highly attractive markets and allocate a substantial part of capital to R&D
- Pharma and Crop expected to continue their growth trajectory ahead of competition
- Consumer Health to approach market growth in the mid-term

2 Consistent profitability enhancement

- Deliver on Crop Science synergy targets
- Comprehensive growth acceleration program for Consumer Health
- Adjustment of corporate platform after years of significant portfolio transformation

3 Strong free cash flow generation

- Strong free cash flow generation supported by growth and stringent efficiency measures
- Focus on Capex efficiency and Working Capital management

4 Disciplined capital allocation

- Continue to grow dividends over the forecasting period
- Focus on deleveraging
- Disciplined M&A - focusing on bolt-ons & in-licensing

We Focus on Growth in Attractive Markets

	Market: Size 2017	Market: CAGR 2018-2022	Bayer's growth levers
Bayer Group			// **Using our leading positions in Agriculture, Pharmaceuticals and Self-care to address societal needs and benefit from global megatrends** // **Drive innovation**

Crop Science	~€90bn[1]	~3%[2]	// Leading portfolio of seed & traits, crop protection and digital farming
			// World-class R&D platform with best talent and technology in the industry
			// Positioned to shape the future of agriculture: Development of tailored solutions to address farmers' individual needs and challenges

Pharma-ceuticals	~€870bn[3]	4-5%	// Innovative medicines in areas of high unmet medical need
			// Therapeutic focus areas: Cardiology, Oncology, Gynecology, Hematology and Ophthalmology
			// Leverage external innovation and partnering as well as pipeline and potential of current products

Consumer Health	~€140bn[4]	3-4%	// Branded self-care solutions that help transform people's daily health // Focus on five core categories

[1] Pro-forma calculations Bayer, Bayer CS market model; [2] excluding potential cyclical recovery of the Crop Science market; [3] IQVIA ; [4] Market model in-market sales OTC medicines, data from IQVIA, Nicholas Hall

Bayer 2022 Synergy & Efficiency Programs

	Crop Science	Consumer Health	Pharmaceuticals
	Realization of Crop Science sales and cost synergies	Comprehensive growth acceleration program	Re-alignment of R&D activities towards external innovation / Hemophilia production footprint
	~€0.17bn (=$0.2bn) sales synergies[1]		
	~€0.47bn (=$0.55bn) cost synergies	*~€0.4bn contribution*	*~€0.2bn contribution*
Platform	*~€0.40bn (=$0.45bn) cost synergies*	*~€0.1bn contribution*	
Platform: Adjustment of corporate platform		*~€0.9bn contribution*	

Overall Contribution ~€2.6bn[2]

Global FTE impact ~12,000

One-Time Cost ~1.7X

[1] EBITDA before special items impact from sales synergies
[2] Indicative Phasing: ~30% effective in 2020, ~70% in 2021 and 100% in 2022

Crop Science: Realization of Sales and Cost Synergies

Key Initiatives	Synergies	Targeted Realization	Key Measures

Sales Synergies	~€0.2bn	By 2022	// U.S., Brazil, Argentina and Mexico as key levers
			// Increase crop protection chemistry sales
			// Digital Ag to serve as an enabler

Commercial and R&D operations	~€0.3bn	2018: ~5%
		2019: ~25%
		2020: ~55%
		2021: ~80%
		2022: ~100%
			// Integration of global & regional commercial leadership organizations
			// Salesforce and country footprint integration
			// Integration of small molecules research and development-, field solutions-, regulatory science- & R&D support services

Support Functions & Country Integration[1]	~€0.3bn		// Consolidation of global headquarter functions
			// Optimization of footprint at region- & country cluster level
			// Integration of Shared Service Center activities
			// Consolidation of real-estate and office footprint

Procurement[1] and Product Supply	~€0.1bn		// Consolidation of global & regional leadership organizations
			// Integration & optimization of production network-, warehousing- & logistics infrastructure
			// Supplier consolidation & operational excellence initiatives applied to combined organization

IT Infrastructures[1]	~€0.1bn		// Integration of global & regional IT organizations
			// Consolidation of IT platforms-, infrastructure-, workplace & applications
			// Consolidation of project portfolio & external service providers

Total Synergies	**~€1bn**		

[1] Partially overlap with platform cost reduction initiative, total €0.4bn platform synergies

Pharmaceuticals: Re-alignment of R&D Activities and Adjustment of Hemophilia Manufacturing

Key Initiatives	Contribution	Key Measures
Re-alignment of R&D activities	~€0.1bn	// Increased externalization of R&D // Adjustment of internal R&D structures
Adjustment of the hemophilia manufacturing footprint	~€0.1bn	// Consolidation of FVIII manufacturing in Berkeley (USA)
Total Contribution	**~€0.2bn**	

Consumer Health: Comprehensive Growth Acceleration Program

Key Initiatives	Contribution	Key Measures

Lean organization	~€0.1bn	// Flattening structures
		// Regional cluster optimization
		// Reduction of divisional HQ structures

Cost optimization	~€0.2bn	// ZBB[1] implementation across countries and functions // Cost optimization (non-working media, market research, travel, conferences)

COGS optimization	~€0.1bn	// Internal & external site network optimization
		// Reduce product write-offs
		// Cost optimization & reduction # of SKUs[2]

Reduction of platform cost	~€0.1bn	// Share of corporate platform efficiency program
Total Contribution	**~€0.5bn**	

[1] Zero-based budgeting
[2] Stock Keeping Unit
[3] Overlap with platform cost reduction initiative

Platform Cost Reduction: Adjustment of Corporate Platform

Key Initiatives	Contribution	Thereof contribution divisional programs	Key Measures

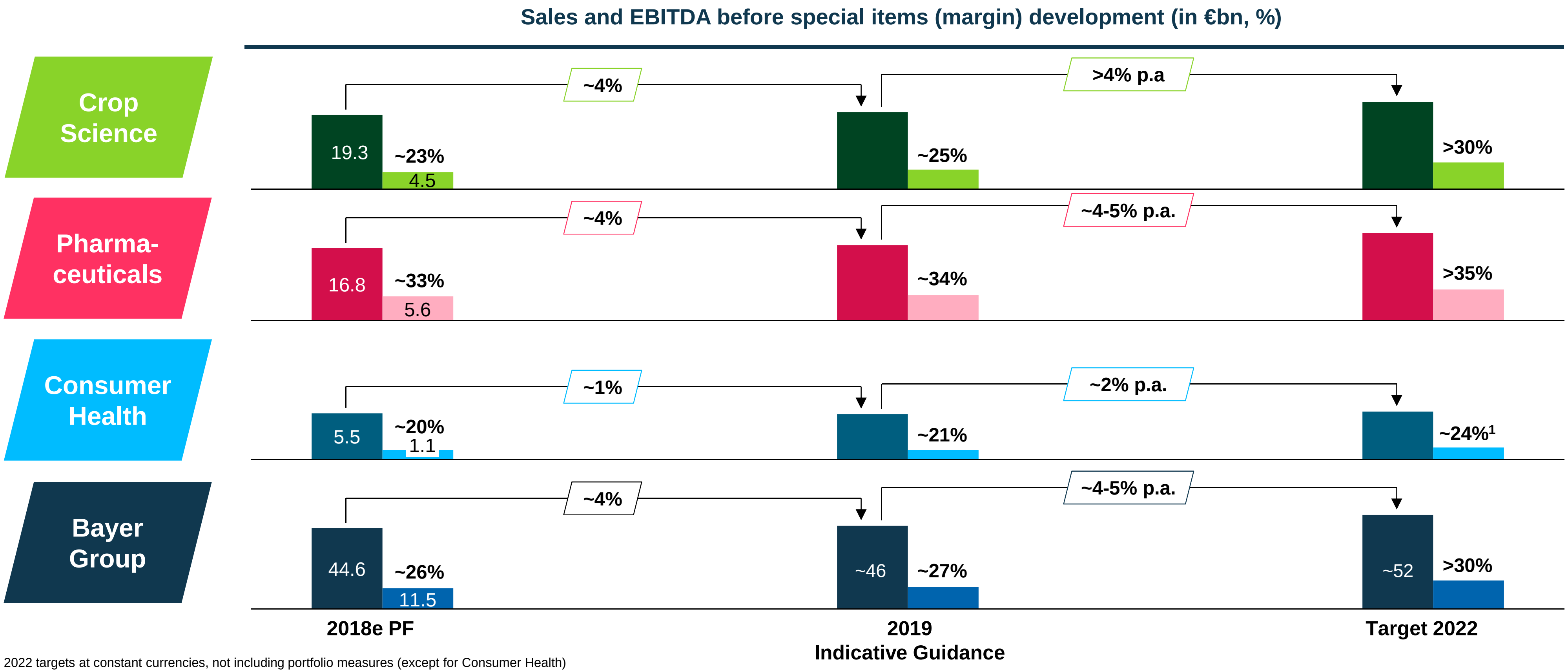
Structural change	~€0.7bn	*~€0.4bn Crop Science + ~€0.1bn Consumer*	// Review footprint of cross-divisional country platforms
			// Reduce redundancies between divisional / corporate functions
			// Functional synergies from the Post Merger Integration

Activity reductions	~€0.4bn		// Reduce service levels and processes of corporate functions
			// Rationalize and reduce IT application landscape
			// Prioritize project portfolio
			// Review financial steering model and budgeting process

Efficiency improvements	~€0.3bn		// Optimize real estate utilization and facility management
			// Standardize and automate back office processes
			// Consolidate external service providers

Total Contribution	**~€1.4bn**		

Targeting Significant Profitability Improvements Across All Divisions

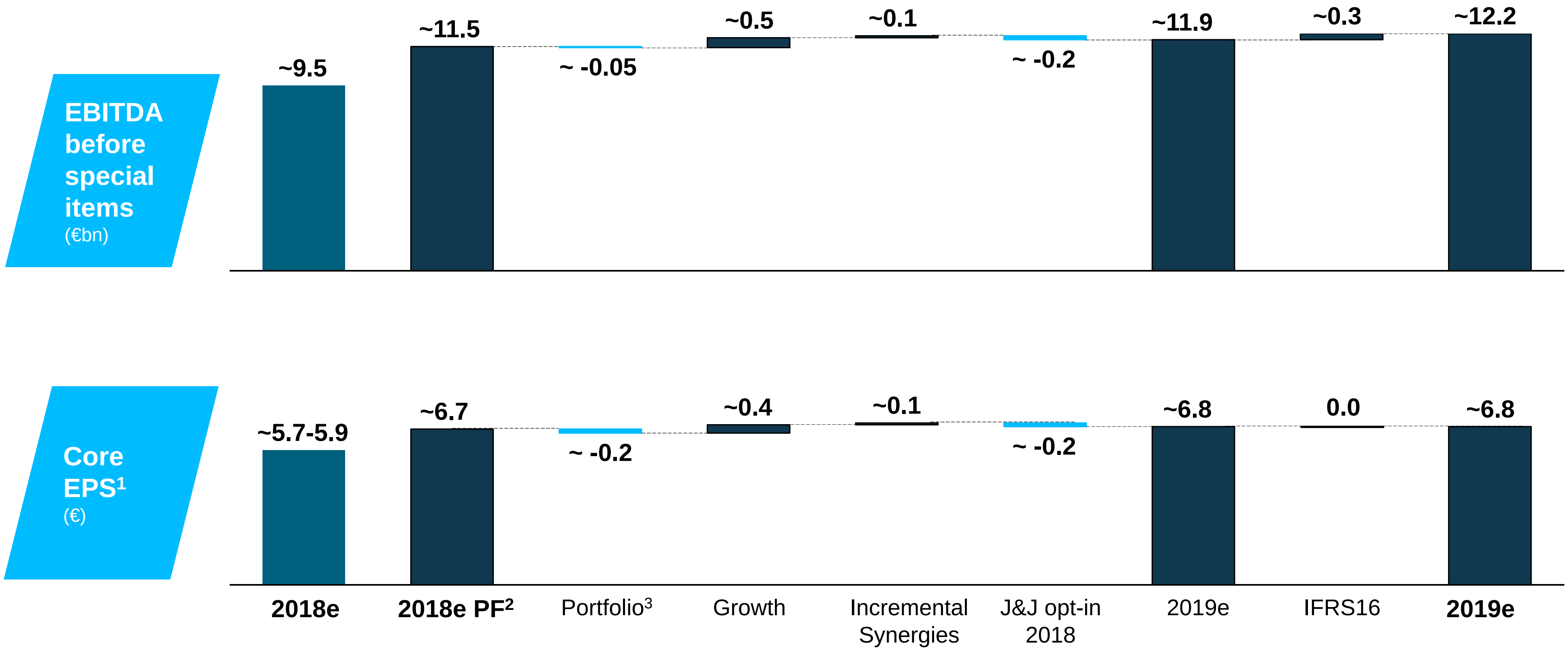


2022 targets at constant currencies, not including portfolio measures (except for Consumer Health)

[1] Includes portfolio measures;

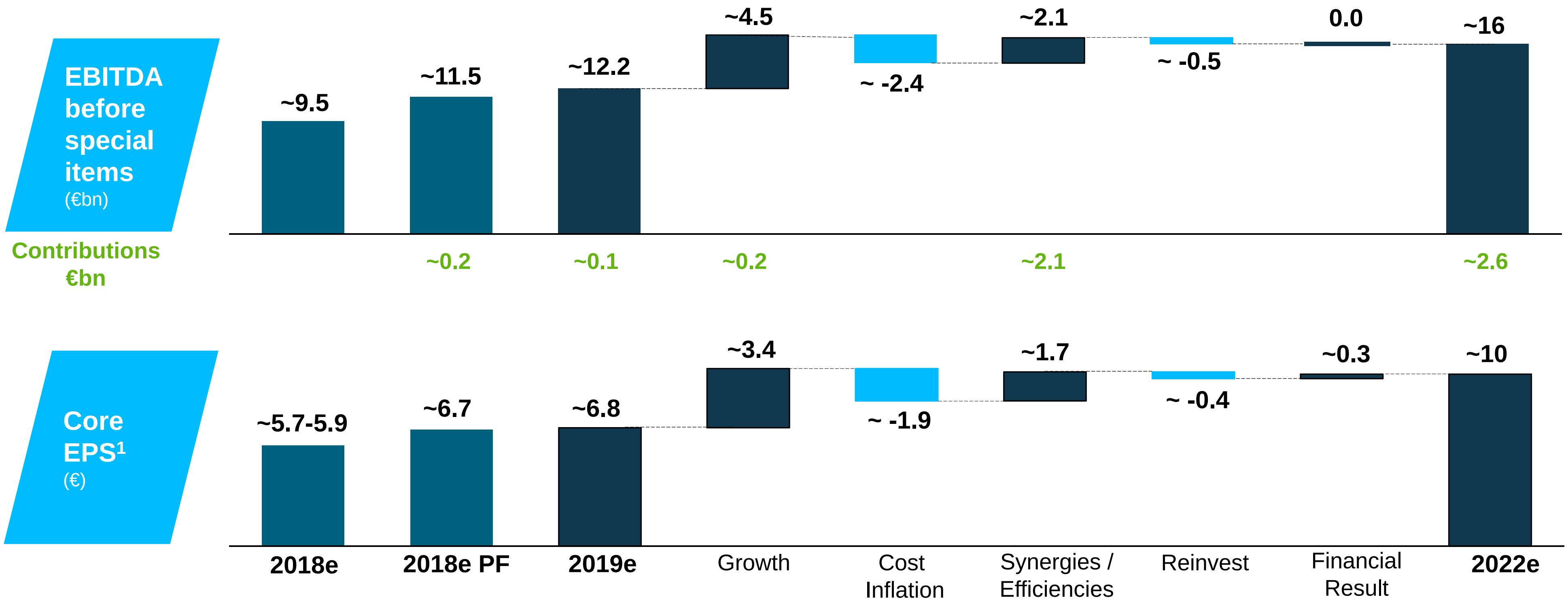
Robust Development of Underlying Earnings

Core EPS in 2019 Held Back by Portfolio Adjustments and One-time Effects



[1] Assumptions: Core tax rate of ~23% in 2018-2022; number of shares: ~980m in 2018 and ~982m in 2019-2022; [2] Pro forma calculation presented in Q2 and Q3 Earnings Calls on September 5th and November 13th respectively; [3] Covestro and Rx-Dermatology

Core EPS to Reach ~€10 by 2022 Driven by Sales Growth and Bayer 2022 Synergy & Efficiency Programs



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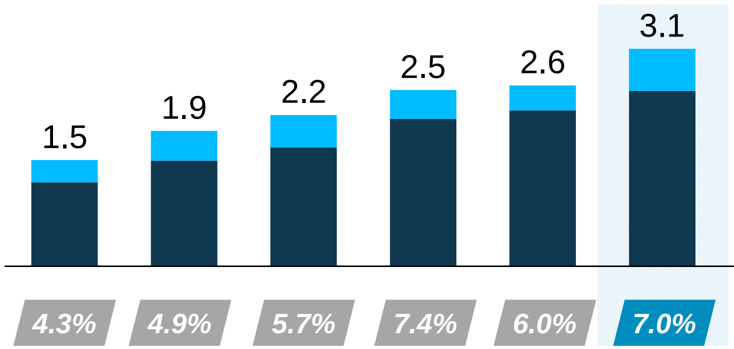
Cash Flow Improvement Focusing on Capex and Working Capital Optimization

Capex spend
in €bn



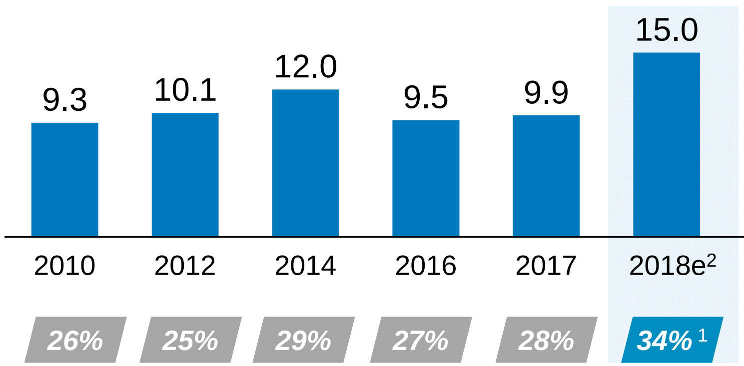
in % of sales

- **Annual contribution of ~0.5bn EUR by 2022**
- Past and current levels impacted by single large-scale investments in fixed assets
- Licensing will continue to be an element to drive growth

Focused CapEx below current levels → ***~ 5-6%***

Intangibles   Fixed assets

Working Capital
in €bn



in % of sales

- **Annual contribution of ~0.5bn EUR by 2022**
- Focus on optimization of inventory levels and receivables management

2022e

Working capital optimization → ***~ 32%***

[1] Crop Science 48%, Pharmaceuticals 24%, Consumer Health 24%; [2] Working Capital estimated at year-end

Group Targets - Value Creation from Strengthened Base

Triple Leverage

€bn		2018e PF	Indicative Guidance 2019	Target 2022	CAGR 2018-22[2]
Sales[1]	Total Group	44.6	~46 (~4%)	~52	*~4%*
	Crop Science	19.3	~4%		*>4%*
	Pharmaceuticals	16.8	~4%		*~4-5%*
	Consumer Health	5.5	~1%		*~2%*
EBITDA before special items (%)	Total Group	*11.5 (~26%)*	*~12.2 (~27%)*	*~16 (>30%)*	*~9%*
	Crop Science	*4.5 (~23%)*	*~25%*	*>30%*	
	Pharmaceuticals	*5.6 (~33%)*	*~34%*	*>35%*	
	Consumer Health	*1.1 (~20%)*	*~21%*	*~24%[4]*	
Core EPS (€)		~6.7	~6.8	~10	*~10%*
FCF		~4.1[3]	~3-4	~8	*~18%*
Net financial debt		~36[3]	~36[5]	~26-28	

2022 targets at constant currencies, not including portfolio measures (except for Consumer Health)

[1] Sales: cpa growth; [2] CAGR from 2018 base year; [3] FCF 2018e (as reported); [4] includes portfolio measures; [5] including around ~€1bn lease liability due to IFRS 16

We Have Clear Priorities for Capital Allocation

Focus on Shareholder Return, Innovation and Deleveraging

Free Cash Flow Targeted

~€23bn
2019e-2022e

Disciplined capital allocation

Shareholder Return
- Growing dividends
- Consider share buy backs with parts of divestment proceeds

Deleveraging
- Target range ~€26-28bn[1] net financial debt by end 2022

Innovation & Acquisitions
- Investment in licensing opportunities
- Potentially selective bolt-on acquisitions

Divestment proceeds

CURRENTA

Animal Health

Coppertone

Dr.Scholl's

[1] Before M&A / Portfolio

We Will Create Significant Value Through 2022 and Beyond

Focus on Execution and Driving Sustained Profitable Growth…

1. We have completed Bayer's portfolio transformation into a global leader in Health & Nutrition
2. The next phase is focused on driving value creation through (i) growth ahead of competition enabled by innovation and portfolio measures (ii) profitability enhancement through Bayer 2022 synergy and efficiency programs and (iii) strong cash generation
3. We target Sales, Core EPS and FCF CAGR* until 2022 of 4%, 10% and 18%, respectively
4. Strong FCF along with proceeds from divestments enable (i) growing dividends, (ii) quick deleveraging of our balance sheet and (iii) selective bolt-ons and in-licensing transactions

2018e PF used for Sales and Core EPS; 2018e used for FCF

Financial Targets through 2022: Focus on Value Creation

//////////

Capital Markets Day
London, December 5, 2018

Wolfgang Nickl
CFO Bayer AG

Key Assumptions (1)

- **FX rates:** All figures based on constant 2018 rates as disclosed below

€1/		FX Rate
BRL	Brazil	4.37
CAD	Canada	1.53
CHF	Switzerland	1.15
CNY	China	7.82
GBP	United Kingdom	0.89
JPY	Japan	131.01
MXN	Mexico	22.50
RUB	Russia	73.96
USD	United States	1.18

- **Free cash flow (FCF) defined as =** Net cash flow provided by operating activities - Capex (PPE and Intangible assets) + interest & dividends received - interest paid + interest received from interest rate swaps
- **Core Tax rate** of ~23% (2019-2022)
- **Number of shares:** ~980m in 2018 and ~982m in 2019-2022

Key Assumptions (2)

- **Pro-forma (PF) 2018:** The unaudited Pro-forma data are presented as if both the acquisition of Monsanto and the associated divestments had taken place as of January 1, 2018. Sales of Monsanto are presented in periods as per the Bayer fiscal year. One-time effects of business operations, the accounting for discontinued operations and the recognition and measurement of sales from certain business transactions have been adjusted in line with our accounting. Due to this simplified procedure, they explicitly do not reflect sales according to IFRS or IDW RH HFA 1.004, meaning they have not been audited.
- **Impairments:** €2.7bn for Consumer Health and €0.6bn for Pharmaceuticals

IFRS 16 – Summary and Illustrative Example

- Existing operating lease contracts will be reported as so-called right of use assets and respective lease liabilities
  - Right of use assets are part of the fixed assets and will generally be depreciated over the duration of the underlying lease contracts
  - The new lease liabilities will increase the net debt position accordingly
- Increase of EBITDA before special items compared to the prior accounting standard IAS17. Additional interest expense with regard to the lease liability
  - Prior to the application of IFRS 16 the entire operating lease expense was fully EBITDA before special items effective
  - Overall change in cash and cash equivalents due to business activities remains unchanged
  - Neutral over the total term of the lease contract for net income, however different split between EBIT before special items and financial result
  - Whereas IAS 17 provided for constant net income impact each year, IFRS 16 results in different net income effects per year depending on the contracts' life cycle status

Illustrative example of one contract: annual lease payments 100, 3 year lease, discount rate 4%

	p.a; Year 1-3	as of Jan 1, Year 1	as of Dec 31, Year 1	as of Dec 31, Year 2	as of Dec 31, Year 3	Total 3y impact		
figures rounded	IAS 17*	IFRS 16				IAS 17	IFRS 16	∆ IAS 17 / IFRS 16
Net Sales	-	-	-	-	-	-	-	0
EBITDA before special items	-100	-	0	0	0	-300	0	(+300)
EBIT before special items	-100	-	-93	-93	-93	-300	-279	(+21)
Financial Result	-	-	-11	-7	-3	-	-21	(-21)
Net Debt	-	-278**	-189	-96	0	-	-	0

* Prior accounting standard IAS 17 to be applied until Dec. 31st, 2018

** Sum of annual lease payments discounted at 4%

Driving Performance and Delivering New Growth Opportunities

//////////

Capital Markets Day
London, December 5, 2018

Stefan Oelrich
Head of Pharmaceuticals

Joerg Moeller
Head of Pharmaceuticals R&D

Disclaimer

Cautionary Statements Regarding Forward-Looking Information

This presentation contains forward-looking statements. A forward-looking statement is any statement that does not relate to historical facts and events, but rather reflects Bayer's current beliefs, expectations and assumptions regarding the future. This applies, in particular, to statements in this presentation on revenue growth, including product introductions and peak sales potential, synergies, especially in relation to the acquisition and integration of Monsanto Company, portfolio adjustments, cost reduction, financial targets and earnings, cash flow generation, deleveraging and other similar statements relating to future performance, including with respect to the markets in which Bayer is active.

Although the forward-looking statements contained in this presentation are based upon what Bayer's management believes are reasonable assumptions, they necessarily involve known and unknown risks and uncertainties that could cause actual results and future events to differ materially from those anticipated in such statements. Forward-looking statements are not guarantees of future performance and undue reliance should not be placed on them. Bayer undertakes no obligation to update forward-looking statements if circumstances or management's estimates or opinions should change except as required by applicable securities laws.

For more information on factors that could cause actual results and future events to differ from those anticipated in forward looking statements, please refer to the factors discussed in Bayer's public reports which are available on the Bayer website at https://www.investor.bayer.com/en/reports/annual-reports/overview/, including in the Annual Report 2017 under the caption “Report on Future Perspectives and on Opportunities and Risks”.

The Pharma Market Will Remain Attractive

Market Size 2017

€870bn

4 - 5%

Market CAGR 2018-22e

Major market dynamics

// Aging population

// Accelerating pace of innovation

// Declining R&D productivity

// Technological disruption by breakthrough science

// Digitalization across the value chain

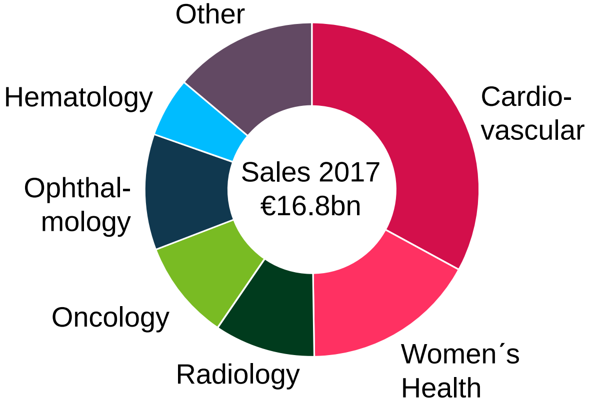
// Pressure on price for value continues to increase

// Non-traditional new entrants

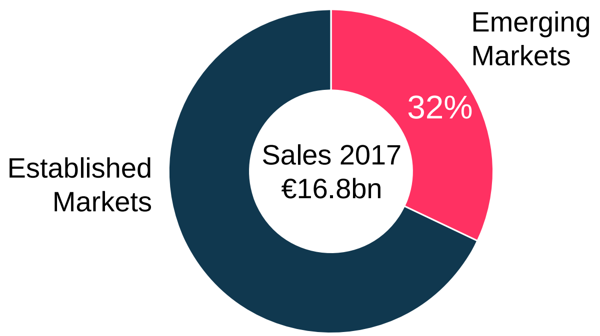
Source: IQVIA Market Prognosis Update 2018-22 incl. Radiology

Innovative Medicines in Areas of High Unmet Medical Need

Therapeutic area focus



Emerging markets exposure



Global leadership in important therapeutic areas

- // **No. 1** in Retinal Diseases
- // **No. 1** in Women´s Health
- // **No. 1** in Radiology
- // **No. 2** in Cardiovascular
- // **No. 2** in Hematology

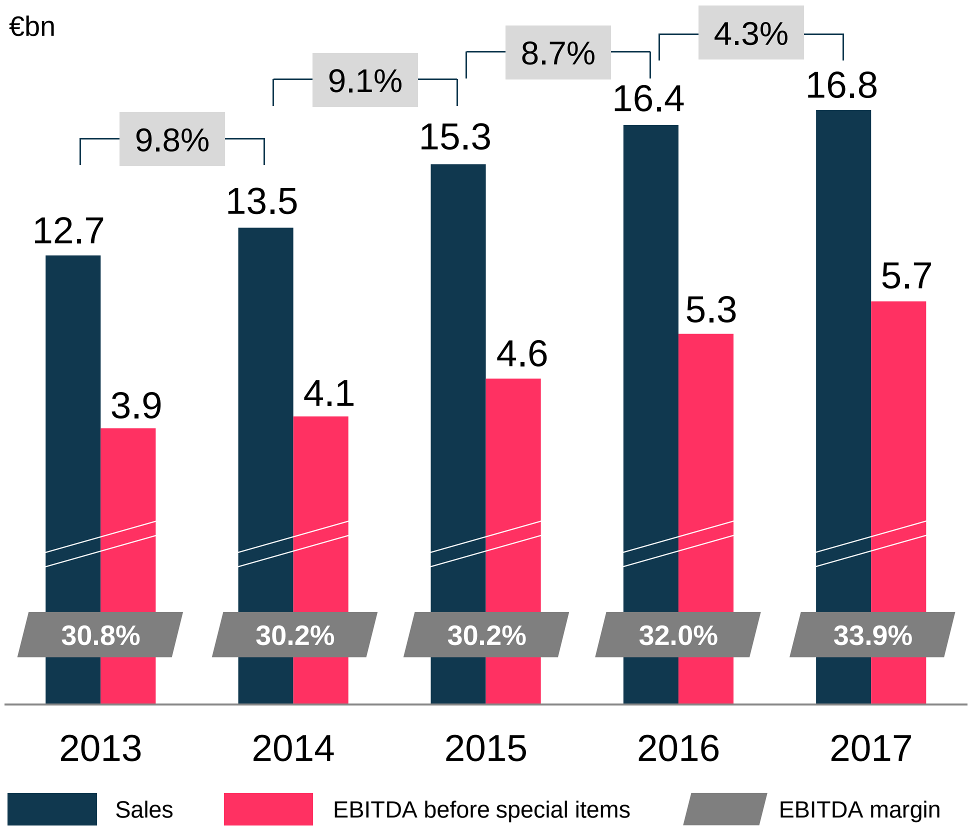
Leading Brands

Xarelto rivaroxaban | KOGENATE Kovaltry Jivi | Xofigo | EYLEA | Mirena

Adempas riociguat | Nexavar (sorafenib) tablets | Stivarga (regorafenib) | Gadovist 1.0 | ASPIRIN CARDIO

Emerging markets include Latin America, Asia (w/o Japan, Australia, New Zealand), Africa and Middle East incl. Turkey, Eastern Europe

Continued Sales Growth and Margin Expansion



- Sales growth above industry level
- Successfully launched and commercialized innovative products, with Xarelto and Eylea becoming blockbuster brands
- Disciplined resource allocation
- 2017 EBITDA margin at upper end of guidance corridor of 32-34% – achieved one year earlier than originally planned
- Increase in R&D investment by ~€1 billion p.a. to c.17% of sales

Including Radiology; Sales growth currency and portfolio adjusted; EBITDA margin before special items

Key Drivers for Growth and Margin Expansion

Focus on key brands

Xarelto rivaroxaban
EYLEA
Adempas riociguat
Mirena
Stivarga
KOGENATE
Kovaltry
Xofigo

~70% of sales growth
(2013 - 2017)

Focus on key markets

	Sales 2017
USA	€3.7bn
PR China	€2.0bn
Japan	€2.0bn
Germany	€1.5bn
France	€0.6bn
Brazil	€0.4bn

~50% of sales growth
(2013 - 2017)

Prudent cost management

	2013 - 2017
COGS	-400 bps[2] ↓
M&S	-700 bps[2] ↓
R&D	+230 bps[2] ↑

Margin[1] up 310 bps
(2013 - 2017)

[1] EBITDA margin before special items; bps: Basis points, [2] as percentage of sales

Focused Leadership Strategy to Deliver Mid-term Targets and to Ensure Long-term Success

2022 Targets for Pharma

Sales CAGR 4 - 5%
(Basis 2018e of ~€16.8bn)

EBITDA-margin >35%

Focused Leadership

Relentless Focus

- Stringent focus on **key brands** and **markets incl. China**
- Achieve **category/segment leadership** within **Oncology** and **Cardiovascular**

Innovation

- Supplement organic pipeline with select **in-licensing** and **bolt-on M&A options**
- **Transform innovation model** to ensure long-term success beyond LoEs

Excellence in Execution

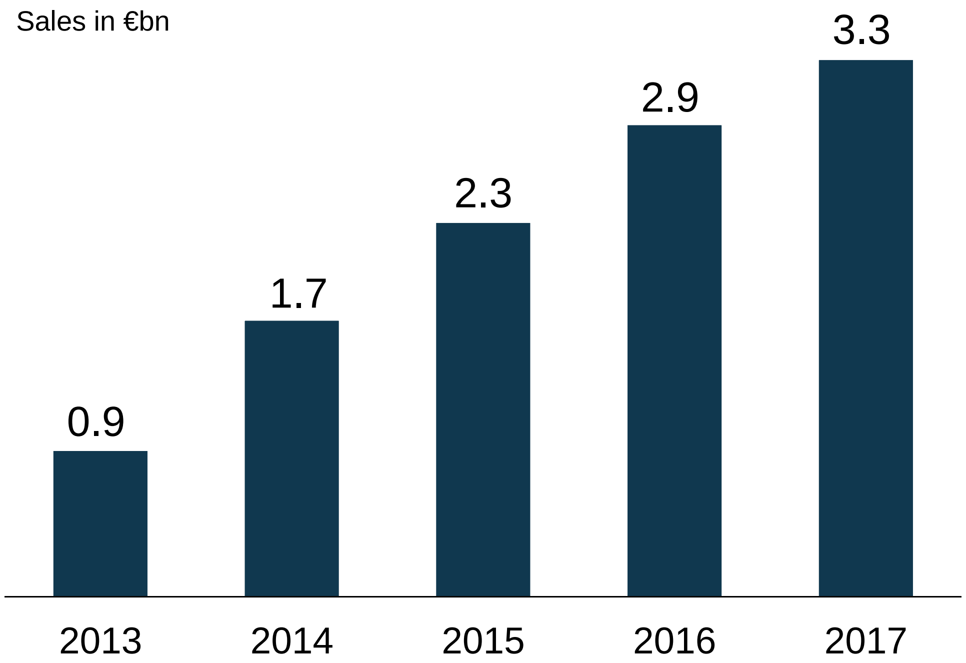
- Maintain **operational focus**
- Deliver on **mid-term growth and margin aspirations**
- Execute **efficiency measures**

2022 targets at constant currencies, not including portfolio measures; EBITDA margin before special items; LoE: Loss of exclusivity

Xarelto – Continued Growth of a Leading Anticoagulant

Xarelto rivaroxaban

Sales in €bn



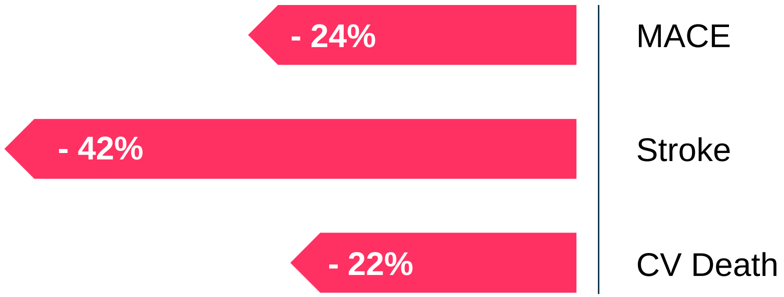
- Most broadly indicated anticoagulant for use in venous and arterial thromboembolic conditions
- A leading pharma brand with global sales of €5.0bn in 2017 incl. sales at Johnson & Johnson
- New CAD/PAD indication launching in EU and the US
- Peak sales potential: >€5.0bn[1]
- Further growth driven by:
  - Under-served patient populations
  - Demographics
  - Shift from warfarin
  - New indications targeting patients currently not treated with anticoagulants

CAD: Coronary artery disease; PAD: Peripheral artery disease
[1]Ex-US sales plus royalty from J&J as reported by Bayer

Xarelto Demonstrates Significant Therapeutic Benefits in CAD/PAD

Potential for Changing the Current Standard of Care

Efficacy (RRR)



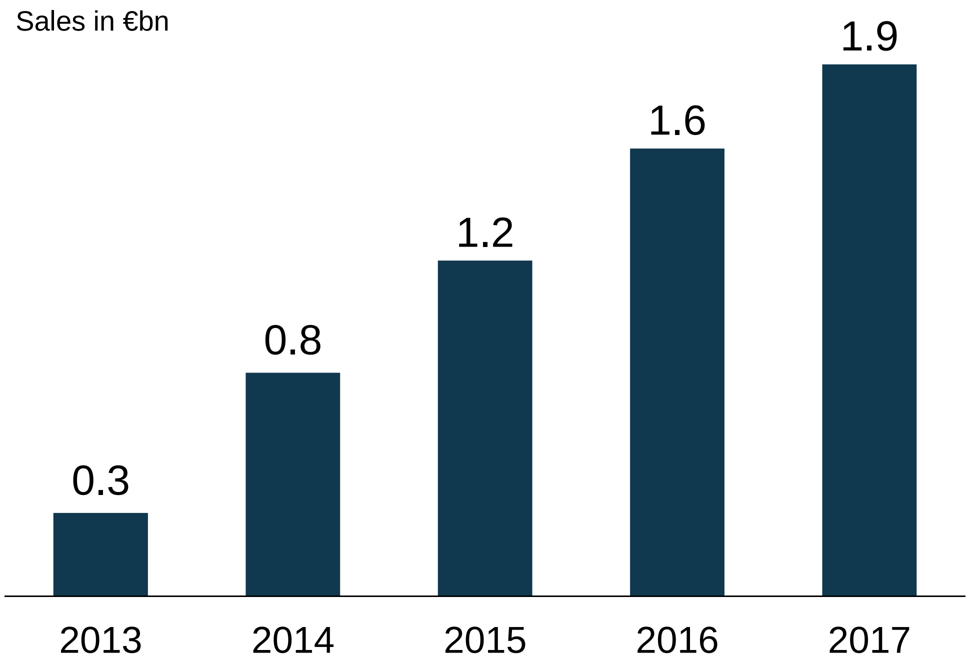
Safety

- Low overall bleeding incidence rates, although major bleeding was increased
- No significant increase in fatal or intracranial bleeding

- Combination of Xarelto 2.5 mg bid + aspirin 100 mg od compared to aspirin 100 mg od alone (COMPASS)
- Significant reduction in the relative risk for the primary composite of stroke, myocardial infarction and cardiovascular death (MACE)
- 20% improvement in net clinical benefit[1]
- Provides a larger relative risk reduction than dual anti-platelet strategies
- Xarelto is the only oral anticoagulant that is approved for the prevention of atherothrombotic events in patients with CAD or PAD

Eikelboom et al., N Engl J Med 2017; 377: 1319-1330
CAD: Coronary artery disease; PAD: Peripheral artery disease; MACE: Major adverse cardiovascular events; CV: Cardiovascular; RRR: Relative risk reduction
[1] Net clinical benefit was defined as the composite of stroke, cardiovascular death, myocardial infarction, fatal bleeding or symptomatic bleeding in a critical organ

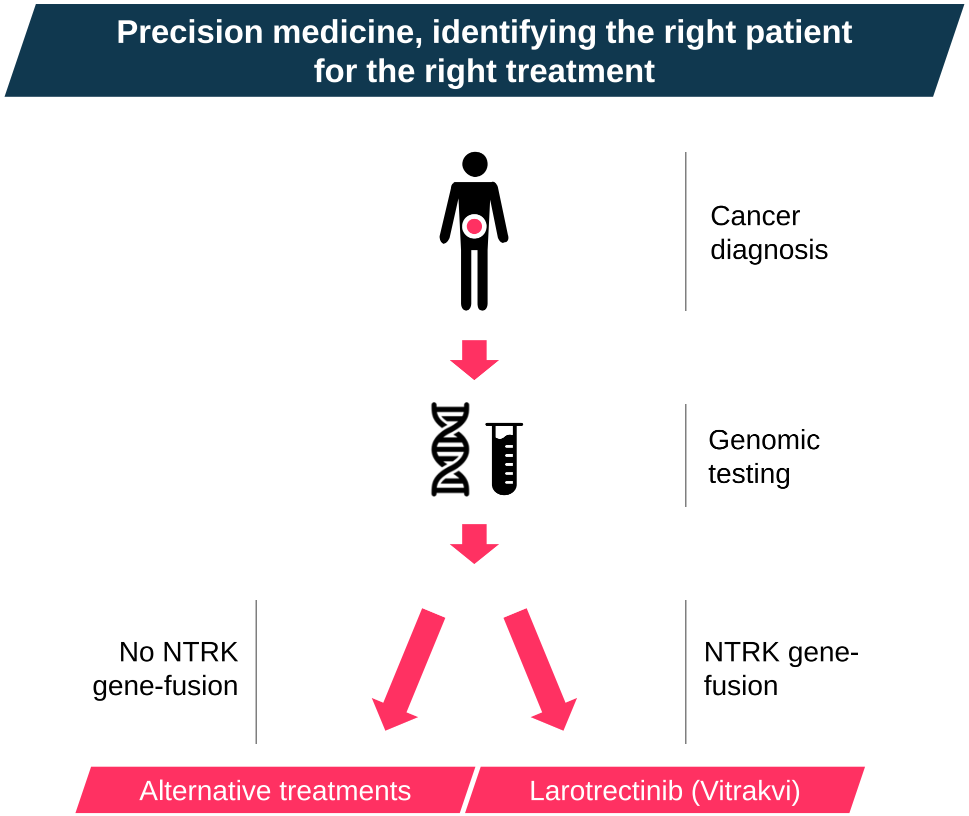
Eylea – A Leader in Retinal Diseases



- A leader in retinal diseases with global brand sales of €5.2bn in 2017 incl. sales at Regeneron[1]
- Approved for the treatment of 5 retinal diseases: wAMD, DME, BRVO, CRVO, mCNV
- Treat and extend dosing regimen with injection intervals of up to 12 weeks or more for wAMD
- Peak sales potential: >€2.5bn[2]
- Further growth driven by:
  - Continued generation of real-life experience in wAMD across key markets and treatment-naïve patient share gains
  - Market expansion in DME

[1] Marketed by Bayer ex-US only; [2] As reported by Bayer
wAMD: Wet age related macular degeneration; DME: Diabetic macular edema; BRVO: Branch retinal vein occlusion; CRVO: Central retinal vein occlusion, mCNV: Myopic choroidal neovascularization

Larotrectinib Provides Novel Tumor-Agnostic Precision Medicine Cancer Therapy



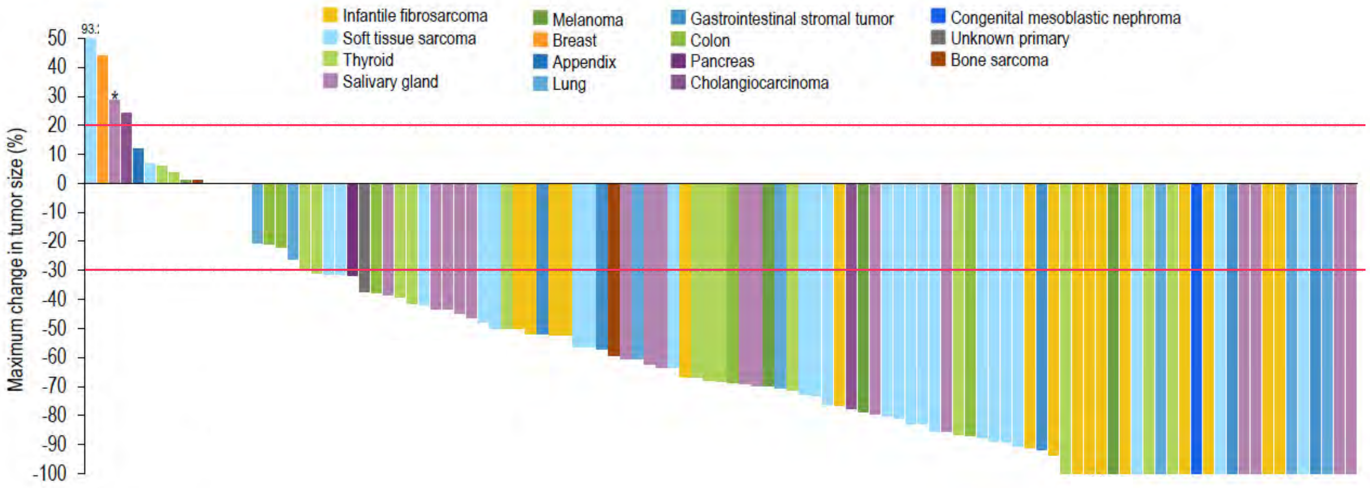
NTRK: Neurotrophic receptor tyrosine kinase
Full labeling information available at http://labeling.bayerhealthcare.com/html/products/pi/vitrakvi_PI.pdf

- Larotrectinib (Vitrakvi) is an oral, small molecule, highly selective inhibitor of tropomyosin receptor kinases (TRKs)
- NTRK gene fusions can lead to cancer and are facilitating tumor growth as oncogenic drivers
- Relevant genetic alteration is estimated to occur in about 0.5 - 1.0% of patients with solid tumors
- FDA approved for the treatment of adult and pediatric patients with solid tumors that have a neurotrophic receptor tyrosine kinase gene fusion
- Distinguished science, in-licensed from Loxo Oncology together with 2nd generation TRK inhibitor LOXO-195
- Peak sales potential of >€750 million

Larotrectinib Demonstrates Impressive Anti-Tumor Activity

Activity in a Wide Range of Tumors Associated with NTRK Gene Fusions

Maximum change in tumor size according to tumor type (RECIST)



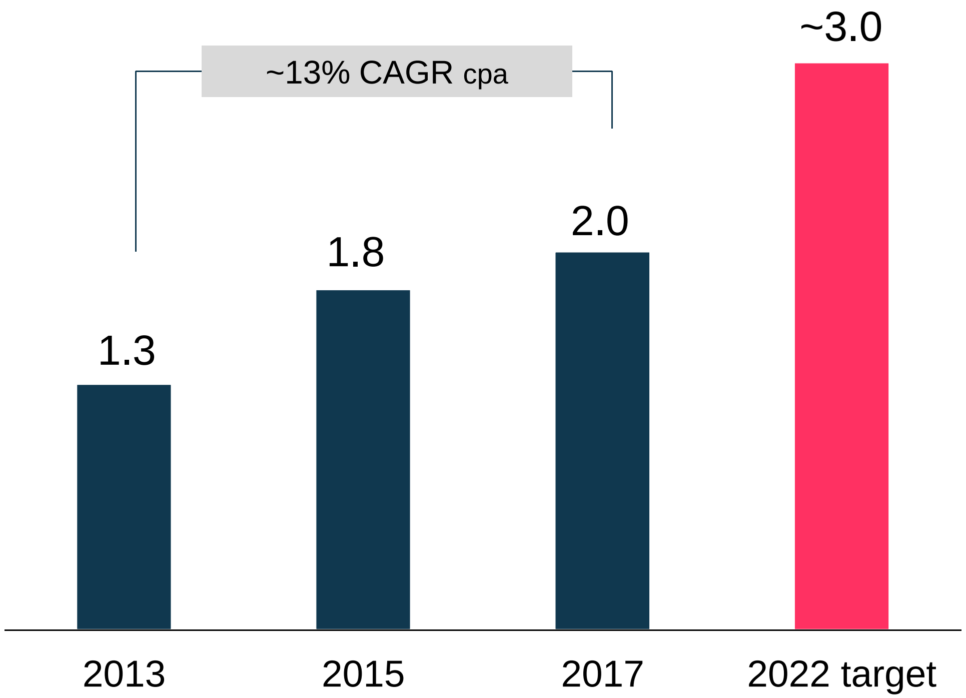
Objective response rate

	Assessment (N=109)
Objective response rate (95% CI)	81% (72-88%)
Best response	
// Partial response	63%
// Complete response	17%

Lassen, U. et al., ESMO 2018
NTRK: Neurotrophic receptor tyrosine kinase; RECIST: Response evaluation criteria in solid tumors

China is a Growth Engine for Pharma

Sales in PR China in €bn



- Ranked among the top 5 multi-national pharma companies in China
- Targeting sales of ~€3bn in PR China by 2022
- Portfolio of established and innovative drugs matches China´s needs
- Strong growth of key products
- Xarelto and Nexavar entered the National Reimbursement Drug List in 2017
- Glucobay, Adalat, Nimotop, Bayaspirin and Ciprobay listed on China´s Essential Drug List

cpa: Currency and portfolio adjusted

Successful Track Record in Innovation

Growth driver

- Above industry average output in terms of product sales from pipeline assets launched over last 10 years

Pipeline quality

- 100% success rate for phase III development of new molecular entities since 2008
- ~50 projects in clinical development
- More than 70 clinical trials underway with ~28,000 patients enrolled

Scientific leadership

- Major success with state-of-the-art anticoagulant Xarelto
- Pioneering sGC-modulators with Adempas as first-in-class product
- Delivered first marketed targeted alpha-therapy, Xofigo

Stringent focus

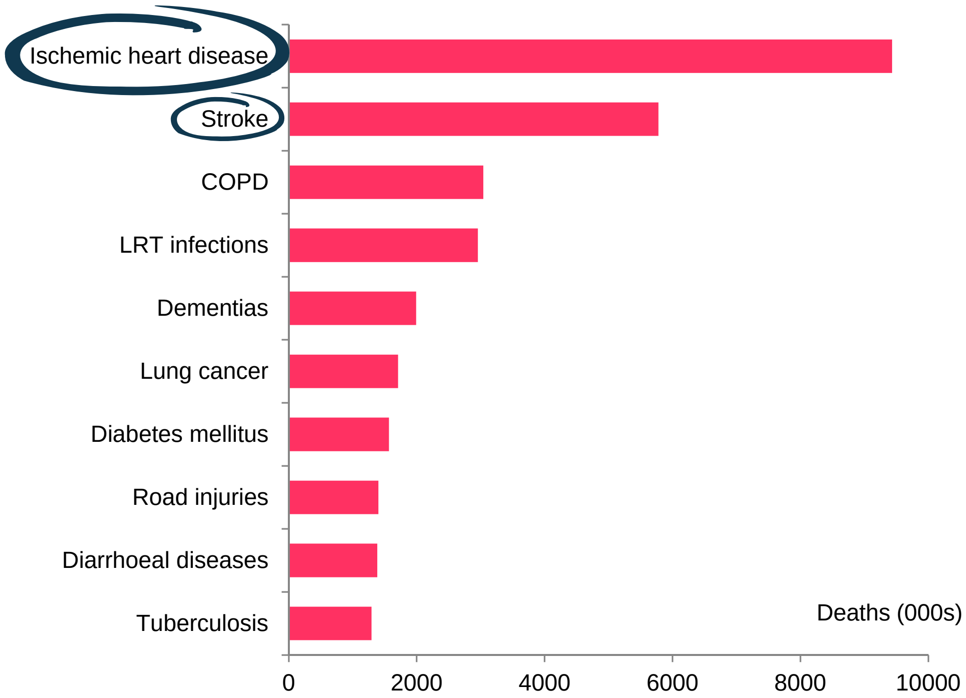
- Focus on areas with greatest potential for breakthrough impact on the lives of patients - Cardiovascular Diseases and Cancer
- Selective R&D activities in Hemophilia, Women´s Health, and Ophthalmology

sGC: Soluble guanylate cyclase

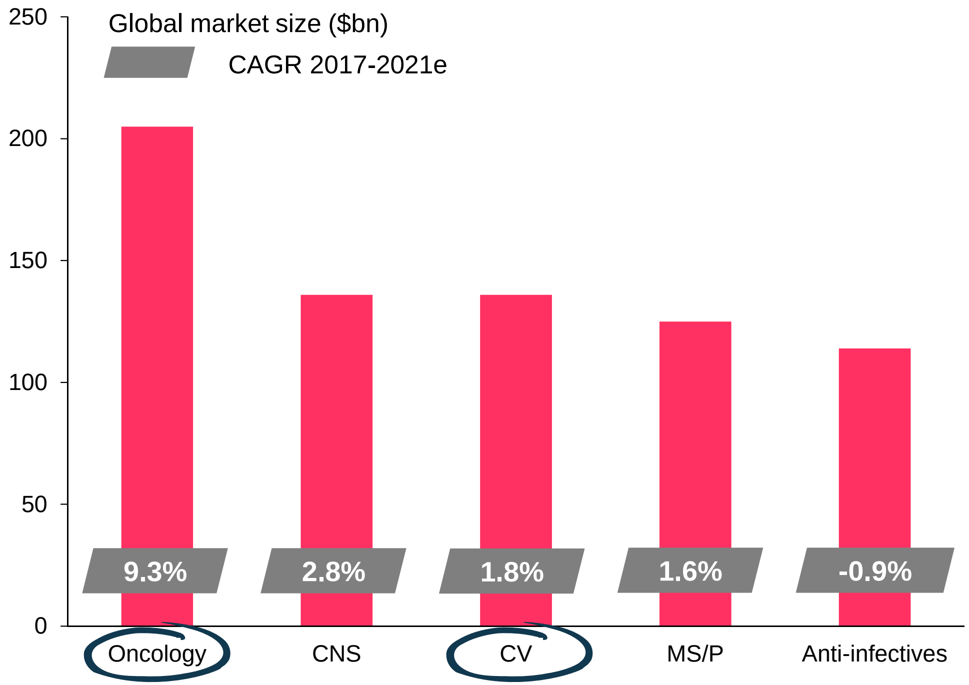
Addressing High Unmet Medical Need and Attractive Markets

Cardiovascular Diseases are Still the "Biggest Killers", While Oncology is the Fastest Growing Market

Main causes of death (2016)



Top 5 therapeutic categories



WHO Global Health Observatory Data 2018; Decision Resources Group
COPD: Chronic obstructive pulmonary disease; LRT: Lower respiratory tract; CNS: Central nervous system; CV: Cardiovascular; MS/P: Musculoskeletal/Pain

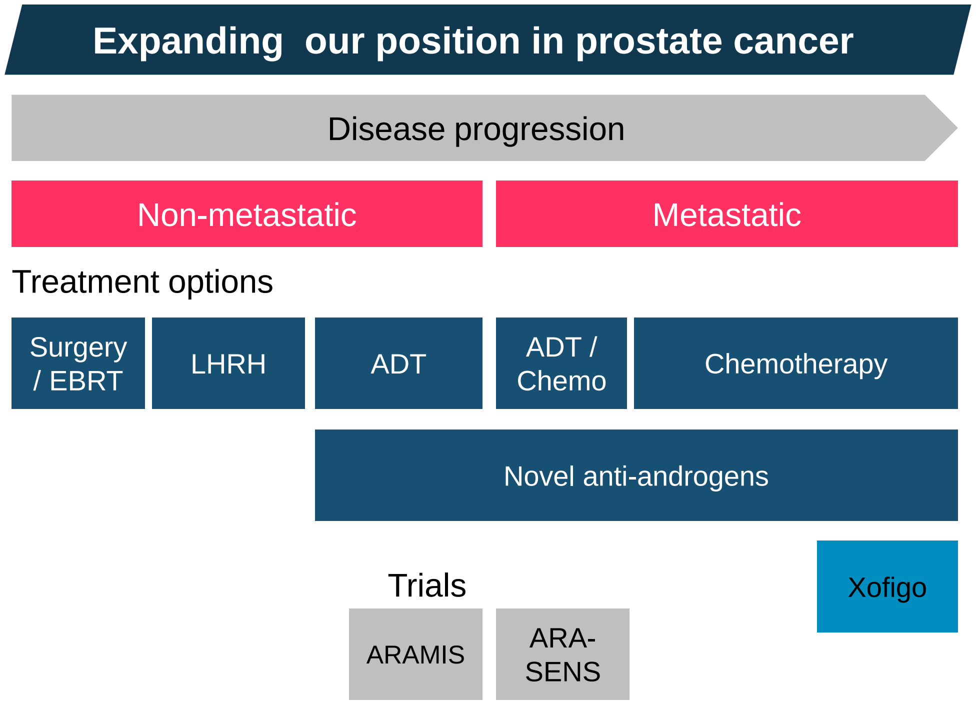
Late-stage Pipeline with Progress in Oncology

Darolutamide met Primary Endpoint in Phase III-trial and FDA-approval of Larotrectinib

	Larotrectinib	Darolutamide	Copanlisib	Finerenone	Vericiguat
Indication	// *TRK-fusion Cancer*	// *Prostate Cancer*	// *Lymphoma*	// *Diabetic Kidney Disease*	// *Chronic Heart Failure*
Status	// *FDA approved / in registration*	// *Phase III* (nmCRPC) // *Phase III* (mHSPC)	// *Launched in the US* // *Phase III*	// *Phase III*	// *Phase III* (HFrEF) // *Phase II* (HFpEF)
Commercial Potential	// *PSP >€750m*	// *PSP ≥€1bn*	// *PSP ≥€0.5bn*	// *PSP ≥€1bn*	// *PSP ~€0.5bn*
Clinical Completion	// *Clinical program ongoing*	// *Completed* (ARAMIS, nmCRPC) // *Aug 2022e* (ARASENS, mHSPC)	// *May 2020e* (CHRONOS-3) // *Sep 2021e* (CHRONOS-4)	// *May 2020e* (FIDELIO-DKD) // *Jul 2021e* (FIGARO-DKD)	// *Jan 2020e* (VICTORIA, HFrEF) // *Oct 2019e* (VITALY, HFpEF)

NTRK: Neurotrophic receptor tyrosine kinase; nmCRPC: Non-metastatic castration resistant prostate cancer; mHSPC: Metastatic hormone sensitive prostate cancer; HFrEF: Heart failure with reduced ejection fraction; HFpEF: Heart failure with preserved ejection fraction; PSP: Peak sales potential

Darolutamide Significantly Extended Metastasis-free Survival in Men with Castration Resistant Prostate Cancer



- Darolutamide is a novel non-steroidal androgen receptor antagonist in development for the treatment of prostate cancer
- Met primary endpoint of metastasis-free survival in the ARAMIS trial in non-metastatic CRPC
- Phase III trial in metastatic HSPC (ARASENS) ongoing
- Potential for differentiation:
  - Differentiated chemical structure
  - Higher binding affinity
  - Negligible blood-brain barrier penetration[1]

CRPC: Castration resistant prostate cancer; HSPC: Hormone sensitive prostate cancer; EBRT: External beam radiation therapy; LHRH: Luteinizing hormone-releasing hormone; ADT: Androgen deprivation therapy; [1] based on pre-clinical data
In collaboration with Orion Pharmaceuticals

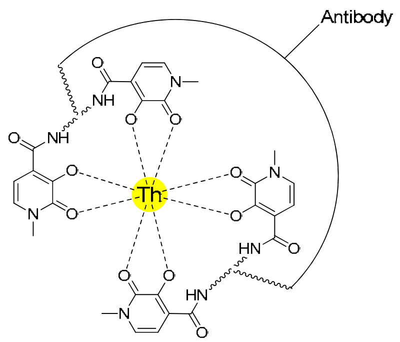
Expected Launches of Key Pipeline Assets

	2018	2019	2020	2021	2022	2023+
Cardio-vascular	**Xarelto** CAD/PAD	VOYAGER PAD		Ped. VTE treatment (EINSTEIN JUNIOR)		
	Finerenone Diabetic kidney disease					
	Vericiguat Heart failure (HFrEF)				Heart failure label expansion (HFpEF)	
Oncology	**Larotrectinib** TRK-fusion cancer	**LOXO-195** TRK-fusion cancer				
	Darolutamide nmCRPC		Prostate cancer label expansion (mHSPC)			
	Copanlisib Lymphoma label expansion (Copanlisib/Rituximab iNHL 2nd line)				RB or RCHOP iNHL 2nd line	
HEM	**Damoctocog** Hemophilia A	**Anti-TFPI** Hemophilia				**FVIII Gene Therapy** Hemophilia A

First launch in first indication

NTRK: Neurotrophic receptor tyrosine kinase; nmCRPC: Non-metastatic castration resistant prostate cancer; mHSPC: Metastatic hormone sensitive prostate cancer; HFrEF: Heart failure with reduced ejection fraction; HFpEF: Heart failure with preserved ejection fraction, iNHL: Indolent Non-Hodgkin Lymphoma TFPI: Tissue factor pathway inhibitor; WH: Women´s Health; HEM: Hematology

Bayer Has Unique Access to Targeted Thorium Conjugates, a New Approach for Cancer Treatments



<u>Components:</u>

Antibody	Targeting the tumor cell
Chelator	Forming highly stable complexes with Thorium
Thorium-227	Killing the tumor cell through α-radiation

- α-radiation is highly energetic and may induce DNA damage leading to cell death
- Other than β-radiation, α-radiation is active over a very short distance only which may increase tissue specifity
- Targeted Thorium conjugates direct α-radiation to tumor cells by specific antibodies
- Thorium-227 is the only commercially viable α-radionuclide for antibody targeted therapy
  - Thorium-227 forms highly stable complexes with chelators
  - Efficacy is independent of antibody internalisation
  - No known mechanism for resistance to α-radiation

Targeted Thorium Conjugate Platform May Have Potential in Several Oncology Settings

Project	Indication	Status	Comment
CD-22-TTC	CD-22^{+} NHL	Phase I	Significant need for new therapeutic options for the treatment of r/r NHL (DLBCL, FL)
Mesothelin-TTC	Solid tumors expressing mesothelin	Phase I	Mesothelin is overexpressed in the vast majority of pancreatic adenocarcinomas, mesotheliomas and adenocarcinomas of the lung, ovary and the stomach
PSMA-TTC	mCRPC	Phase I ready	PSMA as a predictive biomarker with high and specific overexpression in prostate cancer cells
HER2-TTC	HER2+ cancer	Pre-clinical	Potential for treatment of patients resistant/refractory to approved HER2-targeting therapies

- Novel approach for radio-immunotherapies with local effect at the tumor
- Tumor specifity defined by antigen/antibody selection, making TTC a flexible technology platform
- Potential to leverage experience with Xofigo

TTC: Targeted Thorium conjugate; NHL: Non-Hodgkin´s lymphoma; DLBCL: Diffuse large b-cell lymphoma; FL: Follicular lymphoma; mCRPC: Metastatic castration resistant prostate cancer; PSMA: Prostate specific membrane antigene; HER2: Human epidermal growth factor receptor 2

Re-alignment of R&D-activities to Increase Sustainable R&D Productivity

From	To
// **Broad set of indications** in Oncology, Cardiovascular Diseases and Gynecological Therapies	// **Focus on select areas** with high unmet medical need in Oncology, Cardiovascular Diseases and Gynecological Therapies
// Focus on **functional and technical expertise**	// Focus on **deep disease understanding** // **Broader mechanistic approach** beyond therapeutic area focus
// Strong reliance on **small molecules**	// Invest in **new technologies and capabilities** // Continue to explore potentially **game-changing innovations** through LEAPS
// Majority of **assets sourced internally**	// Increased portion of R&D **assets to be sourced externally** in the future
// Highly **concentrated geographical footprint**	// Evolve footprint with **more co-location in science hubs**
// **Internally oriented** resource model	// Adapt internal cost base to **free up funds for sourcing inorganic opportunities**

External Innovation and Partnering are Essential Components of Success at Pharma

Joint Labs

// Joint Labs: e.g. German Cancer Research Center (DKFZ), Broad Institute

Consortia

// Innovative Medicines Initiative

// Structural Genomics Consortium SGC

Arm's Length

// Accelerator:
e.g. Grants4-Initiatives

// Incubator:
CoLaborator

Research Collaborations

// Multiple projects: e.g., Evotec, Tsinghua University, Peking University, Vanderbilt University, MD Anderson

License Agreements

// Pipeline assets:
Darolutamide, Larotrectinib, Loxo-195, Vericiguat, FXI-Antisense

// Launched products:
Nexavar, Stivarga, Eylea, Adempas

Examples only

First Wave of Breakthrough Investments by LEAPS

BAYER → CASEBIA ← CRISPR THERAPEUTICS

- Biotech with Bayer and CRISPR Therapeutics as major investors
- $300 million over 5-6 years, associated with $70 million equity of Bayer in CRISPR Therapeutics
- Awarded “No. 1 Most Valuable Pharma Deal 2016” by Pharma Dive

TECHNOLOGIES

- CRISPR/Cas-based DNA-editing
- Research focus:
  - I. Cardiology
  - II. Ophthalmology
  - III. Hematology (non-malignant)
  - IV. Autoimmune diseases
  - V. Ear diseases
  - VI. Metabolic diseases

BAYER → BlueRock Therapeutics ← VERSANT ventures

- Biotech with Bayer and Versant Ventures as major investors
- $225 million over 4-5 years
- BlueRock selected to Top-30 World Game Changer companies (CB Insights Game Changer Report)

TECHNOLOGIES

- Best-in-class induced pluripotent stem cell therapies using an industry-leading platform
- Vision is to cure diseases with significant cell loss and diminished self-repair potential
- (Initial) research focus on:
  - I. Cardiology (heart muscle regeneration after MI or with HF)
  - II. Neurology (Parkinson’s disease)

MI: Myocardial infarction; HF: Heart failure

Further Growth in Sales and Profitability

Pharma	2018e	Indicative Guidance 2019	Target 2022
Sales/Sales growth	~€16.8bn	~4%	CAGR 4-5%
EBITDA/EBITDA margin	~€5.6bn	~34%	>35%

2022 targets at constant currencies, not including portfolio measures
EBITDA / EBITDA margin based on EBITDA before special items

We Are Confident for Pharma Also Beyond 2022

	Until 2022	2022+
Relentless Focus	// Delivering on **mid-term growth and margin aspirations**	// Realizing the **full value of the portfolio** until LoEs // **China** to become our largest pharma market
Innovation	// Maximizing the **potential of the existing portfolio** to ensure short- to mid-term growth // Continued focus on **cost management**	// Growth of **Larotrectinib, Darolutamide, Finerenone, Vericiguat** and others // Sourcing of **external innovation**
Excellence in Execution	// **Re-alignment of R&D activities** to sustain long-term growth beyond LoEs	// Appropriate **management of resources** // Expect business to **return to market growth** after LoE impact

LoE: Loss of exclusivity

Key Takeaways

Driving Performance and Delivering New Growth Opportunities

1. **Mid-term targets project further growth and margin improvement**
2. **China is a growth engine for Pharma**
3. **Late-stage pipeline with progress in Oncology**
4. **Re-alignment of R&D activities to increase sustainable R&D productivity**
5. **Accelerating sourcing of external innovation**

LoE: Loss of exclusivity; nmCRPC: Non-metastatic castration resistant prostate cancer

Experienced Pharmaceuticals Executive Leadership Team

Stefan Oelrich
President, Pharmaceuticals

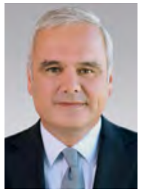
Reinhard Franzen
Commercial Operations Europe, Middle East & Africa

Sebastian Guth
Commercial Operations Americas

Wei Jiang
Commercial Operations China & Asia Pacific

Heike Prinz
Commercial Operations Japan

Robert LaCaze
SBU Oncology



Stefan Oelrich[1]
Strategic Marketing

Joerg Moeller
Research & Development

Michael Devoy[2]
Medical Affairs & Pharmacovigilance

Wolfram Carius
Product Supply

Julio Triana
Finance

Christoph Bertram
Human Resources Business Partner

Stefan Gehring
Law, Patents and Compliance Business Partner

[1] Stefan Oelrich will additionally take over the lead for PH Strategic Marketing on an interim basis; [2] Additional role as Chief Medical Officer for Bayer AG

Capital Markets Day

Pharmaceuticals

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Appendix

Our Pipeline Contains ~50 Projects in Clinical Development

Phase I (26)
Cancer / **TRK Inhibitor** (LOXO-195)
Cancer / **Rogaratinib** (pan-FGFR Inhibitor)
Cancer / **PTEFb Inhibitor**
Cancer / **mIDH1 Inhibitor**
Cancer / **ATR Inhibitor**
Cancer / **DHODH Inhibitor**
Cancer / **Regorafenib*** (multi-Kinase Inhibitor)
Cancer / **Anetumab Ravtansine** (Mesothelin-ADC)
Cancer / **Lupartumab Amadotin** (C4.4a-ADC)
Cancer / **CD22-Targeted Thorium Conjugate**
Cancer / **MSLN-Targeted Thorium Conjugate**
Cancer / **CEACAM6 fb Antibody**
Cancer / **ILDR2 fb Antibody**
Heart Failure / **Vasopressin Receptor Antagonist**
Chronic Kidney Disease / **sGC Activator 1**
Chron. Kidney Disease / **Vasopressin V1a Receptor Antag.**
Pulmonary Hypertension / **sGC Activator 2**
Anti-coagulation / **FXIa Inhibitor**
Endometriosis / **P2X3 Antagonist 1**
Endometriosis / Persist. Chron. Cough **/ P2X3 Antagonist 2**
Endometriosis / **P2X4 Antagonist**
Endometriosis / Rheumatoid Arthritis / **IRAK4 Inhibitor 1**
Hemophilia / **FVIII Gene Therapy**
Acute Respiratory Distress Syndrome / **sGC Activator 3**
Acute Respiratory Distress Syndrome / **PEG-ADM Inhale**
Rheumatoid Arthritis / **IRAK4 Inhibitor 2**

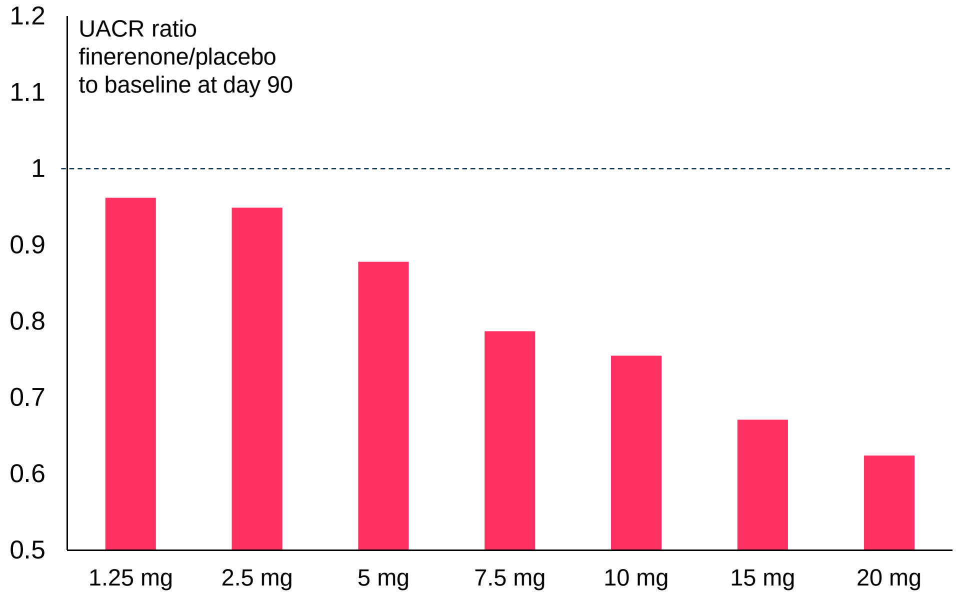
Phase II (13)
Cancer / **Radium-223** (α-Emitter)
Urothelial Cancer / **Rogaratinib** (pan-FGFR Inhibitor)
Thrombosis / **FXI Antisense** (IONIS)
Thrombosis / **anti-FXIa Antibody**
Peripheral Artery Disease / **AR-Alpha 2c Receptor Antagonist**
Heart Failure preserved EF / **Vericiguat** (sGC Stimulator)
Heart Failure / **Fulacimstat** (Chymase Inhibitor)
Chronic Kidney Disease / **Fulacimstat**
Endometriosis / **Vilaprisan** (S-PR Modulator)
Contraception / **Combi IUS: LNG** (Progestin) **+ Indomethacin** (NSAID)
Hemophilia / **anti-TFPI-Antibody**
Obstructive Sleep Apnea / **TASK Channel-Blocker**
Persistent Chronic Cough **/ P2X3 Antagonist 1**

Phase III (11)
Prostate Cancer (nmCRPC) / **Darolutamide** (AR Antagonist)
Prostate Cancer (mHSPC) / **Darolutamide**
Non-Hodgkin Lymphoma / **Copanlisib** (PI3K Inhibitor)
Peripheral Artery Disease / **Rivaroxaban** (FXa Inhibitor)
Chronic Heart Failure and Coronary Artery Dis. / **Rivaroxaban**
Medically Ill / **Rivaroxaban**
Venous Thromboembolism in Children / **Rivaroxaban**
Heart Failure reduced EF / **Vericiguat** (sGC Stimulator)
Diabetic Kidney Disease / **Finerenone** (nst MR Antagonist)
Renal Anemia / **Molidustat** (HIF-PH Inhibitor)
Sympt. Uterine Fibroids / **Vilaprisan** (S-PR Modulator)

Oncology Cardiovascular & Kidney Diseases Gynecology Hemophilia Others

Finerenone May Reduce the Risk of CV-mortality and the Progression of Kidney Disease in Patients with Diabetic Kidney Disease

Key phase II data (ARTS-DN[1])



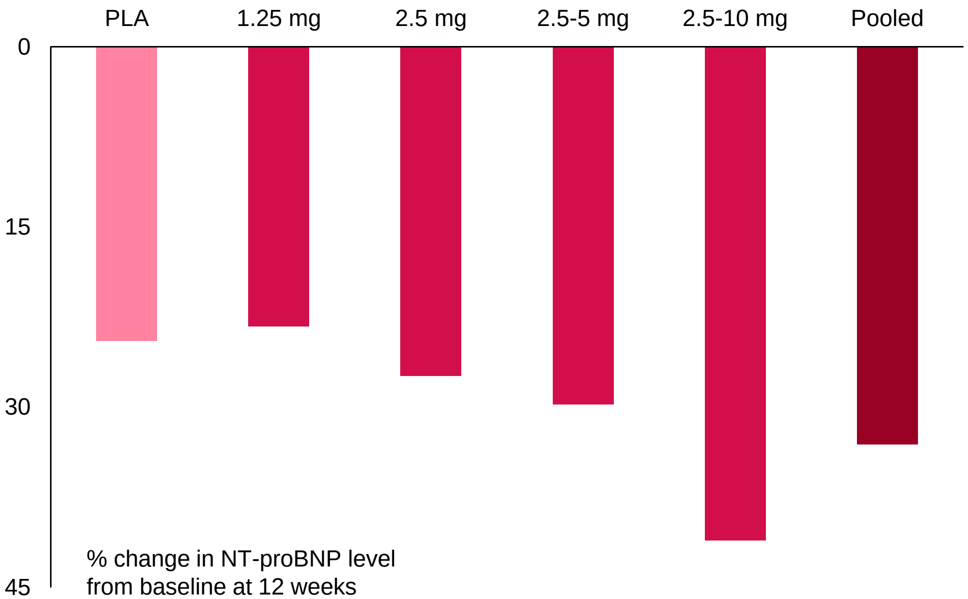
Dose dependent reduction of proteinuria by finerenone when added to RAS blocker therapy in patients with DKD

- Finerenone is a novel non-steroidal MRA that has greater receptor selectivity and better receptor affinity than existing MRAs (e.g. spironolactone, eplerenone)
- Addressing high unmet medical need
- Two phase III trials in diabetic kidney disease underway: FIDELIO DKD (CV study) and FIGARO DKD (renal study)
- Potential for differentiation:
  - First-in-class MRA for treatment of DKD
  - Non-steroidal structure, no interaction with steroid hormone receptors compared to existing MRAs
  - Low risk of hyperkalemia which prohibits the use of marketed MRAs in DKD

MRA: Mineralocorticoid receptor antagonist; RAS: Renin-angiotensin system; CV: Cardiovascular; DKD: Diabetic kidney disease; UACR: Urinary albumin-creatinine ratio
[1] Bakris, G.L. et al., JAMA 2015; 314:884-894.

Vericiguat is a Potentially New Treatment Option on Top of Standard of Care for Patients with Heart Failure

Key phase II data (SOCRATES-REDUCED[1])



Dose-response relationship between vericiguat dose and reduction in NT-proBNP, a surrogate marker for cardiac function

// First-in-class, direct sGC stimulator addressing the NO-sGC-cGMP pathway, a relevant mechanism in heart failure

// Heart failure is still associated with significant mortality risk despite the availability of new therapeutic options

// Potential for differentiation:

- // New mode of action to be positioned on top of standard of care
- // OD dosing and overall favorable safety and tolerability profile

// Development in collaboration with Merck & Co.

sGC: Soluble guanylate cyclase; NO: Nitric oxide; cGMP: Cyclic guanosinmonophosphate; OD: Once daily; PLA: Placebo; NT-proBNP: N-terminal prohormone of brain natriuretic peptide
[1] Gheorghiade, M. et al: JAMA 2015; 314: 2251-2262

Copanlisib is a Differentiated PI3K-inhibitor for the Treatment of Lymphoma

Key phase II data (CHRONOS-1)[1]

Overall response rate in patients with follicular B-cell non-Hodgkin´s lymphoma who had relapsed disease following at least two prior treatments:

n=104	Copanlisib
Overall response rate	59%
// Complete response	14%
// Partial response	44%

Copanlisib had a favorable safety profile with a low rate of severe toxicities overall.

- Phosphatidylinositol-3-kinase (PI3K) inhibitor blocking cellular signal transduction processes crucial for cancer progression
- In development for various forms of lymphoma
- Potential for differentiation:
  - Inhibits different isoforms of PI3K
  - Intravenous administration, thus lower propensity for serious gastrointestinal toxicity
  - Intermittent once weekly dosing
- Launched in the US in 2017 for the treatment of relapsed follicular lymphoma. Registration granted under accelerated FDA approval based on phase II data

[1] Dryling M. et al.: Blood 2017; 130: 2777

Driving Performance and Delivering New Growth Opportunities

//////////

Capital Markets Day
London, December 5, 2018

Stefan Oelrich
Head of Pharmaceuticals

Joerg Moeller
Head of Pharmaceuticals R&D

Reinvigorating Our Leading OTC Position

//////////

Capital Markets Day
London, December 5, 2018

Heiko Schipper
Head of Consumer Health

Disclaimer

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Consumer Health Market Remains Attractive

Global Megatrend through 2050: Growing & Aging Population

+2.2bn
people[1]

People 60+ more than doubling[1]

>20% of total population[1]

Societal need: Preserve and restore health

Key trends OTC market[2]

- Changing consumer behavior and move to ‘self care’
- Consolidation of traditional pharmacies and shift to drugstores, retail and e-commerce
- Digitalization reshaping marketing, sales, and business models
- Lower entry barriers, increasing competition

OTC market dynamics[2]

- ✓ Long-term growth rates above GDP and CPG industry at 3-4% p.a.
- ✓ Growing across categories and geographies
- ✓ Driven by favorable consumer trends and Rx-to-OTC switches
- ✓ Market profitability above CPG industry benchmarks

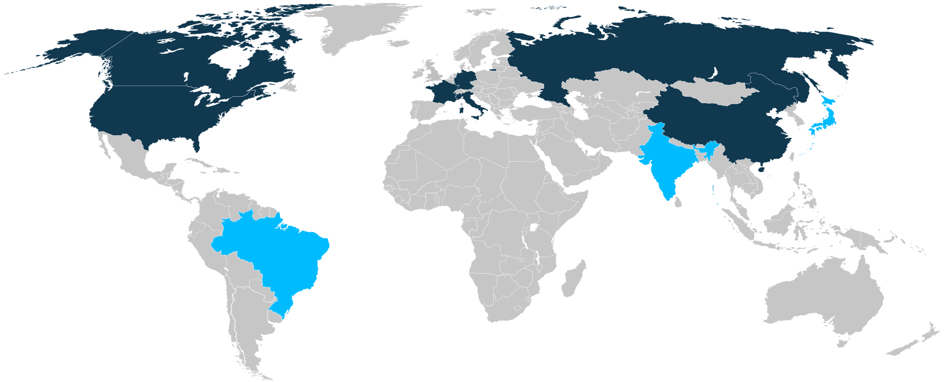
GDP: Gross domestic product; CPG: Consumer packaged goods
[1] UNDESA 2017 (United Nations Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision)
[2] Market model in-market sales OTC medicines, data from IQVIA, Nicholas Hall

A Leading Player Globally

Built up # 2 OTC Player

- **1899** – ASPIRIN introduced
- **1978** – Miles Laboratories
- **1994** – NA OTC business of Sterling
- **2005** – Roche Consumer Health
- **2008** – OTC portfolio Sagmel & Topsun
- **2013** – Steigerwald
- **2014** – Merck Consumer Care
- **2014** – Dihon

Strong positions in 7 out of Top 10 OTC markets



Top 10 OTC markets[1]

1. USA	6. Russia
2. China	7. Brazil
3. Germany	8. Italy
4. Japan	9. India
5. France	10. Canada

Top 5 position

Position outside of Top 5

[1] PARS database, 2017 OTC market size (value) ranking

Strong Consumer Brands Built up Over Decades

Brand	Category	Age	Sales 2017	CAGR 2013-2017	# of studies[2]
ASPIRIN	Pain, Cardio, Cough & Cold	119	€1,043m	2.6%	88
Claritin	Allergy	25[1]	€585m	2.2%	82
Bepanthen	Dermatology	74	€379m	9.7%	116
ALEVE	Pain	42[1]	€375m	1.3%	42
Alka-Seltzer	Digestive Health, Cough & Cold	87	€244m	4.4%	7
elevit	Nutritionals	34	€189m	17.1%	6

[1] Rx launch; [2] Past 20 years of clinical data

Building Leading Brands by Applying Science and Marketing Capabilities

ASPIRIN introduced as OTC medicine

1899

1977

Added to the WHO's first list of essential medicines

1982

Nobel Prize awarded

1985

Cardio

Approved for prevention of secondary heart attack and stroke

1990

Recommended for treatment during a suspected heart attack

Fast melt

1999

Sales > €500m

Cough & Cold

2016

Sales > €1bn

Faster pain relief

2018

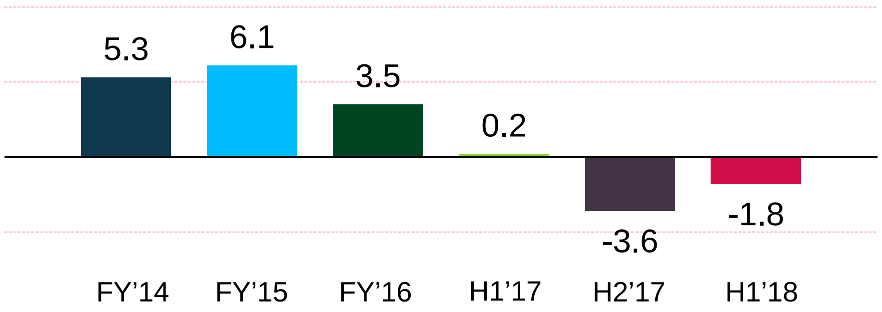
Scintigraphy study proves faster disintegration and easier on the stomach

Sales figures including Aspirin Cardio

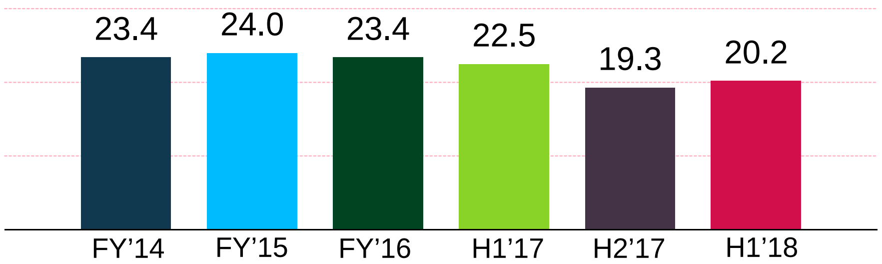
In Recent Years the Business has not Reached its Full Potential

Performance 2014-2018

Sales growth, yoy cpa[1] in %



EBITDA margin before special items in %



[1] Currency- and portfolio adjusted

Key issues

- Low level of innovation
- Outdated marketing and sales approach
- Regulatory issues in China
- Temporary supply interruptions

Key opportunities

- Create more focus on core OTC portfolio
- Establish leaner, more agile organization
- Lower cost base by applying Zero Based Budgeting
- Leverage stronger our Bayer brand across the portfolio

New Leadership Team with Proven Track Record in OTC and CPG Companies

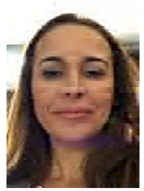
Heiko Schipper*
President, Consumer Health
Previous: Nestlé

Patrick Lockwood-Taylor*
Commercial Operations NA
Previous: P&G

Stefan Meyer
Commercial Operations EMEA
Previous: P&G, J&J

Lance Yuen
Commercial Operations APAC
Previous: BMS, P&G

Arturo Sanchez
Commercial Operations LATAM
Previous: P&G, Pfizer



Patricia Corsi*
Strategic Marketing & Digital
Previous: Unilever, Heineken

Olivier Mauroy-Bressier
Finance
Previous: Rhône-Poulenc, Aventis

Sharon James*
Research & Development
Previous: Reckitt Benckiser, GSK

John Koelink*
Product Supply
Previous: Organon, Hoechst

Edwin Schenck*
Human Resources
Previous: J&J

Bill Dodero
Legal
Previous: O'Connor Cohn Dillon & Barr

*Joined Consumer Health in last ~18 months; Patricia Corsi to join in January 2019

Focused on Executing a Comprehensive Turnaround Plan

Focus on winning **Portfolio**	Accelerate growth-focused **Innovation**	Modernize **Marketing & Sales**	Build high-performing **Product Supply**

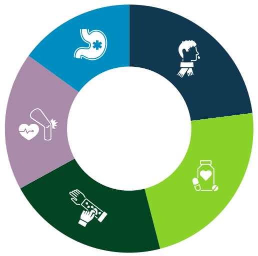
Leaner and more agile **organization**

Lower **cost base**

We Will Focus on our Core OTC Categories To Leverage our Science and Marketing Capabilities

Categories to accelerate

Sales Split 2017[1]



Category	Global Position[2]	Main Brands
Allergy + Cough + Cold	#5	Claritin
Nutritionals	#2	elevit
Dermatology	#2	Bepanthen
Pain + Cardio	#4	Aleve
Digestive Health	#2	MiraLAX

Categories to exit

- Divestment of Rx Dermatology - US business closed; closing ex-US expected in H2 2019[3]
- Explore exit options for Sun- and Footcare in 2019

Main Brands: Skinoren, Coppertone, Dr Scholl's

[1] Excluding Derma Rx, Suncare, Footcare
[2] PARS database December 2017
[3] Subject to the fulfillment of customary closing conditions

Each Region has a Clear Roadmap for Success Coming from Different Starting Points

	Sales 2017 in €m	Past 2 Year CAGR	Our Roadmap
	2,480	-2%	**North America** – Turnaround of largest and most important market
	738	2%	**Asia Pacific** – Rebuild China momentum following regulatory issues
	1,962	2%	**Europe/Middle East/Africa** – Accelerate growth following temporary supply interruptions
	682	10%	**Latin America** – Build on leadership position

US Turnaround Plan

Levers and key focus areas		First actions	
People & Organization	// Increase category and brand building experience // Drive leaner more agile organization	// Right-size the organization // New leadership team in place	***Q4 2018 Q1 2019***
Winning Portfolio	// Focus our resources on categories where we can win	// Divested Rx Dermatology // Explore exit options: Suncare / Footcare	***H2 2018 2019***
Accelerate growth-focused Innovation	// Rebuild innovation pipeline	// Strengthen innovation for core brands // Establish Rx-to-OTC switch pipeline	***2020***
Modernized Marketing & Sales	// Rebuild brand fundamentals // Accelerate digital	// Step up e-commerce → Amazon 2018e sales +60% → Online (8.3%) to offline (8.7%) share	***2018***

Accelerating Growth from Innovation

Ambition 2022 Double growth contribution from innovation (from 15% to 30% of our growth)

Strengthen
Core Innovation

Accelerate
Adjacent Innovation

Planning - Pregnancy - Breastfeeding

Drive new
Switch Opportunities

Drive consumer-centric innovation → Un-lock local innovation → Increase innovation funding → Explore external partnering

Modernizing our Brand Building and Sales Capabilities

Brands with Purpose

From Mass to Precision Marketing

	2016	2018e
Advertising spend on digital	18%	28%

Accelerating e-commerce

	US 2018	China 2018
Growth YTD	60%	37%

Building Blocks of our Growth Aspiration in 2022

Goal 2022 — Accelerate growth to 3-4%

		% contribution to growth target

Focus on a winning Portfolio	// Divest Rx Dermatology, Sun- and Footcare
	// Accelerate core OTC range
	// Selected bolt-on M&A
		~35%

Accelerate growth-focused Innovation	// Drive consumer-centric innovation
	// Un-lock local innovation
	// Increase funding & external partnering
		~30%

Modernize Marketing & Sales	// Accelerating e-commerce
	// Moving from mass to precision marketing
	// Stepping up marketing and sales execution
		~35%

Build High-Performing Product Supply

Address immediate opportunities...

Regulatory issues

Temporary supply interruptions

Customer service levels

...building up high-performing product supply

Upgrade the manufacturing network
- ~30% less sites[1]
- Upgraded GMP standards
- CAPEX investment 2017/2018e ~€60m

Lower the portfolio complexity
- ~30% less SKUs[1]

Step up supply chain practices
- Increase *'On Time in Full'*
- Reduce write-offs

[1] 2022; SKU: Stock keeping unit; GMP: Good manufacturing practice

We Target Efficiencies of ~ €500m[1] Gross by 2022 to Reinvest in Growth and Improve Margins

Consumer Health measures			Group measures
Lean organization	**COGS optimization**	**Indirect cost optimization**	**Platform Adjustment**

// Delayer to net FTE reduction of ~15%, skewed towards SG&A
// Flatten organizational structures to accelerate execution
// Re-invest in digital capabilities
	// Reduce complexity
	  // CMOs: -30%
	  // SKUs: -30%
	// Increase efficiency
	  // Write offs: -35%
		// Apply zero-based budgeting methodology
		// Reduce non-consumer-facing spending
		// Identified potentials in e.g. market research, media spend, sponsorships
			// Adjust Bayer Corporate Platform

Contribution by 2022 ~20%	~25%	~35%	~20%

[1] Cumulative efficiencies; CMO = Contract manufacturing organization; SKU = Stock keeping unit

Our Strategic and Operational Roadmap

	2018	2019 / 2020	2021 / 2022
	Setting the foundation	**Driving rigorous change**	**Acceleration phase**

Strategic focus	// Put in new leadership team
	// Make portfolio choices
	// Initiate stricter cost control
	// Make necessary impairments
		// Execute portfolio choices
		// Right-size cost base
		// Recover product supply
		// Regain momentum in APAC/EMEA
		// Reset US cost base to strengthen margin
			// Drive higher innovation level
			// Accelerate US growth momentum
			// Capitalize on portfolio choices
			// Realize full benefit of efficiency program

Growth	Stabilize growth	Return to growth	Accelerate growth
Profitability	Stop margin erosion through strict cost controls	Improve margins	Accelerate margins

Our Comprehensive Turnaround Will Accelerate Growth and Profitability

	2017	2018e	Indicative Guidance 2019	Target 2022	CAGR 2018-2022	Δ 2022 vs. 2017
Sales growth	- 1.7%	PY level	~1%	3 - 4%	~2%	+500 bps.
EBITDA margin	21%	~20%	~21%	~24%	~6%[1]	+300 bps.

2022 targets at constant currencies, including portfolio measures
EBITDA margin based on EBITDA before special items; [1] CAGR EBITDA before special items

Reinvigorating Our Leading OTC Position

We Have the Right Team and Strategy in Place

1. **New leadership team with proven track record of success in OTC and CPG companies**
2. **Focus on core OTC Portfolio**
3. **Accelerate innovation to drive growth**
4. **Modernize marketing and sales to charge our strong brands**
5. **Build high-performing product supply to increase customer service**
6. **Create leaner organization and right-size cost base**

Reinvigorating Our Leading OTC Position

//////////

Capital Markets Day
London, December 5, 2018

Heiko Schipper
Head of Consumer Health

Shaping the Future of Agriculture

//////////

Capital Markets Day
London, December 5, 2018

Liam Condon
Head of the Crop Science Division

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Need for Innovation Driven by Megatrends

Producing More with Less: A Fundamental Driver for our Crop Science Business

Megatrends through 2050

Growing Population

+2.2bn
people[1]

+50%
more food and feed required to meet growing demand and changing diets[2]

Pressure on Ecosystems

-17%
Harvest losses from climate change[3]

-20%

Significant loss in arable land per capita[4]

Societal Needs

Secure a sufficient supply of quality food

Use natural resources more efficiently and responsibly

Science For A Better Life

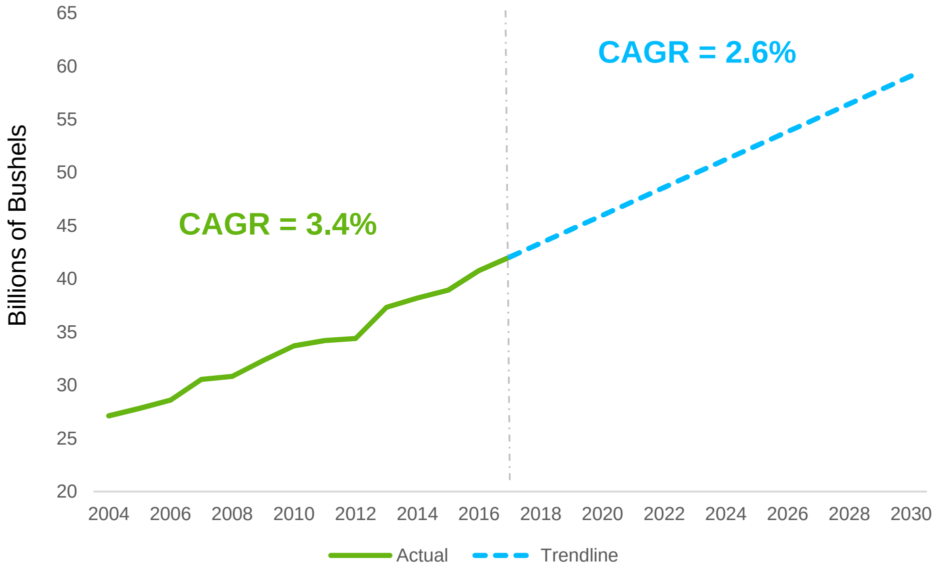
[1] UNDESA 2017 (United Nations Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision); [2] FAO 2017 (FAO Global Perspective Studies)
[3] Nelson et. all. (2104); (2) FAO 2016 “Climate change and food security”; [4] FAOSTAT (accessed Oct 30, 2018) for 1961-2016 data on land, FAO 2012 for 2030 and 2050 data on land, and UNDEDA 2017: World Population Prospects for world population data.

Trendline Demand Requires Substantive Yield Improvement

Global Corn Yield Rate of Gain must More than Double and Soybean Yield Rate of Gain must Triple by 2030

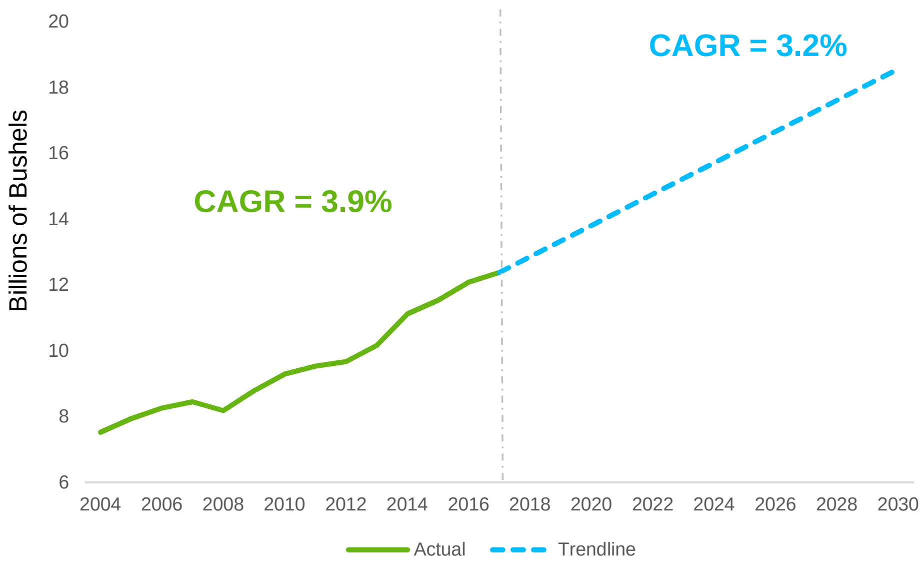
Long-term Demand Trendlines[1]

Corn



Incremental corn demand of ~1bn bushels expected in 2018/19 would require 13m additional acres of arable land at constant global yields

Soybean



Incremental soybean demand of ~600m bushels expected in 2018/19 would require ~14m additional acres of arable land at constant global yields

[1] USDA WASDE September 2018, historical data for actual and trendline, trendline based on avg. growth from 2011-2017

Shaping Agriculture to Benefit Farmers, Consumers and Our Planet

As the Industry Leader Uniquely Positioned to Create Value and Pioneer Tailored Solutions

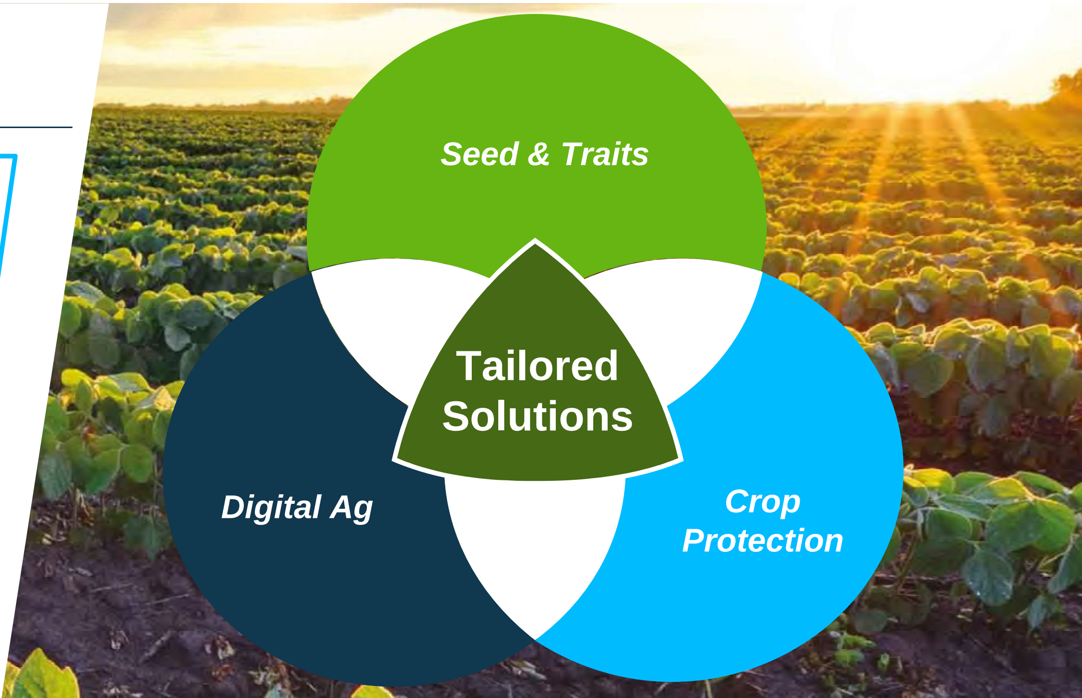
Our Mission

Deliver world-class innovation

Pioneer the digital transformation

Set new standards of sustainability

Drive operational excellence



Tailored solutions are key to sustainably managing resources and improving productivity to feed a growing global population

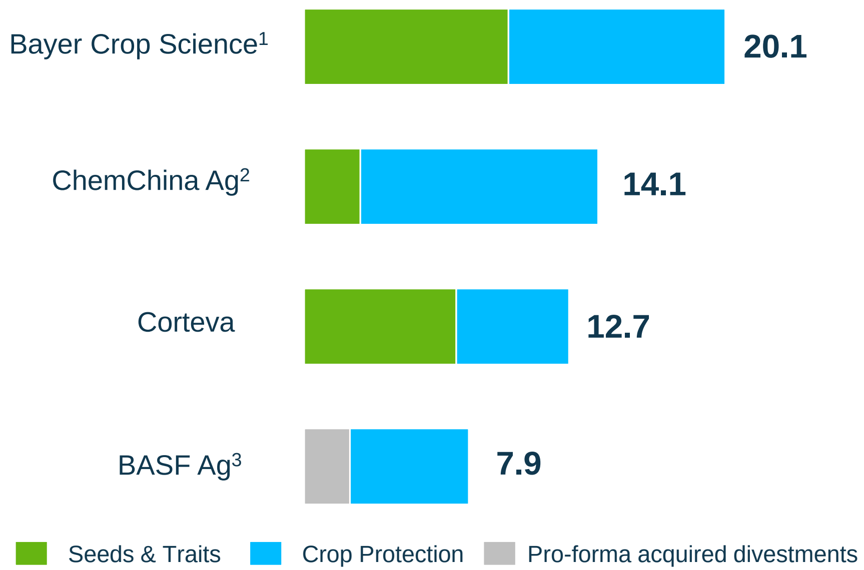
The Established Leader in Crop Science

Grower Endorsement of Excellent Product Portfolio Evidenced by Industry Leading Sales

Broadest Crop Science Product Portfolio

Arize, FOX, PROSARO, BELT, FLINT, CropStar, CLIMATE FIELDVIEW, NEMASTRIKE TECHNOLOGY, De Ruiter, CORVUS, SmartStax RIB COMPLETE, ASGROW, Maxforce, Roundup POWERMAX, DEKALB, Luna, ADENGO, K-Othrine WG 250, Xpro, SERENADE, DELTAPINE, Seminis grow forward, XTENDIMAX VaporGrip

Sales 2017 (€bn)



[1] The unaudited Pro-forma data are presented as if both the acquisition of Monsanto and the associated divestments had taken place as of January 1, 2017. Sales of Monsanto are presented in periods as per the Bayer fiscal year. One-time effects of business operations, the accounting for discontinued operations and the recognition and measurement of sales from certain business transactions have been adjusted in line with our accounting.
[2] Excludes non-agro business sales of ADAMA (nutritional supplements, aromatic products, industrial products)
[3] Includes BASF Ag Sales 2017 as reported (€ 5.7bn) plus €2.2bn Pro-forma sales in 2017 from Bayer businesses sold to BASF

Leading Position in All Major Categories

Crop Science Market[2] Currently Valued at ~€90bn // ~3% Long-term CAGR Expected

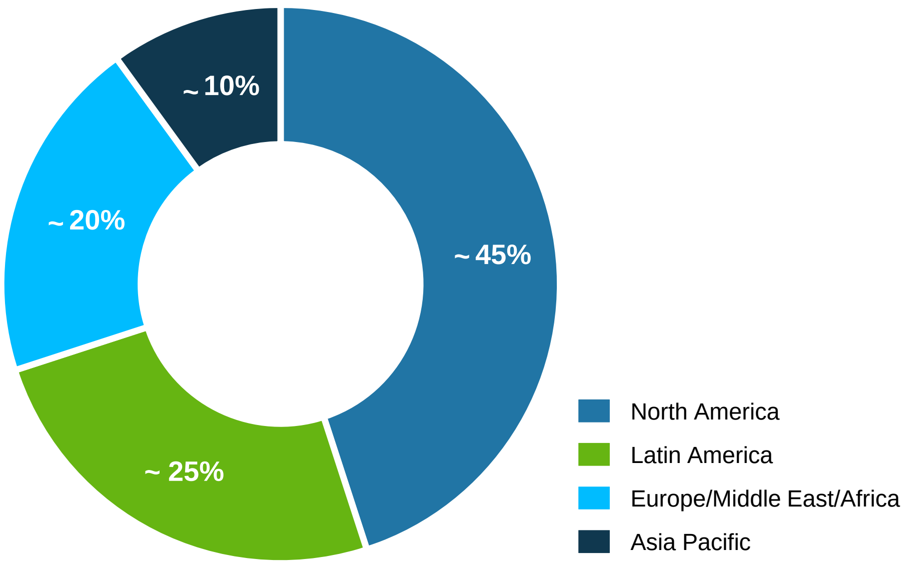
Corn	Soybean	Horticulture[1]	Cereals	Digital Farming
~€20bn market[2]	**~€15bn** market[2]	**~€15bn** market[2]	**~€10bn** market[2]	**Climate FieldView Digital Platform**
#1 position	**#1 position**	**#1 position**	**#1 position**	**#1 position**

[1] Includes fruits, vegetables, flowers and nuts
[2] Includes seeds, traits, crop protection chemistries and environmental science; does not include fertilizer
Note: Reflecting BCS' portfolio after divestments. Market sizes rounded to nearest $5bn. Source: Pro-forma calculations Bayer; Bayer CS market model

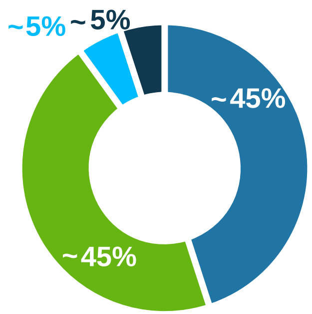
World’s Broadest Commercial Footprint in Agriculture

~7,800 Customer-facing Employees with Significant Opportunity to Optimize Portfolio Across Key Regions

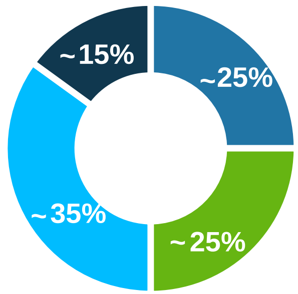
Sales 2017[1]: €20.1bn



Seed & Trait Technology Acres 2017/2018[2]: >400m acres (160m ha)



Crop Protection Sales 2017[1]: ~€9.5bn



[1] The unaudited Pro-forma data are presented as if both the acquisition of Monsanto and the associated divestments had taken place as of January 1, 2017. Sales of Monsanto are presented in periods as per the Bayer fiscal year. One-time effects of business operations, the accounting for discontinued operations and the recognition and measurement of sales from certain business transactions have been adjusted in line with our accounting. Rounded to the nearest 5%.
[2] Internal estimates; represents acres containing at least one Bayer seed or biotech trait technologies

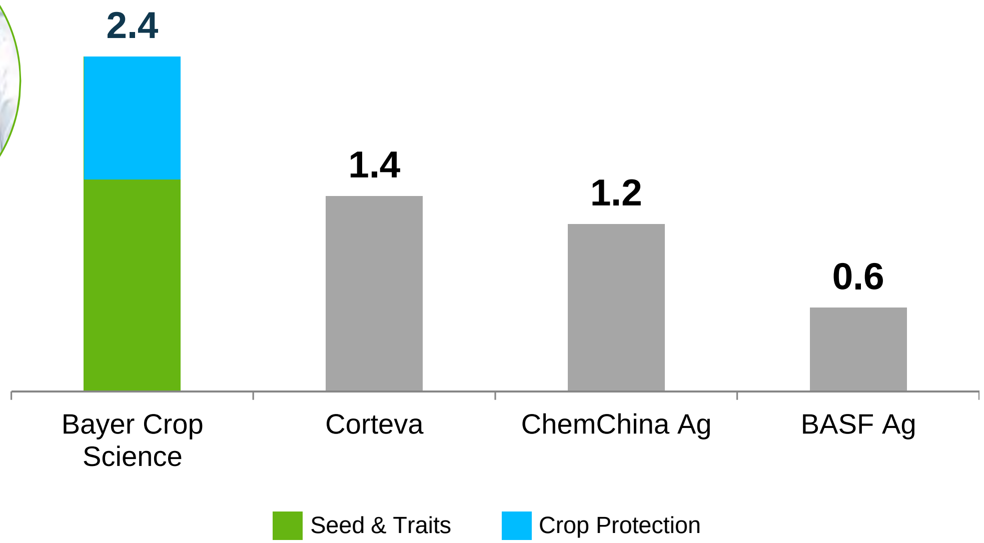
Unmatched Investment in R&D

Shaping the Future of Agriculture with Most Productive Innovation Platform in the Industry

#1 R&D Platform in Crop Science

- **~7,300** R&D employees
- **>35** R&D sites
- **>175** breeding locations delivering innovation
- **Partner of choice**
- **Technology provider to the industry**

2017 Ag R&D Investment (€bn)[1]



[1] Pro-forma estimates based on company information and internal calculations. | Bayer Pro-forma figures consider Monsanto acquisition and related divestments | Monsanto calendarized to twelve-month-period end ended November 30, 2017

Next Growth Opportunity: Convergence of Leading R&D Platforms

Extensive Germplasm and Biotech Foundation, Combined with Leadership in Chemistry and Biologicals and Data Science Optimization, Serves As Innovation Engine To Accelerate Benefits Across The Industry

Leading germplasm libraries in corn, soybean, cotton and vegetables

#1 field trial footprint

Breeding

Reach **>350**m acres annually

>20 new and next-generation traits in development

Biotech

Seeds & Traits

+

Strong discovery platform for molecules with new mode-of-action and differentiated profiles

30-60 molecules selected for field trials annually

Leader in formulation technology

Chemistry

>10,000 microbes screened *in vitro* annually

80m acres of commercial products reached annually in row crops

Biologicals

Crop Protection

+

#1 database of grower and field trial seed performance data in the industry

60m paid acres in U.S.A., Brazil and Europe represents industry's **leading platform reach**

Data Science

Digital Ag

Best positioned to discover, combine and tailor solutions for growers

Driving the Largest and Most Valuable R&D Pipeline in Ag

Highly Effective in Converting Investment into Meaningful Products for Farmers

Newly Combined Pipeline

Scale

Unmatched in the Industry

- **>75** projects in seed & traits, crop protection and digital ag pipelines
- **100's** of new hybrids and varieties commercialized annually

Advancements

Outpacing Competitors

- **>70** advancements in 2016 and 2017
- **>50** advancements in 2018

Value

Up to €30bn Peak Sales[1]

- Potential to accelerate with combined pipelines
- Climate tools serve as an enabler to reach peak opportunity

Peak Sales Opportunity by Crop

Corn	Soybean	Cereals & Other	Horticulture
~ €11-14bn	~ €6-7bn	~ €4-5bn	~ €3-4bn

[1] Represents non-risk adjusted estimated peak sales for the combined breeding, biotech, crop protection and environmental science pipelines. Applied FX rate of USD/EUR of 1.15

Expect €17bn in Peak Sales from Recent and Near-Term Launches

	Recent Launches	2019-2020[1]	2021-2022[1]
Corn	Annual germplasm upgrades BioRise 2 microbial seed treatment Trecepta insect control trait Delaro Fungicide, U.S.A.	Annual germplasm upgrades Nemastrike™ Technology nematicide Vayego insecticide	Annual germplasm upgrades SmartStax PRO corn 3rd gen weed control management system
Soybean	Annual germplasm upgrades Roundup Ready 2 Xtend soybean XtendiMax Herbicide with VaporGrip Technology	Annual germplasm upgrades XtendFlex soybean Soybean Cyst Nematode resistance trait Nemastrike Technology nematicide Fox Xpro fungicide, Brazil	Annual germplasm upgrades Intacta 2 Xtend trait Indiflin fungicide
Horticulture	Annual germplasm upgrades (vegetables)	Annual germplasm upgrades(vegetables) Tiviant fungicide Vayego insecticide	Annual germplasm upgrades (vegetables) Highly concentrated biological fungicide
Cereal and Others	Annual germplasm upgrades Bollgard II XtendFlex cotton Bollgard 3 XtendFlex cotton XtendiMax Herbicide with VaporGrip Technology	Annual germplasm upgrades Vayego insecticide (rice, other crops) TruFlex canola weed management Nemastrike™ Technology nematicide	Annual germplasm upgrades Lygus & Thrips control cotton
Digital Ag	Advance Seed Scripting - corn Manuel Seed Scripting - corn Nitrogen Management Manuel Fertility Scripting for P,K, N,Lime	Corn Seed Advisor Expanded FieldView - EA FieldView - AR, PY, UY Advanced Seed Scripting - BR Crop Protection Risk Tool Crop Protection Outcome-Based Models FieldView Machine Compatibility Irrigation mgmt.- EA FarmRise features FieldView – Retail Fertility Risk Tool	Outcome-based Models in Seed and Fertility Crop Disease Diagnosis FieldView – Fruits & Vegetables Soybean Seed Advisor

[1] Subject to regulatory approvals. Represents a subset of the pipeline; not representative of the entire €30bn peak sales opportunity.

FieldView Platform Leads the Digital Transformation in Agriculture

Provides Multiple Ways to Create Value for Farmers, the Industry and the Enterprise

Today: Agronomic services

- Applications that visualize, analyze and recommend
- Driven by data

FIELDVIEW plus FIELDVIEW drive

$1,000 subscription + $300 hardware

- Data Visualization and Storage
- Yield Analysis
- Manual Fertility Scripting
- Manual Seed Scripting
- Field Health Imagery

Per-Acre Offerings

Advanced Seed Scripting

Seed Placement Advisor

Today: FieldView platform[1]

50+ partners leverage FieldView platform to bring their digital Ag innovations to farmers, and pay for access to platform

Veris, FieldAlytics, TerrAvion, Agribotix, AGRIAN, Agvance, SST Summit, DEVERON, GROWMARK, MapShots, HELENA, CHS, ceres imaging, WINFIELD UNITED, Nutrien

Tomorrow: Enterprise benefit

Driving value across our internal operations and businesses by reducing production costs and enabling outcome-based pricing models to drive incremental sales

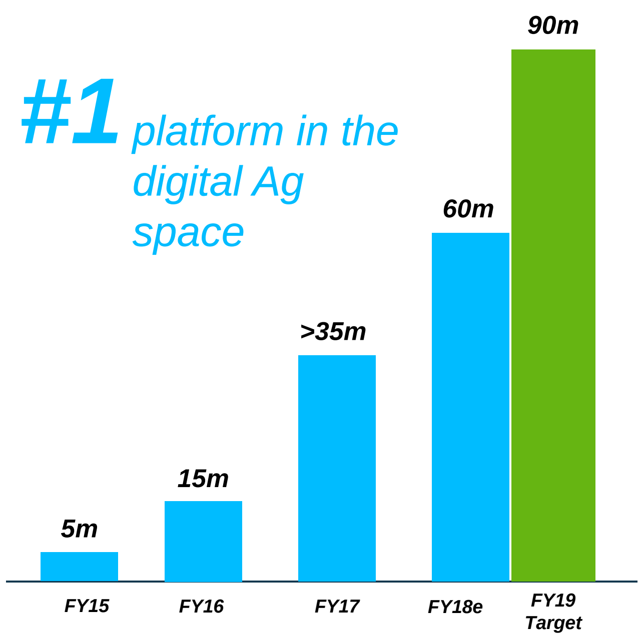
- Commercial sales
- Supply chain
- Technology
- Business analytics

[1] All trademarks are the property of their respective owners.

FieldView: The Leading Brand and Platform for Growers

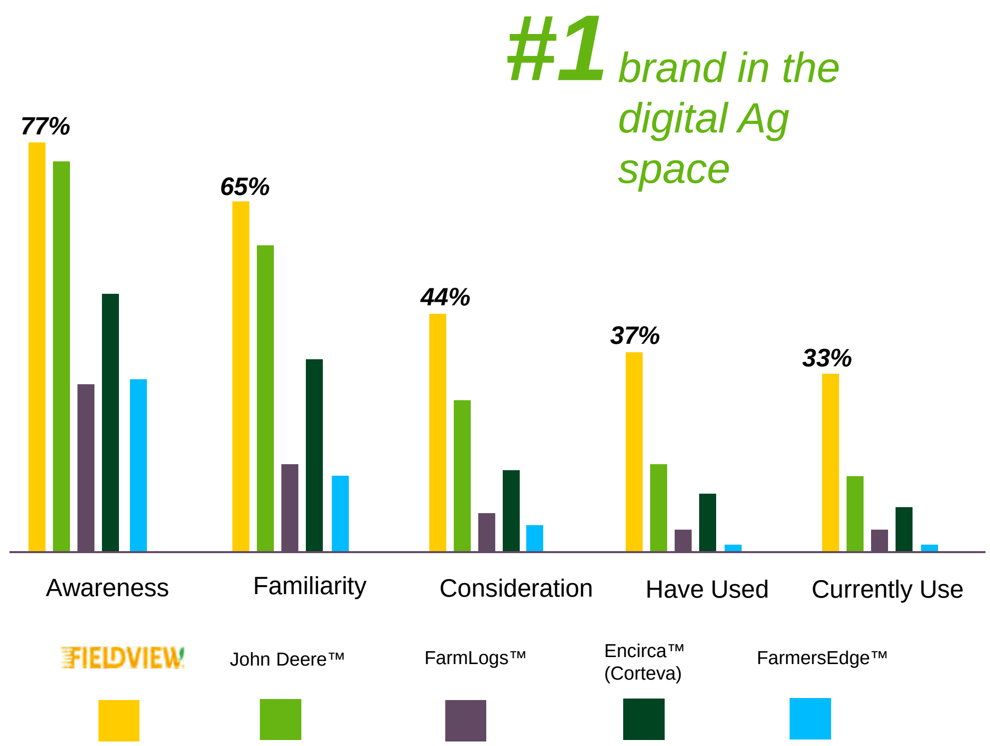
Our Value Creation is Supported by our Performance Trends; Paid Acres >7x Closest Competitor

Global Paid Acres[1]



>35 next-generation projects in the pipeline

Brand Health[2] (U.S.)



[1] Internal estimates
[2] 2018 Brand Health Monitor

Opportunity for Digital Transformation and Tailored Solutions

Precise Resource Use and Innovation Required to Address Significant Demand Growth, Field Variability and Increased Pressure On Ecosystems

$$\text{Yield} = f\,(g,e,p)$$

g = Genetics

Inherent yield potential in the seed

e = Environment

Weather and variability in soil types

p = Farming Practices

40 decisions made over a growing season

Opportunity from optimized yield equation

542 bu/ac ***vs.*** **175** bu/ac national average[1]

NATIONAL CORN GROWERS ASSOCIATION

2017 NCGA Corn Yield Contest winner

138 bu/ac ***vs.*** **49** bu/ac national average[1]

2017 Soybean Yield Contest winner

Our evolution to capture the opportunity

- Leading Products
- Product Combinations
- Digitally Informed Offerings
- Tailored Solutions

[1] USDA crop production summary report

Poised to Solve Grower Challenges and Capture the Opportunity

Leadership in Digital Tools and Innovation Accelerates the Transformation

Significant opportunities ahead

Digitally informed offerings

Data science drives more informed decisions for growers and enables outcome-based offerings; 75% of U.S.A. farmers more likely to purchase a product with outcome-based pricing

Tailored solutions

Tailored solutions create new value for farmers beyond the sum of the products, benefit consumers and increase environmental sustainability

FieldView Fungicide Pilot Program

- **~8** bu/acre[1] more yield when DEKALB® hybrids used with a fungicide[1]
- **15-20%** of U.S.A. corn growers use a fungicide[2]
- **SOLUTION**: Offer outcome-based pricing at defined bu/ac threshold using Climate FieldView; rebate fungicide and application if yield gain is not achieved

CLIMATE FIELDVIEW

Short-Stature Corn Production System (Phase 2)

Benefits

- Increases precision of crop input applications through extended in-season crop access due to shorter height

- Reduced crop loss from lodging and greensnap due to improved plant stability
- Increased environmental sustainability from optimized use of fertilizer, inputs, land and water

[1] Internal R&D trials
[2] USDA NASS 2016/2017 report, figure 2 and internal estimates

Base Case Targets at Least 30% EBITDA Margin by 2022

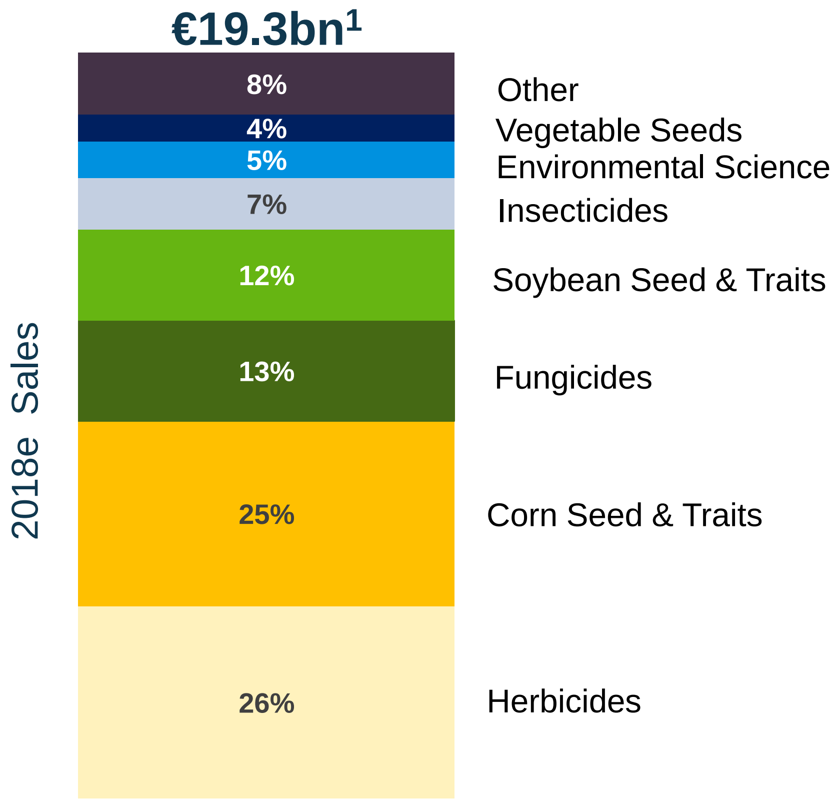
Upside Potential in Case of Commodity Cycle Recovery

	2018e[1, 2]	Indicative Guidance 2019	Target 2022
Sales/Sales growth	~€19.3bn	~4%	CAGR >4%
EBITDA/EBITDA margin	€4.5bn (~23%)	~25%	>30%

[1] The unaudited Pro-forma data are presented as if both the acquisition of Monsanto and the associated divestments had taken place as of January 1, 2018. Sales of Monsanto are presented in periods as per the Bayer fiscal year. One-time effects of business operations, the accounting for discontinued operations and the recognition and measurement of sales from certain business transactions have been adjusted in line with our accounting. Due to this simplified procedure, they explicitly do not reflect sales according to IFRS or IDW RH HFA 1.004, meaning they have not been audited.
[2] The currency and portfolio adjusted growth rate as compared to the Pro-forma 2017 sales of ~€20.1bn, (excluding transitional service agreement sales) is 3.4%; 2022 targets at constant currencies, not including portfolio measures.
EBITDA / EBITDA margin based on EBITDA before special items

Target Greater than 4% Sales CAGR from 2018 to 2022

Leadership and Innovation Translate into Above Market Sales Growth



Key Sales Growth Drivers

- Deliver annual germplasm refresh across the seeds portfolio to drive price and share gains
- Continue penetration of Roundup Ready Xtend crop system; transition to XtendFlex with expected U.S.A. launch in 2020[2]
- Continue penetration of Intacta RR2PRO; transition to Intacta 2 Xtend with expected launch in South America in 2021[2]
- Increase crop protection sales on the >400m acre seed & trait footprint; FieldView platform an enabler
- Maximize sales synergies

[1] The unaudited Pro-forma data are presented as if both the acquisition of Monsanto and the associated divestments had taken place as of January 1, 2018. Sales of Monsanto are presented in periods as per the Bayer fiscal year. One-time effects of business operations, the accounting for discontinued operations and the recognition and measurement of sales from certain business transactions have been adjusted in line with our accounting. Due to this simplified procedure, they explicitly do not reflect sales according to IFRS or IDW RH HFA 1.004, meaning they have not been audited.
[2] Pending regulatory approvals

Integration on Track and Culture Evolving to Serve our Customers

Leadership in Place and Very Positive Engagement Scores Noted Across Both Legacy Companies

Cultural Integration Priorities

1 Build on similarities

Center our efforts on shared passion for innovation, science and agriculture

2 Bridge complementary approach

Drive work that leverages global scale and respects local needs

3 Actively manage differences

Foster courageous decision-making and thorough execution based on data insights

Achievement-to-Date Highlights

- **Customer**: Leadership met >2,000 customers in 15 countries
- **Leadership positions**: Top leadership teams named and operational (300 positions), ~50/50 balance of legacy companies represented
- **Cultural activation**: All named leaders engaged in driving integrated culture
- **Exchange**: ~30 leaders based in other legacy company site
- **Cultural integration**: High engagement scores of ~85% at both legacy companies
- **Synergies**: Validated ~€1bn synergies
- **Systems and Processes**: Day One IT fully functional, future integration approach confirmed
- **Governance**: Bayer policy adoption confirmed across crop science

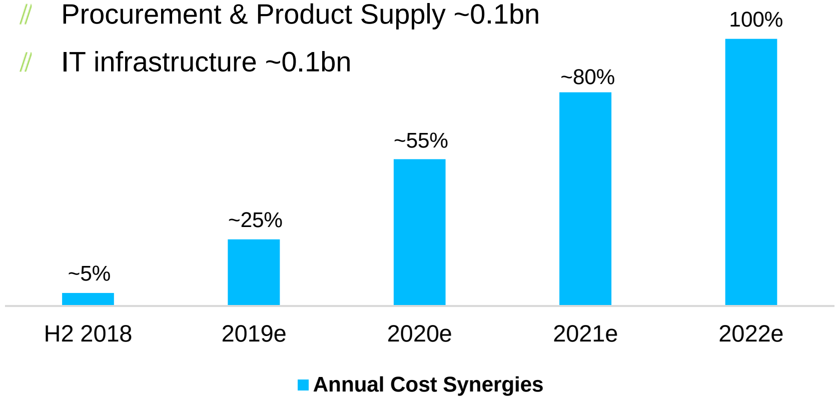
Focus on customers, business continuity and innovation

Targeted Synergies of ~€1bn ($1.2bn) as of 2022

Cost Synergies

EBITDA Target[1,2]: ~€870m (~$1bn) as of 2022

- **Key Initiatives:**
  - Commercial and R&D Operations ~0.3bn
  - Support Functions & Country Integration ~0.3bn
  - Procurement & Product Supply ~0.1bn
  - IT infrastructure ~0.1bn



Expected one-time costs (~€1.3bn)

Sales Synergies

EBITDA Target[1]: ~€170m (~$200m) as of 2022

- **Four countries** to generate **>60%** of the sales synergies
  - U.S.A., Brazil, Argentina and Mexico
- **Increase crop protection chemistry sales** in Americas on the **>400m acre seed & trait footprint;** digital ag to serve as an enabler

[1] Net EBITDA impact before special items, net of estimated dissynergies such as termination of selected distribution agreements as well as sales disruptions
[2] Majority of one time costs to achieve synergies expected to be recorded as special items
Applied FX rate of USD/EUR of 1.15

Sustainability Engagement to Increase with Broader Impact

Focus on Access Programs and Reducing the Ecological Footprint

	Our Engagement Highlights	**Future Targets**
Access Programs	// Empowering smallholder farmers[1] to reach their full farming potential // Tools include education, partnerships and tailored solutions	**Empower >100 million smallholder farmers by 2030** // Enhancing social innovation (e.g. with *Better Life Farming)* and digital transformation with *FarmRaise*

Reduce ecological footprint	Reducing our environmental footprint throughout our operations by:
	// Systematic reduction of CO2 emissions
	// Water-smart agricultural initiatives
	// Maintaining biodiversity
	// Driving innovative agricultural technologies
		Advance a carbon-neutral future of agriculture
		// Climate-smart practices (no-tillage, highly productive crops, cover crops, precision agriculture); share knowledge and technologies
		Significant reduction of inputs/ha through digital and biotech
		// Climate FieldView for precision application of pesticides / fertilizers
		// Intacta RR2 Pro soybean technology reduces insecticide use by 90%

[1] With farms less than 2 hectares in size and relying mainly on family labor

Committed to Responsibility, Transparency and Dialogue

Living up to our Responsibility to Farmers, Consumers and our Planet

Collaborative

Transparent

Inclusive

- // We set ***high ethical standards for ourselves and our partners.***
- // We ***serve farms of all sizes to*** make our ***innovations accessible.***
- // We encourage ***diversity in agricultural practices***.
- // We prioritize ***inclusion and diversity*** in our company.
- // We are committed to ***transparency and dialogue.***
- // We are passionate about ***collaborating with others*** to find better solutions.

Key Takeaways

Shaping agriculture to benefit farmers, consumers and our planet

1. **Successfully integrate Monsanto and strengthen leadership position in Crop Science**
2. **Deliver world class innovation from industry's leading R&D pipeline**
3. **Pioneer the digital ag transformation with FieldView platform**
4. **Deliver financial targets through operational excellence, new technologies and synergy benefits**
5. **Set new standards of sustainability**
6. **Commit to responsibility, transparency and dialogue**

Excited and Engaged Crop Science Executive Leadership Team

Working Together to Deliver Better Solutions for Growers, Consumers and the Planet

Liam Condon
President, Crop Science

Brett Begemann
Commercial Operations

Dirk Backhaus
Product Supply

Bob Reiter
Research & Development

Frank Terhorst
Crop Strategy & Portfolio Management

Jesus Madrazo
Agricultural Affairs & Sustainability

Michael Schulz
Finance

Michael Stern
Digital Farming / Climate Corporation

Martin Dawkins
Post-Merger Integration

Gabriele Oehlschlaeger
Human Resources Business Partner

Lars Benecke
Law, Patents & Compliance Business Partner

James Swanson
IT Business Partner / Digital Transformation

Shaping the Future of Agriculture

//////////

Capital Markets Day
London, December 5, 2018

Liam Condon
Head of the Crop Science Division

Introduction to Agriculture

//////////

Capital Markets Day
London, December 5, 2018

Frank Terhorst
Head of Crop Science Strategy and
Portfolio Management

Disclaimer

Cautionary Statements Regarding Forward-Looking Information

This presentation contains forward-looking statements. A forward-looking statement is any statement that does not relate to historical facts and events, but rather reflects Bayer's current beliefs, expectations and assumptions regarding the future. This applies, in particular, to statements in this presentation on revenue growth, including product introductions and peak sales potential, synergies, especially in relation to the acquisition and integration of Monsanto Company, portfolio adjustments, cost reduction, financial targets and earnings, cash flow generation, deleveraging and other similar statements relating to future performance, including with respect to the markets in which Bayer is active.

Although the forward-looking statements contained in this presentation are based upon what Bayer's management believes are reasonable assumptions, they necessarily involve known and unknown risks and uncertainties that could cause actual results and future events to differ materially from those anticipated in such statements. Forward-looking statements are not guarantees of future performance and undue reliance should not be placed on them. Bayer undertakes no obligation to update forward-looking statements if circumstances or management's estimates or opinions should change except as required by applicable securities laws.

For more information on factors that could cause actual results and future events to differ from those anticipated in forward looking statements, please refer to the factors discussed in Bayer's public reports which are available on the Bayer website at https://www.investor.bayer.com/en/reports/annual-reports/overview/, including in the Annual Report 2017 under the caption "Report on Future Perspectives and on Opportunities and Risks".

Agenda

Need for Innovation Driven by Megatrends

Producing More with Less: A Fundamental Driver for our Crop Science Business

Megatrends through 2050

Growing Population

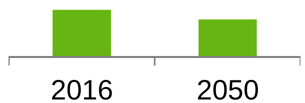
+2.2bn
people[1]

+50%
more food and feed required to meet growing demand and changing diets[2]

Pressure on Ecosystems

-17%
Harvest losses from climate change[3]

-20%



Significant loss in arable land per capita[4]

Societal Needs

Secure a sufficient supply of quality food

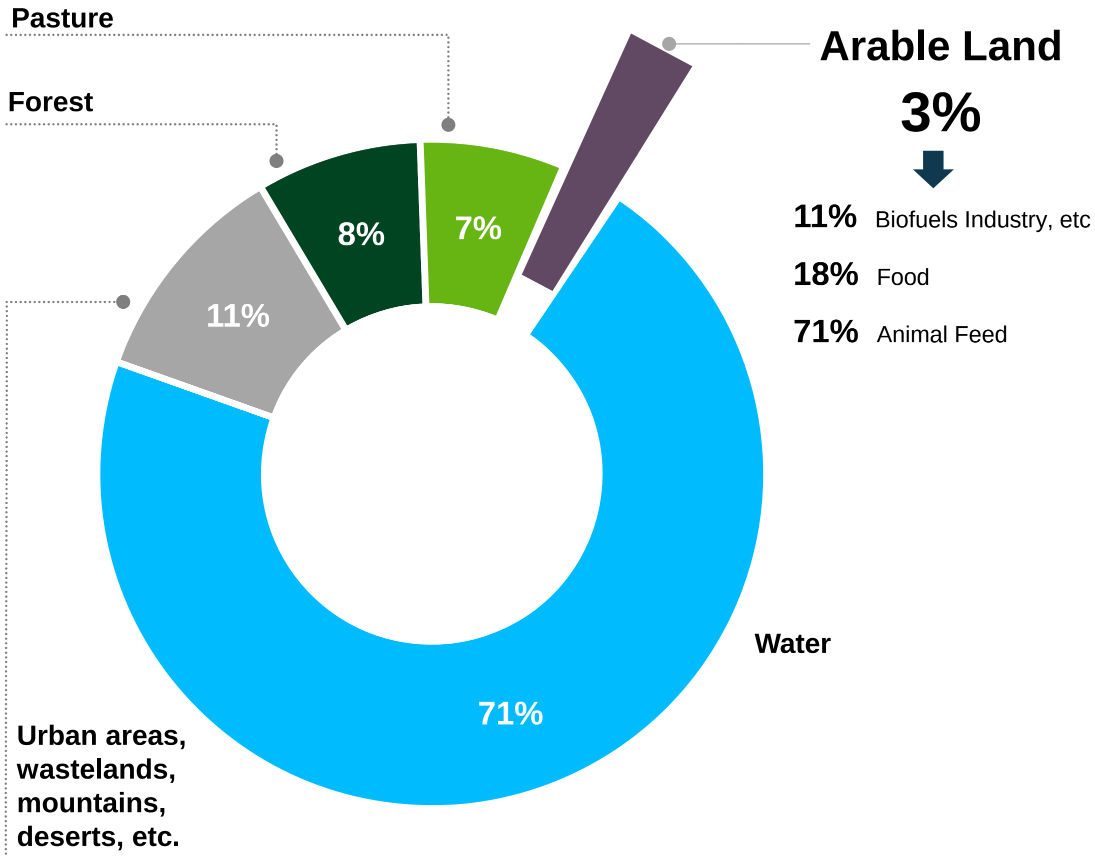
Use natural resources more efficiently and responsibly

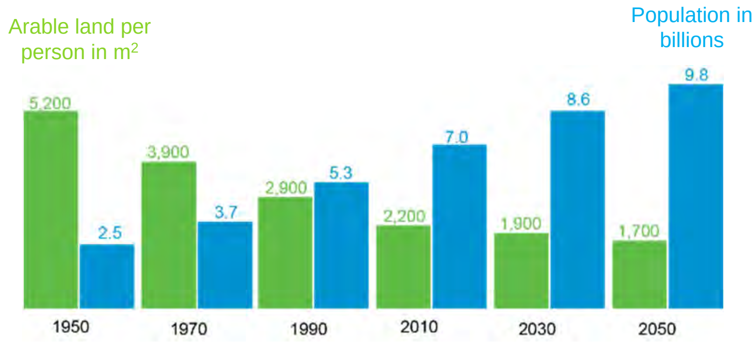
Science For A Better Life

[1] UNDESA 2017 (United Nations Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision); [2] FAO 2017 (FAO Global Perspective Studies)
[3] Nelson et. all. (2104); (2) FAO 2016 “Climate change and food security”; [4] FAOSTAT (accessed Oct 30, 2018) for 1961-2016 data on land, FAO 2012 for 2030 and 2050 data on land, and UNDEDA 2017: World Population Prospects for world population data.

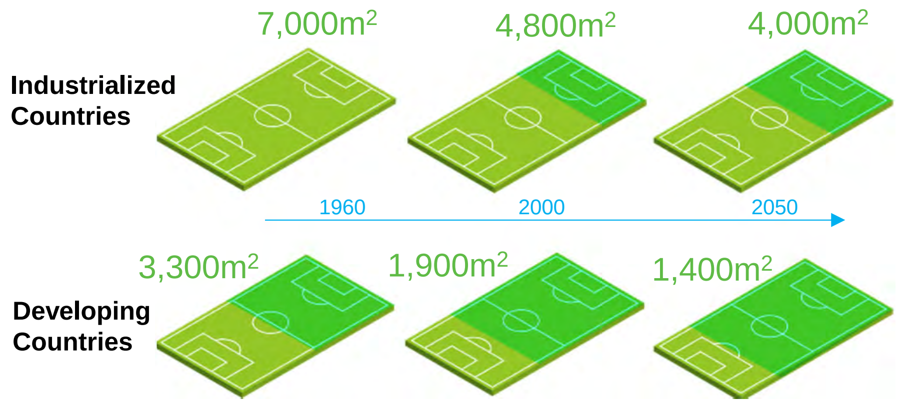
Land is Precious

Only 3% of Earth's Surface is Arable Land that's Able to be Farmed





In developing countries, the amount of arable land per person will be falling by more than 60 percent (1960-2050)



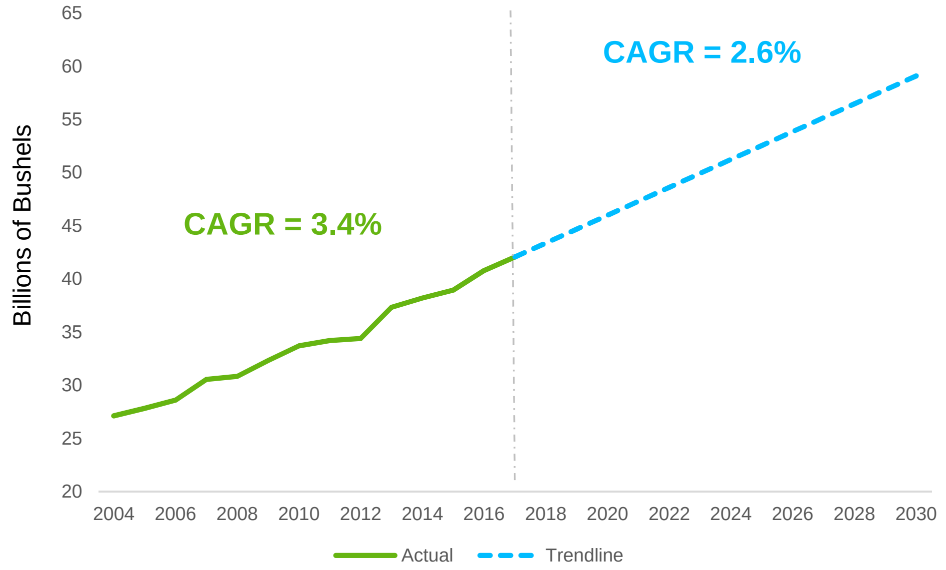
Amount of usable land per person in m^2 in comparison to a $7{,}140m^2$ football field (rounded figures)

Trendline Demand Requires Substantive Yield Improvement

Global Corn Yield Rate of Gain must More than Double and Soybean Yield Rate of Gain must Triple by 2030

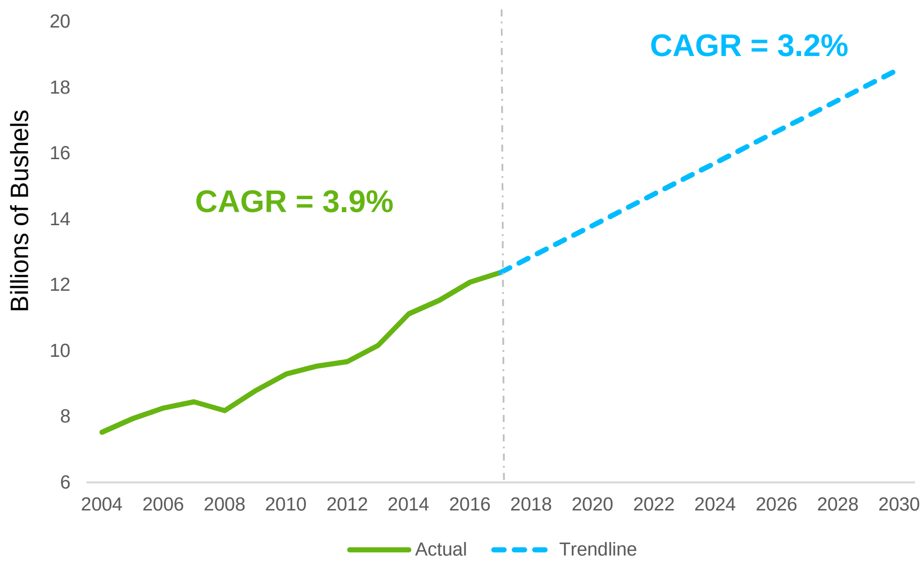
Long-term Demand Trendlines[1]

Corn



Incremental corn demand of ~1bn bushels expected in 2018/19 would require 13m additional acres of arable land at constant global yields

Soybean



Incremental soybean demand of ~600m bushels expected in 2018/19 would require ~14m additional acres of arable land at constant global yields

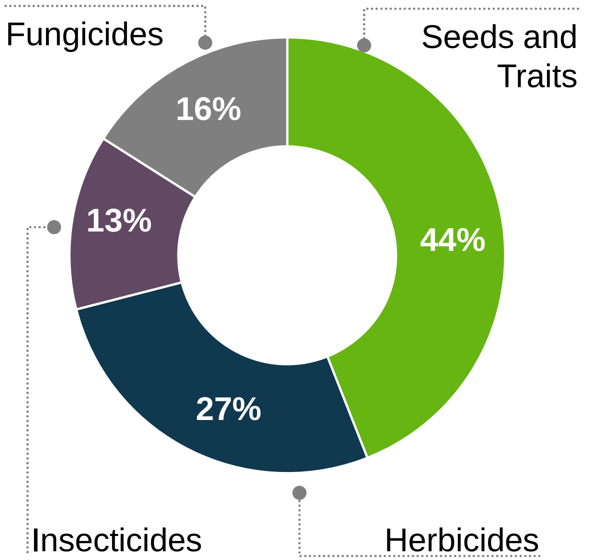
[1] USDA WASDE September 2018, historical data for actual and trendline, trendline based on avg. growth from 2011-2017

Agriculture Sales by Crop And Input

Corn and Soybean Lead in Value of Inputs; Cereals in Acreage

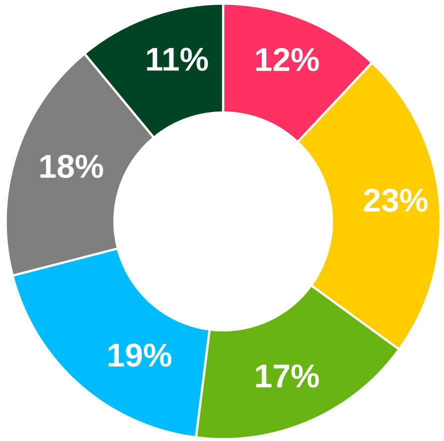
Total Ag Input Market: By Input

Total Market Value €90bn[1]



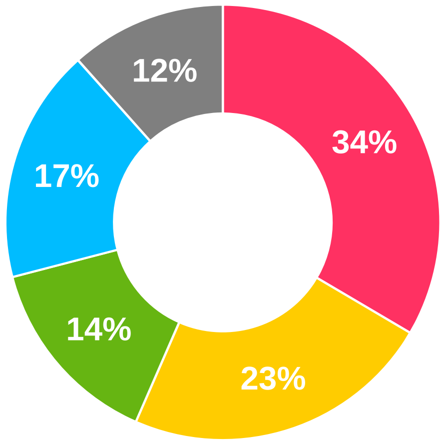
Total Ag Input Market: By Crop

Total Market Value €90bn[1]



Planted Area: By Crop, in %

~ 2bn ha (2017)



Cereals | Corn | Soybean | Horticulture | Others | Rice

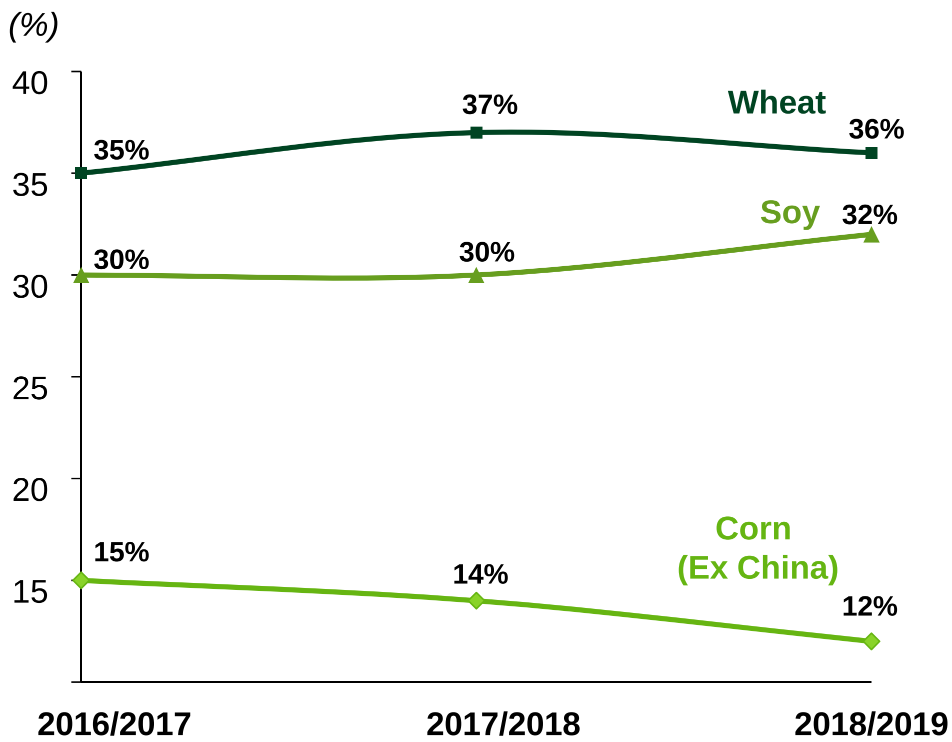
~3% Annual Growth

Our focus crops of corn, soybean, cereals and horticulture account for ~70% of the market value and acres planted

[1] Total market of €90bn includes €5bn of Environmental Sciences; actual pie charts exclude that amount, as not relevant in these views
Source: Bayer CS market model

Global Stock-to-Use Ratios for Wheat and Corn Expected to Decline

Ratios Indicate Improving Market Dynamics in the Short-to-Medium Term



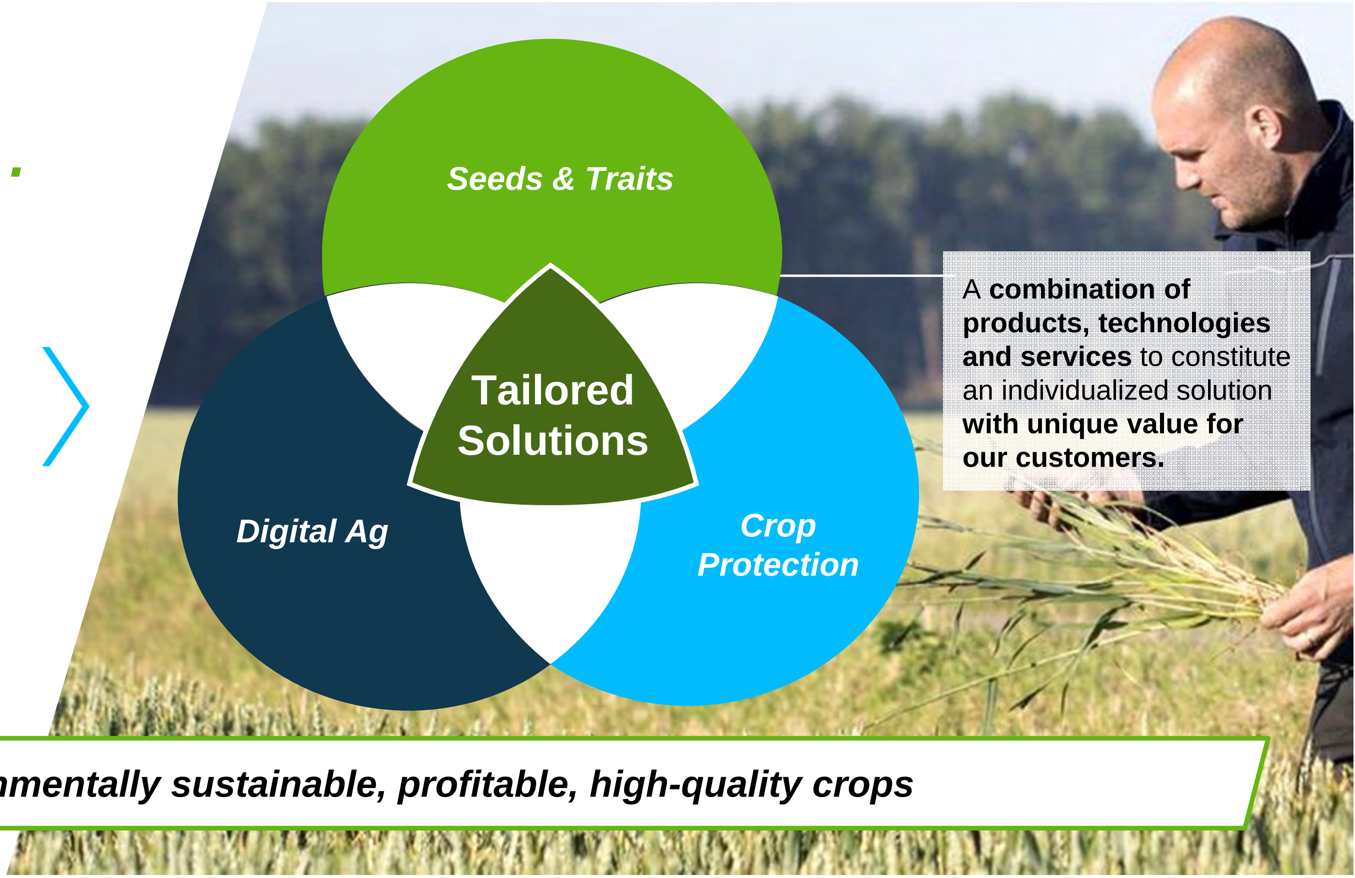
	2018/2019 Forecast			
	Harvested acres	Avg yield	Avg farm price	Prod Value
Wheat	535m	World 50 bu/ac EU 80 bu/ac	5.10 \$/bu	\$151.2bn
Soybean	321m	World 42 bu/ac U.S.A. 53 bu/ac	8.60 \$/bu	\$129.1bn
Corn	454m	World 93 bu/ac U.S.A. 181 bu/ac	3.50 \$/bu	\$188.5bn

Source: USDA-PSD/WASDE, November 2018. Average farm price is for the. U.S.A Production value from IHS Markit

Tailored Solutions to Address Farmers' Individual Needs and Challenges

We know growers…

- …make approximately ***40 key decisions*** every season
- …want to grow the ***best seed varieties***, and minimize ***pests, diseases & weeds***
- …want to balance ***societal, economic & environmental needs***



Continuous innovation to drive environmentally sustainable, profitable, high-quality crops

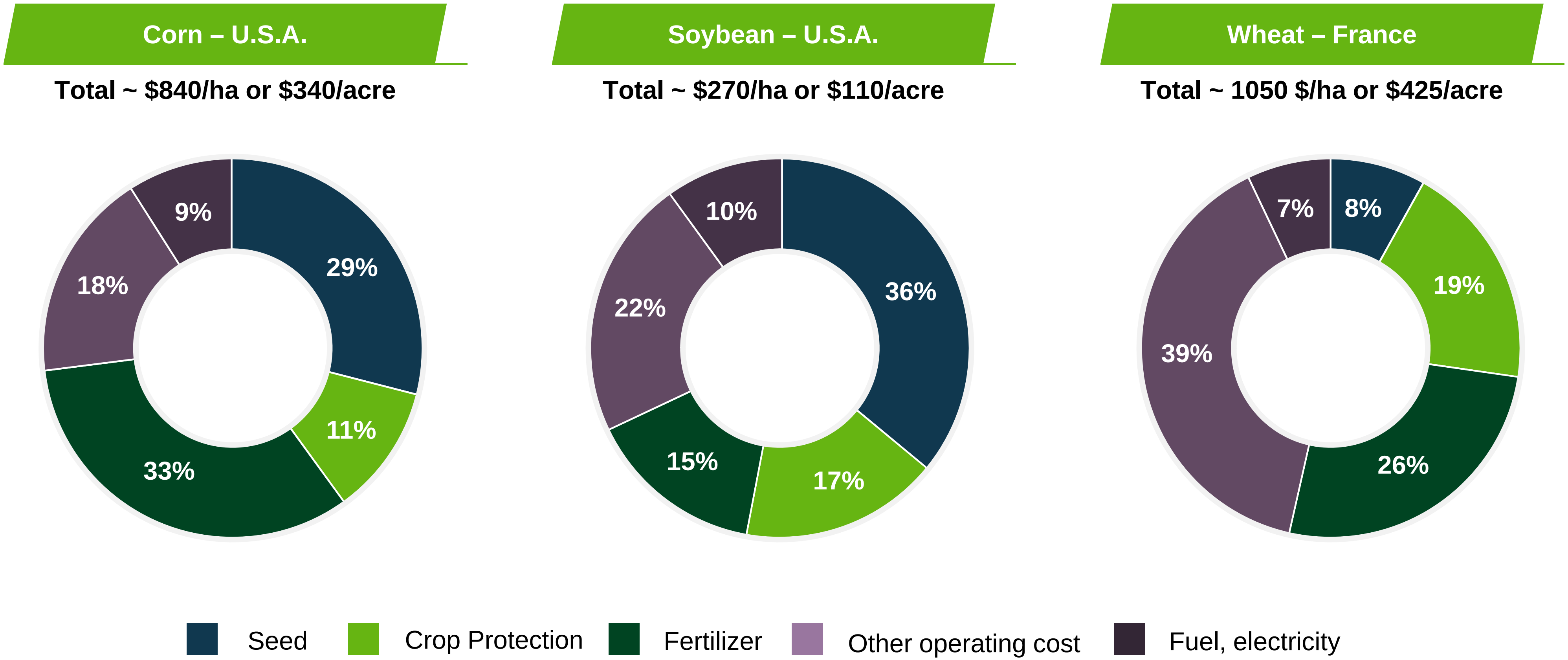
Growers Face ~40 Key Decisions Each Growing Season

Digital tools and a Broad Portfolio of Solutions Allow Growers to Optimize Those Decisions

Planning	Pre-Planting	Planting	In-Season	Harvest
Production Planning	Production Planning	Seed Depth	Keep Stand or Re-Plant	Equipment
Crop Rotation	Fertility Program	Planting Speed Through the Field	Post-Emergent Herbicide Application	Timing
Weed Control Program	pH Management	Other Planting Operation Decisions	Foliar Insect Control	Storage
Row Spacing	Burn-Down Program	Plant Population	Fertility Program	Post-Harvest Assessment
Product Selection	Tillage Level	Starter Fertilizer	Foliar Disease Control	Crop-Marketing Support
Refuge Options	Primary Tillage Program	Herbicide Application	Irrigation Application In-Season	
Plant Population		Soil Insecticides	Micronutrients/ Fertility Management	
Seed Treatment		Fungicide Application-in-Furrow		
Soil Insecticides		Product Selection In-Field		
Soil Nematicides				

Economics Highly Influence Farmer Decision Making…

2018 Indicative Variable Grower Production Cost Budget Examples



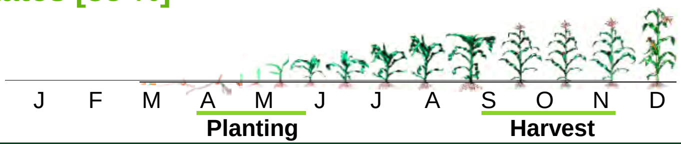
Source: USDA Forecast 2018

…as do Location and Timing

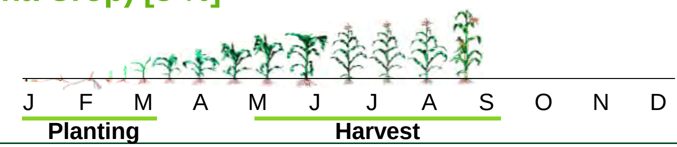
Decisions Take into Account Both Time of Year and Climate

Corn

United States [35 %] [3]

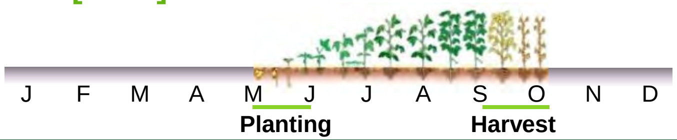


Brazil (Safrinha Crop) [8 %] [3]

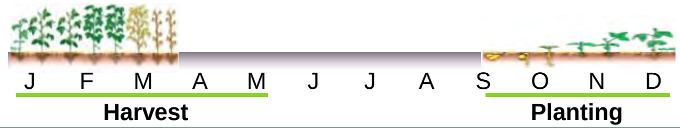


Soybean

United States [33 %] [2]

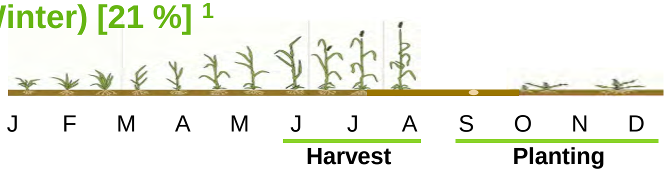


Brazil [30 %] [2]

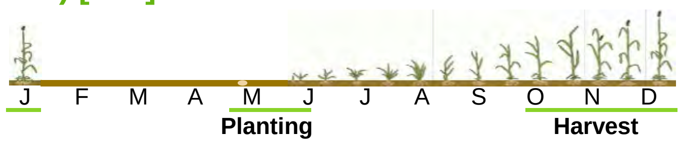


Wheat

Europe (Winter) [21 %] [1]



Australia (Winter) [3 %] [1]



Seeds are typically sold up to 6 months prior to planting start

Crop Protection buying season starts prior to planting, and continues throughout the plant growth phase until shortly before harvest

[1] Percentage refers to the global share of production (avg. 2013-2017) - EU/Australia figures refer to total (spring & winter) wheat production
[2] Percentage refers to the global share of production (avg. 2013-2017)
[3] Percentage refers to the global share of production (avg. 2013-2017); Brazil refers to total (1st & 2nd Crop) Corn production

Tailored Solutions Enable Optimal Grower Productivity

Optimizing Decisions for Growers to Produce More with Less

Superior products and use of digital tools like Climate FieldView across the Brazil soybean season

INTACTA RR2 PRO™

ASGROW

CropStar

Roundup

CONNECT

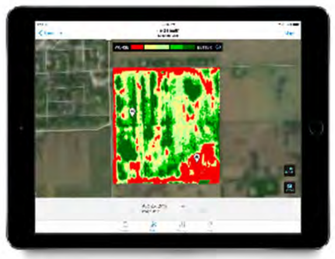
BELT

FOX

SPHERE MAX

CLIMATE FIELD VIEW™

Digital Farming



Seeds & Traits

Seed Treatment

Weed Management

Pest Management

Disease Management

Tailor-made customer solutions holistically enhance yield and sustainability, ensuring safe, healthy, and affordable food

Key Takeaways

Shaping Agriculture to Benefit Farmers, Consumers and our Planet

1. **Climate and population trends, combined with finite resources, demand innovation in Ag**
2. **Our focus is in the leading crops within the growing €90bn global Ag input market**
3. **Farmers make over 40 key decisions a season; our goal is to help them optimize with the best solution on every acre**
4. **We maintain strong competitive advantages in creating the leading seed, biotech trait and crop protection chemistry solutions**

Introduction to Agriculture

//////////

Capital Markets Day
London, December 5, 2018

Frank Terhorst
Head of Crop Science Strategy and
Portfolio Management

Appendix

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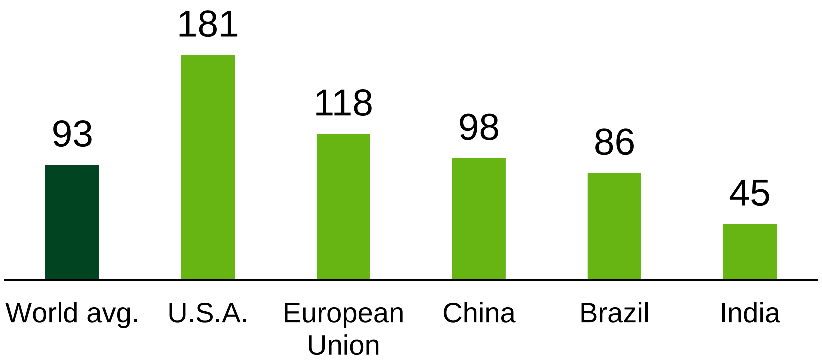
Reference Materials

Highest Corn Yields in U.S.A.

Majority of Global Corn is used for Feed

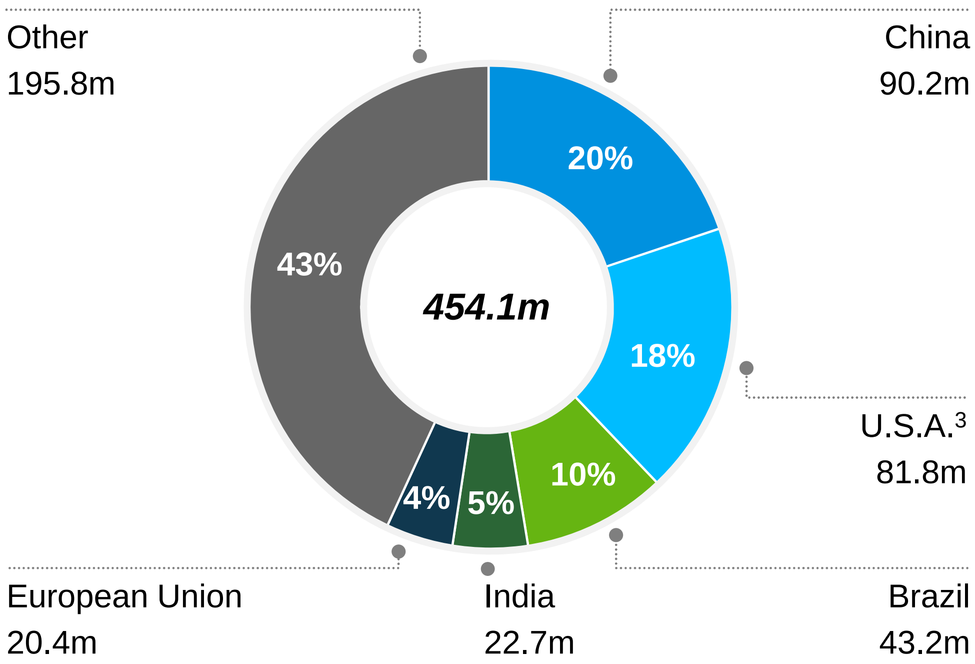
Corn Yields (bu/ac)[1]



Corn Use[2]

Feed	59%
Biofuel	18%
Food	13%
Other	10%

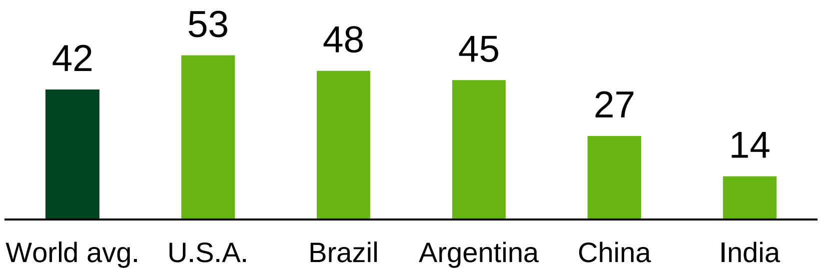
Major Corn Growing Countries (harvested acres)[1]



[1] USDA, Foreign Agricultural Service, Corn Area, Yield and Production as of 2018-10-11; 2018/19 Projections Oct
[2] OECD-FAO Agricultural Outlook 1990-2028; year 2017
[3] U.S.A. Corn planted acres: 89.1m (2018/19 Projections Oct)

Americas the Highest Yielding, Key Growing Region for Soybeans

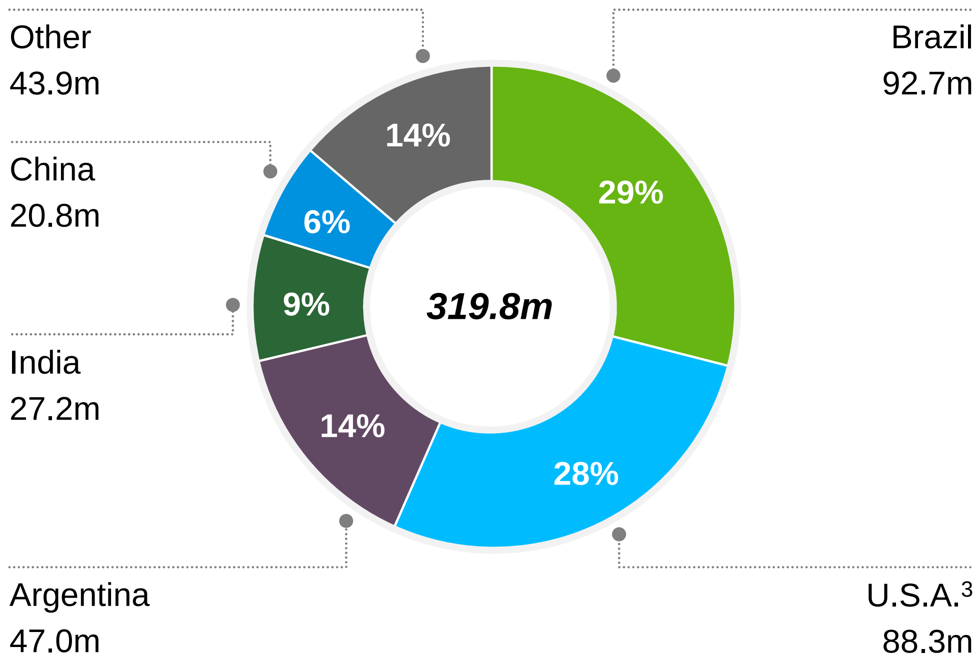
Soybean Yields (bu/ac)[1]



Soybean Use[2]

Crush (Meal and Oil)	89%
Food	5%
Feed	1%
Other	5%

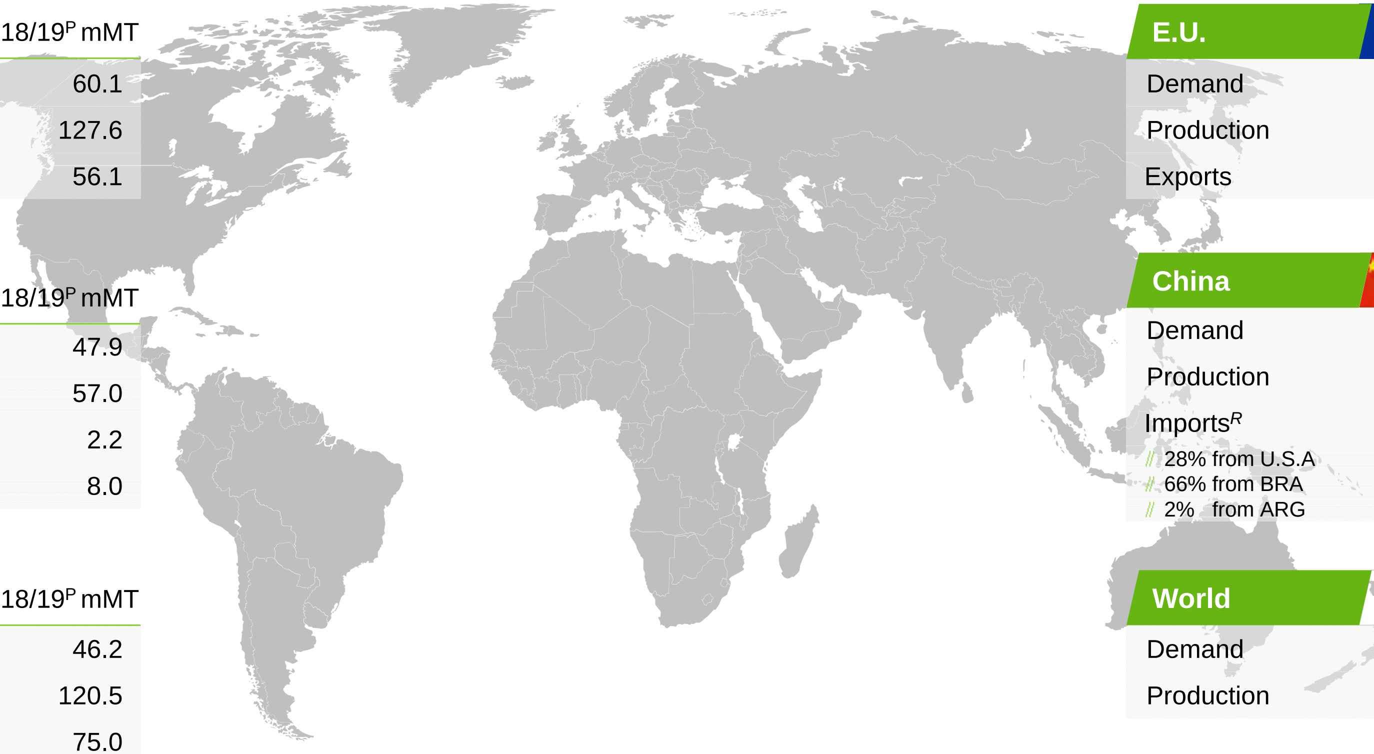
Major Soybean Growing Countries (harvested acres)[1]



[1] USDA, Foreign Agricultural Service, Wheat Area, Yield and Production as of 2018-10-11; 2018/19 Projections Oct
[2] OECD-FAO Agricultural Outlook 1990-2028; year 2017
[3] U.S.A. Soybean planted acres: 89.1m (2018/19 Projections Oct)

A Quarter of Global Soybean Production Goes to China

China Tariff on U.S.A. Soybean Expected to Impact Global Trade Flows



United States	2018/19[P] mMT
Demand	60.1
Production	127.6
Exports	56.1

Argentina	2018/19[P] mMT
Demand	47.9
Production	57.0
Imports	2.2
Exports	8.0

Brazil	2018/19[P] mMT
Demand	46.2
Production	120.5
Exports	75.0

E.U.	2018/19[P] mMT
Demand	18.3
Production	2.7
Exports	15.8

China	2018/19[P] mMT
Demand	110.6
Production	15.0
Imports[R]	94.0
// 28% from U.S.A	
// 66% from BRA	
// 2% from ARG	

World	2018/19[P] mMT
Demand	353.0
Production	369.5

[P] USDA, World Agricultural Supply and Demand Estimates, October 11, 2018; 2018/19 Projections Oct
[R] Strategie Grains, October 25, 2018; Crop Year: 2017/18
mMT = million Metric Tons

The U.S.A. is a Major Supplier of Global Corn and Soybean

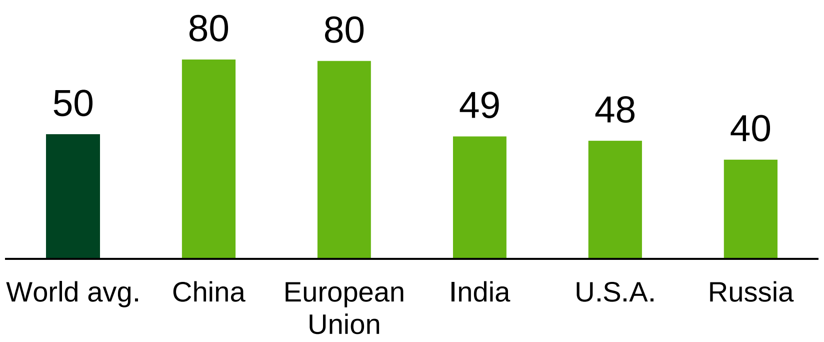
Corn Supply		Soybean Supply	
89.1	Million Acres Planted	89.1	Million Acres Planted
81.8	Million Acres Harvested	88.3	Million Acres Harvested
14.8	Billion Bushels Produced	4.7	Billion Bushels Produced
2.2	Billion Bushels Imports and Stocks	0.5	Billion Bushels Imports and Stocks
17.0	Billion Bushels Total Supply	5.2	Billion Bushels Total Supply

Source: USDA, World Agricultural Supply and Demand Estimates, October 11, 2018; 2018/19 Projections Oct

Wheat: Largest Global Staple Crop by Acreage

Only Conventional Varieties Grown

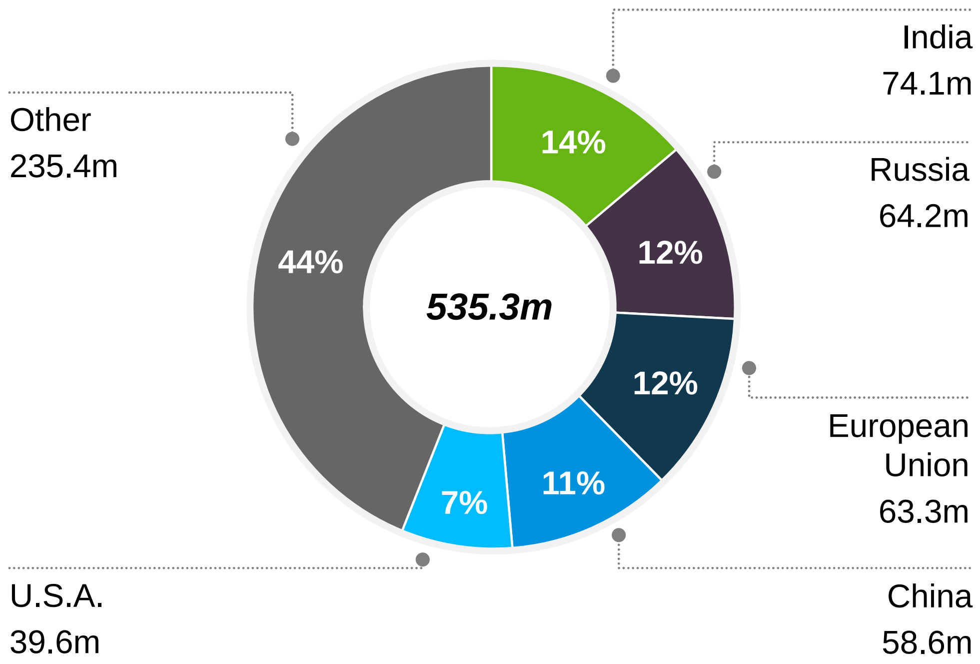
Wheat Yields (bu/ac)[1]



Wheat Use[2]

Food	68%
Feed	19%
Biofuel	2%
Other	11%

Major Wheat Growing Countries (harvested acres)[1]

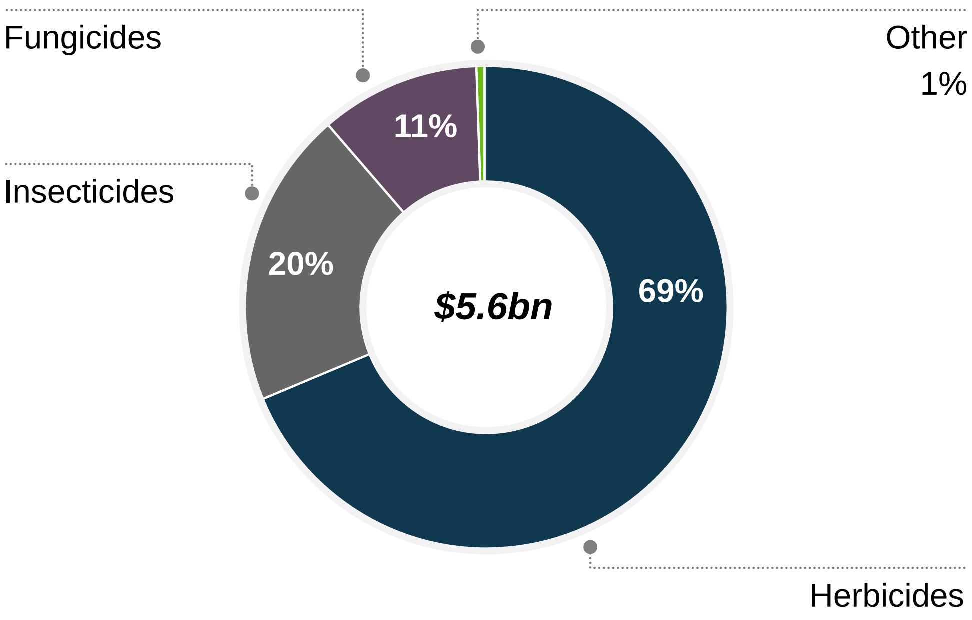


[1] USDA, Foreign Agricultural Service, Wheat Area, Yield and Production as of 2018-10-11; 2018/19 Projections Oct
[2] OECD-FAO Agricultural Outlook 1990-2028; year 2017

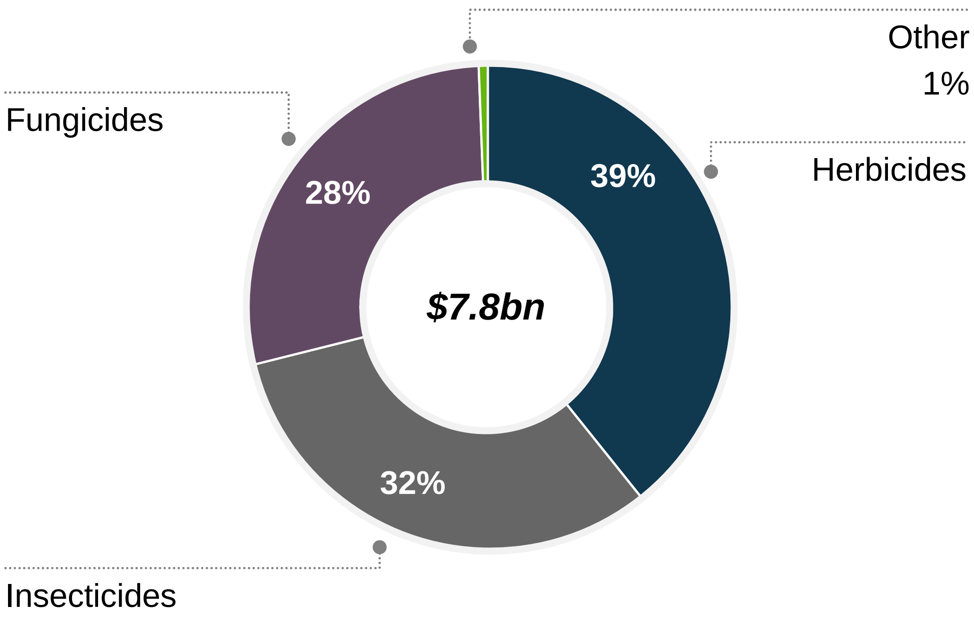
2016 Crop Protection Market by Crop and Segment

Corn / Soybean

Corn Crop Protection Market



Soybean Crop Protection Market

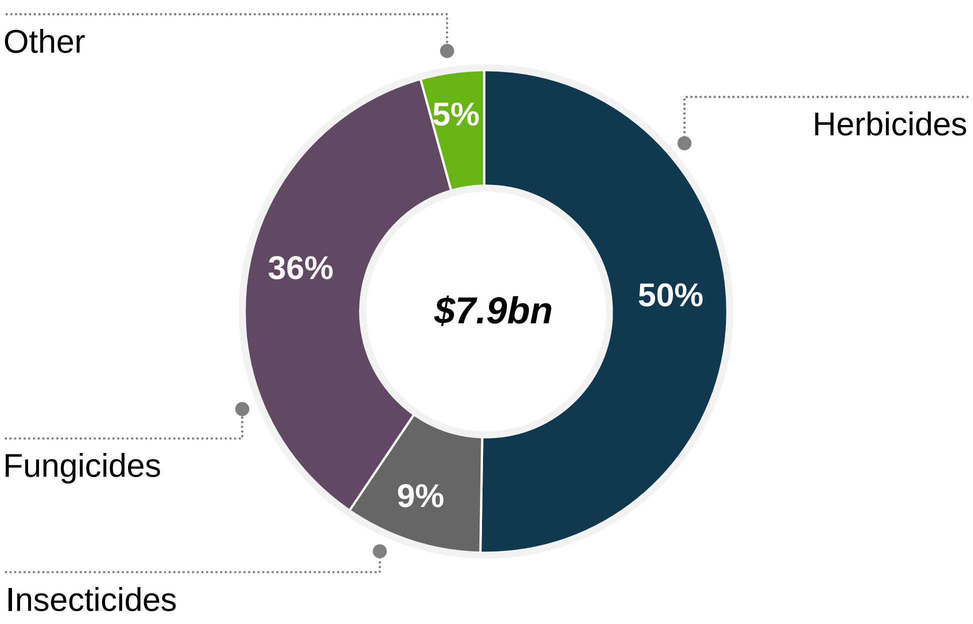


Source: Phillips McDougall AgriService 2017, Global Agrochecmial Market by Crop 2016

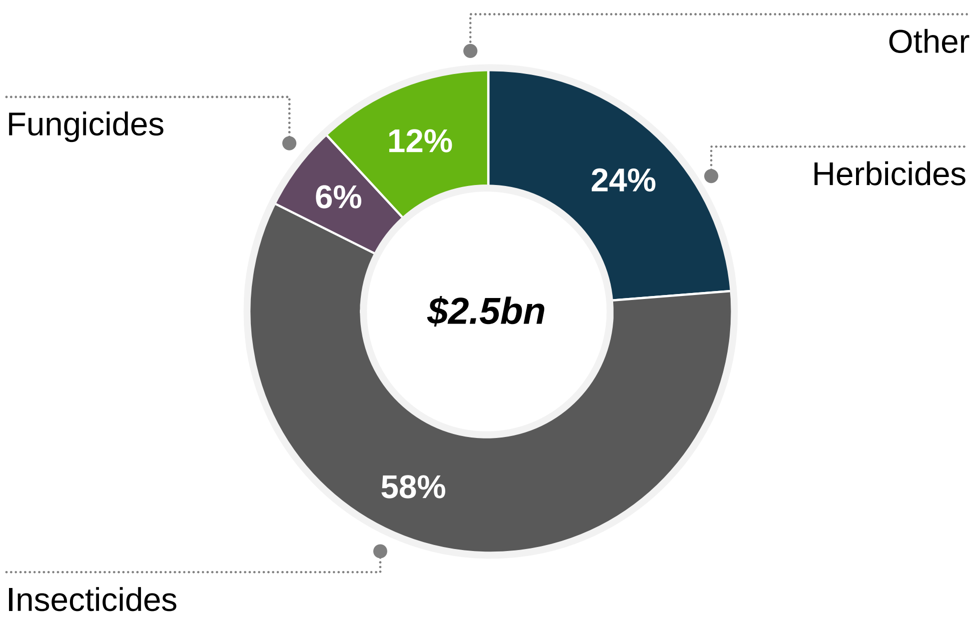
2016 Crop Protection Market by Crop and Segment

Cereals / Cotton

Cereals Crop Protection Market



Cotton Crop Protection Market

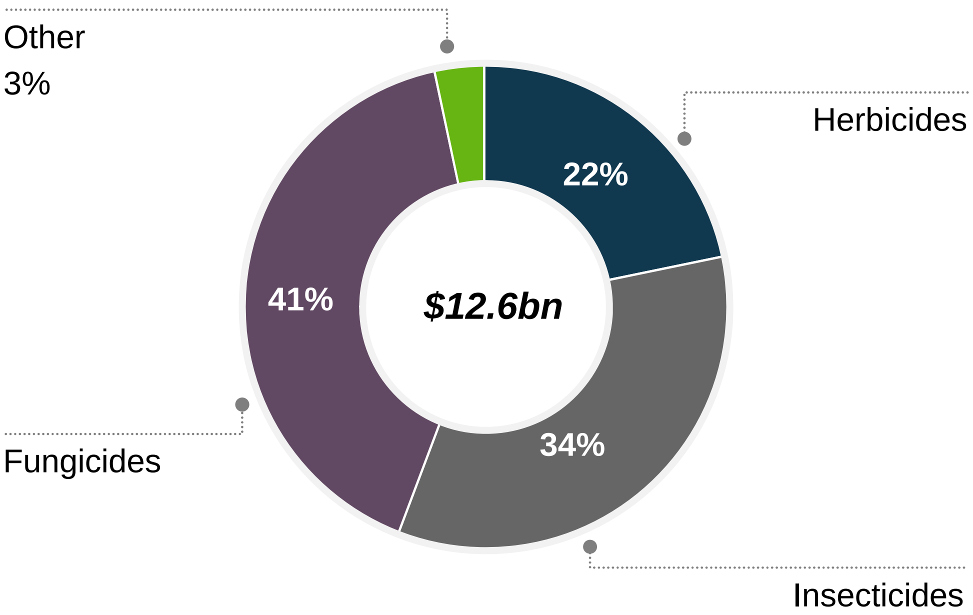


Source: Phillips McDougall AgriService 2017, Global Agrochecmial Market by Crop 2016

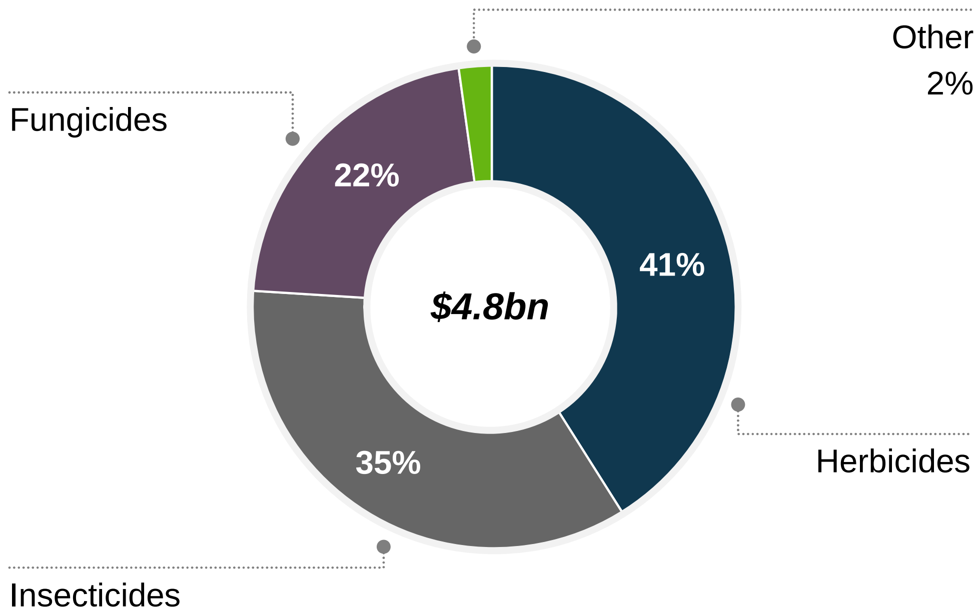
2016 Crop Protection Market by Crop and Segment

Fruit & Vegetables / Rice

Fruit & Vegetables Crop Protection Market



Rice Crop Protection Market



Source: Phillips McDougall AgriService 2017, Global Agrochecmial Market by Crop 2016

Leading Corn Seed and Trait Products and Brands

United States

BRANDED SEED PRODUCTS:
SmartStax RIB Complete
VT Double PRO RIB Complete
VT Triple PRO RIB Complete
DroughtGard VT Double PRO RIB Complete
Trecepta (offered with VT Double PRO)
Roundup Ready Corn 2

LICENSED CORN GERMPLASM
Corn States

SEED BRANDS:
DEKALB

Regional:
Fontanelle Hybrids - NE
Gold Country Seed - MN
Hubner Seed – East U.S.A.
Jung Seed Genetics - WI
Kruger Seeds - IA
Lewis Hybrids - MO
REA Hybrids – North U.S.A.
Stewart – IN, KY and OH
Stone Seed – IL
Specialty – IN and MI
Channel (direct)

Brazil

BRANDED SEED:
VT Triple PRO
VT Double PRO
VT PRO
Refuge MAX (Roundup Ready only)

SEED BRANDS:
DEKALB

Regional:
Agroeste
Sementes Agroceres

Argentina

BRANDED SEED
VT TRIPLE PRO
YieldGard RR2
Roundup Ready Corn 2

SEED BRANDS:
DEKALB

Regional:
La Tijereta

E.U.

BRANDED SEED
Conventional

SEED BRANDS:
DEKALB

Leading Soybean and Cotton Seed and Trait Products and Brands

United States

Soybean

BRANDED SEED PRODUCTS:
Roundup Ready 2 Xtend
Roundup Ready 2 Yield

LICENSED SOYBEAN GERMPLASM
Corn States

LICENSED CORN GERMPLASM
Corn States

SEED BRANDS:
Asgrow

ASGROW

Regional:
Fontanelle Hybrids - NE
Gold Country Seed - MN
Hubner Seed – East U.S.A.
Jung Seed Genetics - WI
Kruger Seeds - IA
Lewis Hybrids - MO
REA Hybrids – North U.S.A.
Stewart – IN, KY and OH
Stone Seed – IL
Specialty – IN and MI
Channel (direct)

Brazil

BRANDED SEED PRODUCTS:
Intacta RR2 PRO

SEED BRANDS
Monsoy
Asgrow

ASGROW

LICENSED SOYBEAN GERMPLASM
Monsoy

BRANDED SEED PRODUCTS:
Intacta RR2 PRO

United States

Cotton

BRANDED SEED PRODUCTS:
Bollgard II XtendFlex Cotton
Roundup XtendFlex Cotton

SEED BRANDS
Deltapine

DELTAPINE

LICENSED COTTON GERMPLASM
Cotton States

Australia

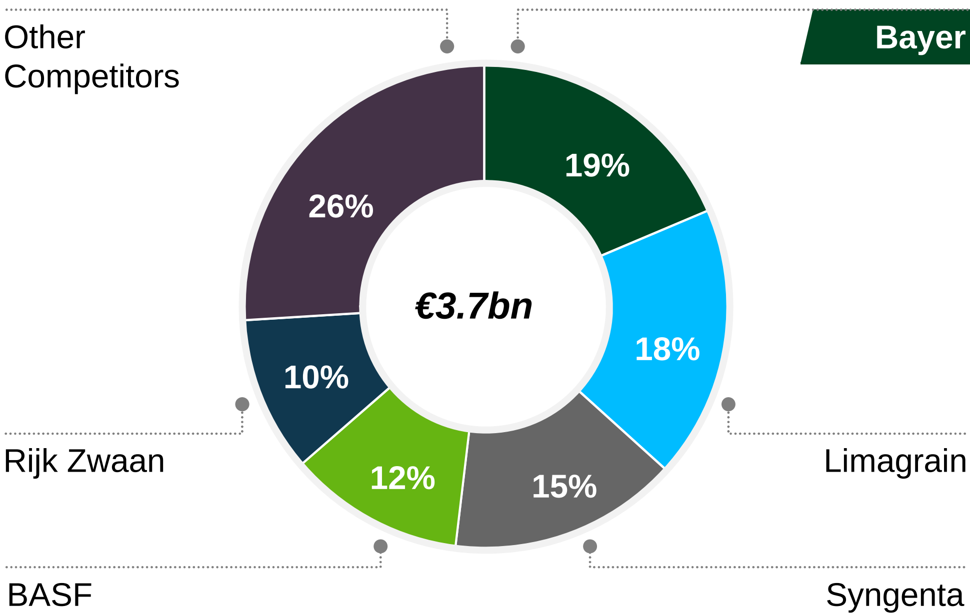
BRANDED SEED PRODUCTS:
Bollgard III Roundup Ready Flex Cotton
Roundup Ready Flex Cotton

India

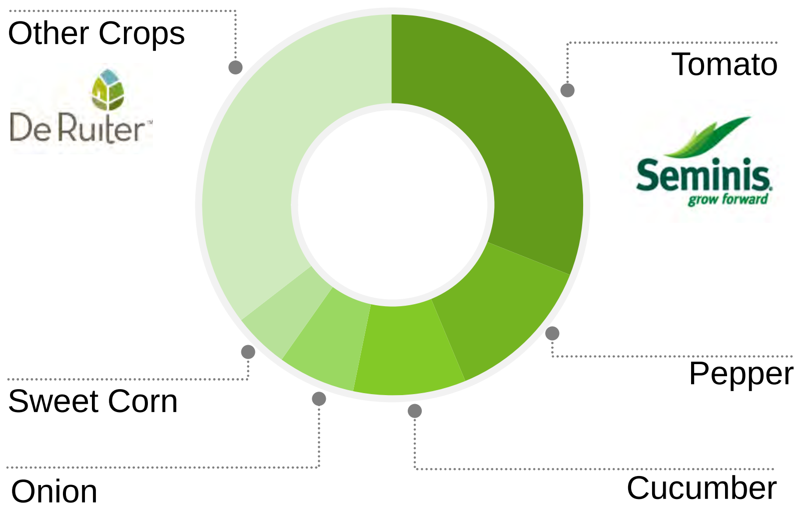
BRANDED SEED PRODUCTS:
Bollgard II Cotton

Bayer is a Global Leading Player in the Vegetable Seed Market

Major Players in Vegetable Seed (*sales*)[1]



Bayer Vegetable Seed sales by crop

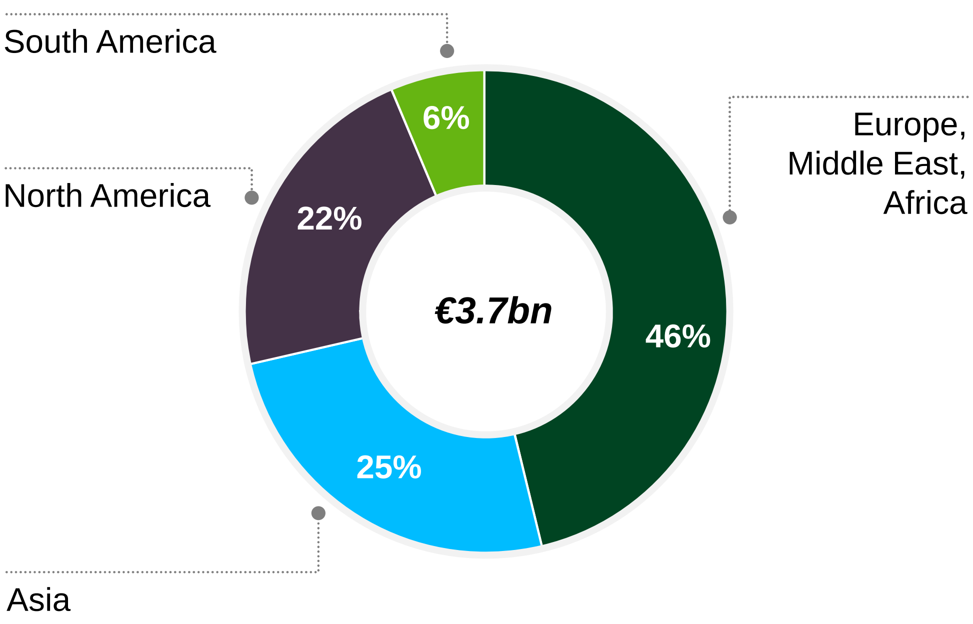


[1] Various external sources and internal estimates; 1 USD = 1.19 EUR

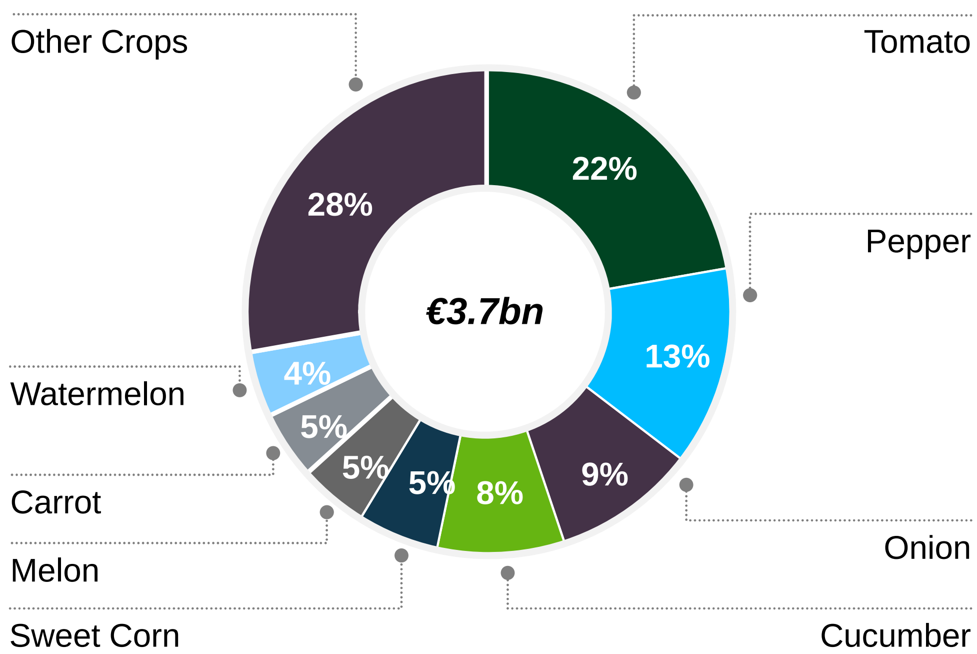
Our Focus Crops and Regions Align With Global Vegetable Market

Our Leading Crops are Tomatoes, Pepper, Cucumber and Regions are EMEA and North America

Vegetable Growing Regions (Value)[1]



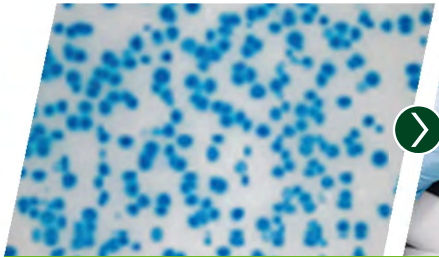
Major Vegetable Crops (Value)[1]



[1] Various external sources and internal estimates; 1 USD = 1.19 EUR

Developing World-Class Biotech Traits and Crops

Scale and Expertise in Biotech Crop Development Lead the Industry

Discovery	Phase One	Phase Two	Phase Three	Phase Four
				

Trait Development Process (11-12 years)

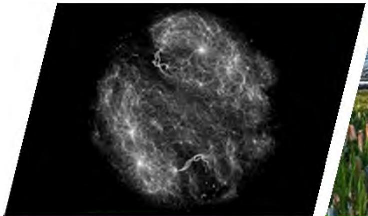
Gene / Trait Identification	Proof of Concept	Early Development	Advanced Development	Pre-Launch
// High-Throughput Screening for desired characteristic and Early Crop Testing	// Gene Optimization and Demonstration of Product Concept In-Crop	// Large-Scale Transformation, Commercial Candidate Selection, Pre- Regulatory Data Generation	// Trait Integration, Regulatory Data Generation	// Regulatory Submissions & Approvals, Seed Bulk-Up, System Testing and Pre-Marketing

Competitive Advantage

✓ Industry-leading genome & germplasm libraries in house and through collaborations ✓ Best-in-class screening capabilities	✓ Technical expertise to optimize gene expression and performance in-crop ✓ Ability to rapidly test many gene combinations to evaluate stacks	✓ Knowledge of optimal genome locations ✓ Largest global field-testing footprint diversifies geographic data insights	✓ New traits are introgressed into the most elite germplasm, and stacked with the industry's leading traits	✓ Global regulatory experience is unrivaled ✓ Evaluation of agronomic systems (trait, germplasm, chemistry) for product deployment & customer recommendations

Scale and Leading Technology Drives Breeding Crop Development

Optimizing Extensive Germplasm Library to Develop New Capabilities for Better Customer Solutions



Germplasm "Galaxy"

- Stars represent inbred parents, connector lines represent ancestral relationships
- Representing breeding in 120+ locations in 25+ countries

Enabling Technologies

- 90% of NA corn 2018 commercial deployments are impacted by advanced methods
- Doubled haploids enable scale of breeding pipeline & faster cycle time

Testing in the lab
1 Beaker = 900,000 Plots
2 mo. Lab = 1 yr. in the Field

Sequencing & Selection In Lab

- Sequencing chip contains 1K genomes or 14 acres of information enables saving 1 year of testing
- Pipelines for corn & soybean are 4X & 6X larger than 2012 due to sequencing in the lab

Early Pipeline Yield Testing

- Testing unique genetic combinations with improved characteristics
- Data analytics throughput the pipeline to enhance decision making

Trait Integration

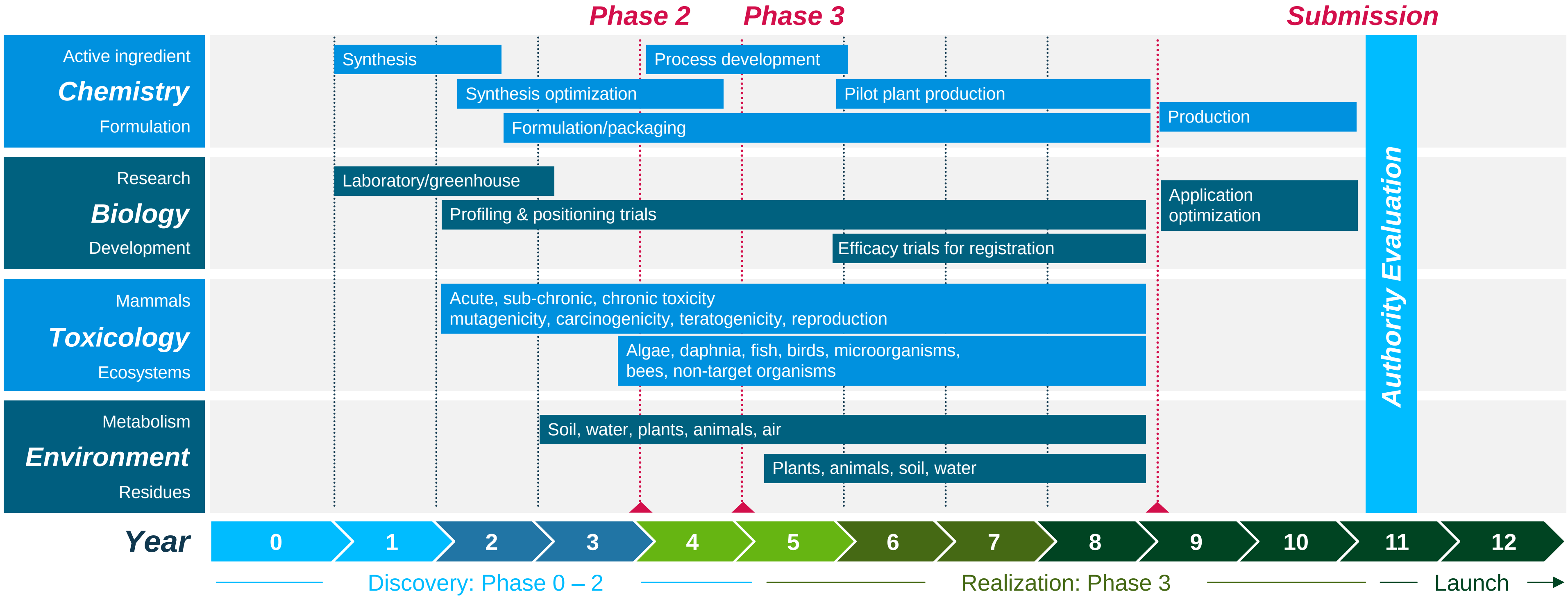
- Corn greenhouse in Arizona scheduled to be online in Spring 2019
- Enabling faster development of new products in a protected greenhouse environment

Pre-commercial Yield Testing

- Time savings in the lab enables 2 years of germplasm/trait combination testing in the field
- Improving customer recommendations, better match products to specific environments

8-10 year product development timeline

Chemical Crop Protection – From Idea to Market



After 10 to 14 years and an average investment of about €250m, one compound reaches the market

Glossary of Scientific and Agricultural Terms

Abiotic Stress	The negative impact of non-living factors on the living organisms in a specific environment. The non-living variable must influence the environment beyond its normal range of variation to affect adversely the population performance or individual physiology of the organism in a significant way. Whereas a biotic stress would include such living disturbances as fungi or harmful insects, abiotic stress factors, or stressors, are naturally occurring, often intangible, factors such as intense sunlight or wind that may cause harm to the plants and animals in the area affected. Abiotic stress is essentially unavoidable. Abiotic stress affects animals, but plants are especially dependent on environmental factors, so it is particularly constraining. Abiotic stress is the most harmful factor concerning the growth and productivity of crops worldwide. Research has also shown that abiotic stressors are at their most harmful when they occur together, in combinations of abiotic stress factors.
Agriculture	The art and science of cultivating the ground, including the harvesting of crops and the rearing and management of livestock.
Agronomy	A branch of agriculture dealing with field-crop production and soil management.
Biodiesel	An alternative to standard diesel fuel, this clean-burning, renewable fuel is created by combining methanol or ethanol (the base) with vegetable oil, such as canola or soybean oil, or animal fat.
Biodiversity	(Biological diversity) The variation of taxonomic life forms within a given ecosystem, often cited as a measure of the system's health.
Biofuel	A fuel derived from organic material that is not fossilized like coal or petroleum. Common sources of biofuel are corn, soybean, sugar cane, flaxseed and rapeseed.
Biomass	Organic, nonfossil material available on a renewable basis. Biomass includes all biological organisms, and their metabolic byproducts, that geological processes have not yet transformed into fossilized substances.

Glossary of Scientific and Agricultural Terms

Term	Definition
Biotechnology	Applied biological science, as bioengineering or recombinant DNA technology.
Agricultural Biotechnology	An extension of traditional plant breeding through biotechnology, allowing plant breeders to make precise genetic changes that impart beneficial properties to the crop plants that provide food and fiber. Agricultural biotechnology helps farmers increase yields, enabling them to produce more food per acre and it reduces the need for chemicals, pesticides, water, and tilling; thereby providing benefits to the environment as well as to the health and livelihood of farmers. Through specific design, biotechnology also can be used to enhance the nutritive value of staple foods to improve overall nutrition and health.
Biotech Crop	A crop grown from seed that has been modified using biotechnology. Often biotech crops provide benefits through reduced need for plowing soil, reduction in pesticides; and added beneficial crop qualities such as vigor and increased yield.
Bollgard	Trademark for cotton genetically improved to offer protection against common pests, including cotton bollworm, tobacco budworm, and pink bollworm, which can cause significant damage to cotton crops. In-plant pest protection displaces repeated applications of insecticides compared to conventional cotton crops.
Carbon Footprint	The total amount of greenhouse gases emitted, directly and indirectly, by a natural or manmade system, usually expressed in equivalent tons of carbon or carbon dioxide.
Carbon/Climate Neutral	A system with no (or minimal) net carbon footprint. Such systems often pair carbon-producing activities with those that reduce or sequester carbon.
Carbon Sequestration	Any of several processes for the removal of excess carbon dioxide from the atmosphere in an effort to mitigate global warming. Many plants conduct natural biochemical processes that remove carbon from the atmosphere and convert it to biomass. These natural processes can be leveraged in agriculture through conservation tillage.

Glossary of Scientific and Agricultural Terms

Carbon Trading	A trading system modeled on a stock exchange that is designed to offset carbon emissions from one activity (such as burning fossil fuels in manufacturing, driving, or flying) with another (such as installing more efficient technologies, planting carbon-sequestering plants, or establishing contracts with others not to partake in carbon-releasing activities).
Cerrados	The ecologically rich savanna in central Brazil (and some of northeastern Paraguay and eastern Bolivia). Major efforts are underway to preserve this biologically rich savanna.
Climate Change	Any long-term significant change in the “average weather” that a given region experiences. Average weather may include average temperature, precipitation, and wind patterns. Climate change involves changes in the variability or average state of the atmosphere over durations ranging from decades to millions of years. These changes can be caused by dynamic processes on Earth, external forces including variations in sunlight intensity, and more recently by human activities. (See also Global warming)
Corn Borer	(Ostrinia nubilalis) A lepidopteran insect that affects production of maize and other crops, including sorghum, cotton, and many vegetables. It causes damage to the aboveground portions (stalk and ear) of maize plants.
Conservation Tillage	Crop production methods that de-emphasize use of the plow for weed removal and encompass a range of new farming production practices like reduced tillage, or no tillage. In general, these methods all include reduced use of the plow and increased use of crop mulch and cover on the fields. These processes can increase the amount of water in the soil, decreases erosion and increases the amount and variety of soil biota. And they have the potential to aid carbon sequestration by incorporating more plant biomass into the soil.
Conventional Crop	A non-biotech hybrid or inbred crop grown with inputs, such as fertilizer, herbicides, and insecticides.
CSR	(Corporate social responsibility) A business outlook that acknowledges responsibilities to stakeholders – including suppliers, customers, employees, local and international communities in which the organization operates, and the natural environment.

Glossary of Scientific and Agricultural Terms

Detasseling	The act of removing the pollen-producing tassel from a corn (maize) plant and placing it on the ground. By removing the tassels from all plants of one variety, all the grain growing on those plants will be fertilized by the another variety's tassels. In addition to being more physically uniform, hybrid corn produces dramatically higher yields than corn produced by open pollination. With modern seed corn the varieties to hybridize are carefully selected so that the new variety will exhibit specific traits found in the parent plants. The detasseling process typically involves the use of specialized machines and human labor.
Dicamba	(3,6-dichloro-2-methoxybenzoic acid) A herbicide used to control broadleaf weeds. Common herbicides containing dicamba include Clarity Banvel, Oracle and Vanquish.
Ecological Economics	An interdisciplinary framework that seeks to merge the two historically separate fields of economics and ecology. It assumes that an inherent link exists between the health of the Earth’s ecosystem and the economic system created by human beings; the economy is a subsystem of the earth’s ecological system; and by understanding how each system flows into and out of the other, each can thrive and prosper.
Ecological Footprint	The total ecological impact of a person or system. The amount of land, food, water, and other resources consumed and generated. Usually measured in acres or hectares of productive land.
Ecology	A science that studies the Earth and its systems, including the interrelationships of all living things and all elements of their environment.
Ecosystem	A dynamic and interdependent living community of people, parts or mechanisms that interact with one another.
Feed	A mixture or preparation of food for feeding livestock.

Glossary of Scientific and Agricultural Terms

Fertilizer

Chemical compounds given to plants to promote growth; they are usually applied either through the soil, for uptake by plant roots, or by foliar feeding, for uptake through leaves. Fertilizers can be organic (composed of organic matter), or inorganic (made of simple, inorganic chemicals or minerals). They can be naturally occurring compounds such as peat or mineral deposits, or manufactured through natural processes (such as composting) or chemical processes (such as the Haber process).

Gene Stacked Event

A genetically modified organism (GMO) and all subsequent identical clones resulting from a transformation process are called collectively a transformation event. If more than one gene from another organism has been transferred, the created GMO has stacked genes (or stacked traits), and is called a gene stacked event.

Gene stacked events have become an important topic in plant breeding. Occasionally, researchers wish to transfer more than one trait (e.g. an insect resistance and a herbicide resistance) to a crop. Consequently, they need to transfer more than one gene, and do so either in one or in subsequent steps. This can be achieved either by genetic engineering or by conventional cross-breeding of GM plants with two different modifications.

In most contexts, the difference between a GMO with one new trait and a GMO with several of these is negligible. However, when the GM content of a harvest or any GM product is being measured, stacked genes may have severe consequences. Many countries require the labelling of GM products if the GM share of a single ingredient exceeds certain limits: for example, this limit lies at 0.9 percent in the European Union. Usually, this is analysed by measuring a genetic sequence common to most GMOs. This sequence is transferred along with the gene of interest, when a new GMO is created. A GMO with more than one transgene contains a corresponding number of copies of this sequence. Therefore, measuring the number of copies of this sequence in a food sample would return a figure twice (or more) as high as the actual GMO percentage. Researchers are trying to develop new measuring techniques to overcome this hurdle. Some of these projects are being conducted under the extensive European research programme on co-existence and traceability of GMOs, Co-Extra.

Genetically Modified Organism

Plants and animals that have had their genetic makeup altered to exhibit traits not intrinsic to the organism. In general, genes are copied from one organism that shows a desired trait and transferred into the genetic code of another organism.

Glossary of Scientific and Agricultural Terms

Genomics	The science that identifies crop traits and accelerate plant breeding. It is one of the tools used to "mine" germplasm, finding the best combinations of characteristics that can be bred or introduced into plants for better products. Genomics allows the "mapping" of a plant's genes to understand its structure and the role it plays in the plant's function.
Germplasm	The basic genetic material for any plant, used to develop new seed varieties. Within the germplasm are the basic characteristics that make plants what they are. A seed's genetic material that does not include the genetically modified organisms contained in a trait.
Global Warming	An aspect of climate change. The increase of temperature in the Earth's atmosphere and oceans. Global warming is accelerated by the greenhouse gases expelled into the atmosphere from manmade sources. (See also climate change.)
Glufosinate	Glufosinate is an active ingredient in several nonselective systemic herbicides - Basta, Rely, Finale, Challenge and Liberty. Glufosinate controls both monocot and dicot weeds.
Glyphosate	A non-selective herbicide used to kill weeds prior to planting and on fields where crops have Roundup Ready technology. It is the primary ingredient in Roundup agricultural herbicides.
Green	A metaphor referring to environmental association. Often used to associate products, organizations, political parties, or policies with environmental sensitivity.
Green Tech	A collection of new technologies and approaches that maximize human, environmental, and economic benefits.
Greenhouse Gas	Gases produced from human activities that trap solar radiation and thus contribute to climate change. These include carbon dioxide (C02), methane (CH3) and hydrofluorocarbons (HFCs).

Glossary of Scientific and Agricultural Terms

Herbicide	A herbicide is used to kill unwanted plants. Selective herbicides kill specific targets while leaving the desired crop relatively unharmed. Some of these act by interfering with the growth of the weed and are often based on plant hormones. Herbicides used to clear waste ground are nonselective and kill all plant material with which they come into contact. Some plants produce natural herbicides, such as the genus Juglans (walnuts). They are applied in total vegetation control (TVC) programs for maintenance of highways and railroads. Smaller quantities are used in forestry, pasture systems, and management of areas set aside as wildlife habitat..
Hybrid	A plant that is heterogeneous; the offspring of two plants of the same species but different varieties.
Hydrogenation	To add hydrogen to the molecules of an unsaturated organic compound. In processing vegetable oils, hydrogenation results in the conversion of liquid vegetable oils to solid or semi-solid fats. Trans fats are a byproduct of this process.
Hypoxic Zone	Hypoxia means “low oxygen”. In estuaries, lakes, and coastal waters, low oxygen usually means a concentration of less than 2 parts per million. For example, the Gulf of Mexico hypoxic zone is an area along the Louisiana-Texas coast where water near the sea floor has hypoxic conditions.
Input	Resources used in agriculture to produce a crop, including seed, fertilizer, herbicide, and insecticide.
Invasive Species	A species of plant, animal, or fungus that tends to spread unaided in a nonnative ecosystem.
Marker Genes	Genes coding for particular traits that allow a microorganism to be tracked.
Metrics Conversion	1 hectare = 2.471044 acres

Glossary of Scientific and Agricultural Terms

Molecular Breeding	An enhanced tool that involves the use of DNA markers for genes in combination with physical measurement of traits to accelerate selection in plant breeding programs. Also called marker-assisted breeding
Mutagenic	An agent, such as a chemical, ultraviolet light, or a radioactive element, that can induce or increase the frequency of mutation in an organism.
Open-Pollinated	Uncontrolled pollination of a crop by insects, birds, wind, or other natural mechanisms. It can result in seeds and plants of varying quality and hardiness.
Organic	In food and agriculture, the term generally describes the absence of chemical pesticides, synthetic hormones and fertilizers, and certain other materials in the cultivation of end products.
Organic Crop	A crop grown without employment of chemically formulated fertilizers, growth stimulants, antibiotics, or pesticides.
Plant Breeding	The process of working with a plant species to create desired characteristics for specific purposes in successive generations. This process involves either controlled pollination, genetic engineering, or both, followed by artificial selection of progeny.
Pesticide	A pesticide is a substance or mixture of substances used to kill a pest. A pesticide may be a chemical substance, biological agent (such as a virus or bacteria), antimicrobial, disinfectant or device used against any pest. Pests include insects, plant pathogens, weeds, mollusks, birds, mammals, fish, nematodes (roundworms) and microbes that compete with humans for food, destroy property, spread or are a vector for disease or cause a nuisance. Although there are benefits to the use of pesticides, there are also drawbacks, such as potential toxicity to humans and other animals.
Renewable	Any material or energy that can be replenished in full without loss or degradation in quality.

Glossary of Scientific and Agricultural Terms

Term	Definition
Rootstock	A rootstock is a plant, and sometimes just the stump, which already has an established, healthy root system, used for grafting a cutting or budding from another plant. The tree part being grafted onto the rootstock is usually called the scion. The scion is the plant which has the properties desired by the propagator, and the rootstock is the working part which interacts with the soil to nourish the new plant. After a few years, the tissues of the two parts will have grown together, producing a single tree although genetically it always remains two different plants. The use of rootstocks is most commonly associated with fruiting plants and trees but is the only way to mass propagate many types of plants that do not breed true from seed or are particularly disease susceptible when grown on their own roots. Although grafting has been practiced for many hundreds (if not thousands) of years, most orchard rootstocks in current use were developed in the 20th century
Roundup	A brand of agricultural herbicides produced by Monsanto. The properties of Roundup agricultural herbicides and other glyphosate products can be used as part of environmentally responsible weed control programs, including conservation tillage.
Roundup Ready	A trademark for biotechnology traits that convey in-plant tolerance to glyphosate, enabling growers to spray labeled Roundup branded agricultural herbicides over the top, with excellent crop safety and no yield reduction.
Seed Production	The process of growing crops to be sold as seed, instead of growing crops to sell as food or feed. Because each seed will become a crop plant, seed production requires high standards for quality and germination.
Stewardship	Responsible caretaking of products and resources. In ecology, this means making decisions regarding the care of the environment with the goal of passing healthy ecosystems on to future generations.
Sustainability	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
Sustainable Agriculture	Farming methods that allow the production of crops or livestock without damage to the farm as an ecosystem, including effects on soil, water supplies, biodiversity or other surrounding natural resources.

Glossary of Scientific and Agricultural Terms

Term	Definition
Sustainable Development	A pattern of resource use that seeks to meet human needs while preserving the natural environment so these needs can be met in the present and in the indefinite future.
Sustainable Management	The ability to direct the course of a company, community, organization, country or any activity that restore and enhance all forms of capital (human, natural, manufactured, and financial) to generate stakeholder value and contribute to the well being of current and future generations.
Subsistence Farmer	A farmer who grows just enough food for his family's own needs with little, if anything, left over to sell.
Trait	An important characteristic of a crop that is determined by a specific gene or set of genes. It generally implies a biotech trait, but not necessarily. A trait is a specific genomic characteristic of a plant variety/hybrid. Non-biotech traits include high oil and waxy corn. Bayer biotech traits include Roundup Ready, Yieldgard Corn Borer, etc.
Trait Combination, Trait Stacking	The combination or "stacking" of traits allows the farmer to have the value of multiple traits, instead of having to choose between them. Combining traits provides tangible cost and yield advantages to farmers. Within each respective crop, farmers can choose to combine different traits in a single seed, including insect-protection and herbicide tolerance. These product offerings are commonly referred to as "stacked" traits.
Transgenic	An organism that has acquired traits from another species, as through biotechnology. Although DNA of another species can be integrated in a plant genome by natural processes, the term "transgenic plants" refers to plants created in a laboratory using recombinant DNA technology. The aim is to design plants with specific characteristics by artificial insertion of genes from other species or sometimes entirely different kingdoms. Varieties containing genes of two distinct plant species are frequently created by classical breeders who deliberately force hybridization between distinct plant species when carrying out interspecific or intergeneric wide crosses with the intention of developing disease

Glossary of Scientific and Agricultural Terms

Transgenic *(continued)*	resistant crop varieties. Classical plant breeders use a number of in vitro techniques such as protoplast fusion, embryo rescue or mutagenesis to generate diversity and produce plants that would not exist in nature. Such traditional techniques (used since about 1930 on) have never been controversial, or been given wide publicity except among professional biologists, and have allowed crop breeders to develop varieties of basic food crop, wheat in particular, which resist devastating plant diseases such as rusts. Hope is one such wheat variety bred by E. S. McFadden with a gene from a wild grass. Hope saved American wheat growers from devastating stem rust outbreaks in the 1930s. Methods used in traditional breeding that generate plants with DNA from two species by non-recombinant methods are widely familiar to professional plant scientists, and serve important roles in securing a sustainable future for agriculture by protecting crops from pests and helping land and water to be used more efficiently.
Vistive	A Bayer brand of soybean and oilseed rape designed to produce better oils that help meet consumer demand for healthy, great-tasting foods. These oilseeds contain lower levels of linolenic acid, resulting in more stable oil with less need for hydrogenation. The hydrogenation process of soybean produces undesirable trans fats.
YieldGard	A trademark for biotechnology traits for maize genetically modified to protect against specific lepidopteran pests, such as corn rootworm, corn borer, and others.
Zero Waste	The goal of developing products and services, managing their use and deployment, and creating recycling systems and markets to eliminate the volume and toxicity of waste and materials, and to conserve and recover all resources.

Excellence in Commercial Integration and Execution

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Capital Markets Day
London, December 5, 2018

Brett Begemann / Chief Operating Officer /
Crop Science Division

Disclaimer

Cautionary Statements Regarding Forward-Looking Information

This presentation contains forward-looking statements. A forward-looking statement is any statement that does not relate to historical facts and events, but rather reflects Bayer's current beliefs, expectations and assumptions regarding the future. This applies, in particular, to statements in this presentation on revenue growth, including product introductions and peak sales potential, synergies, especially in relation to the acquisition and integration of Monsanto Company, portfolio adjustments, cost reduction, financial targets and earnings, cash flow generation, deleveraging and other similar statements relating to future performance, including with respect to the markets in which Bayer is active.

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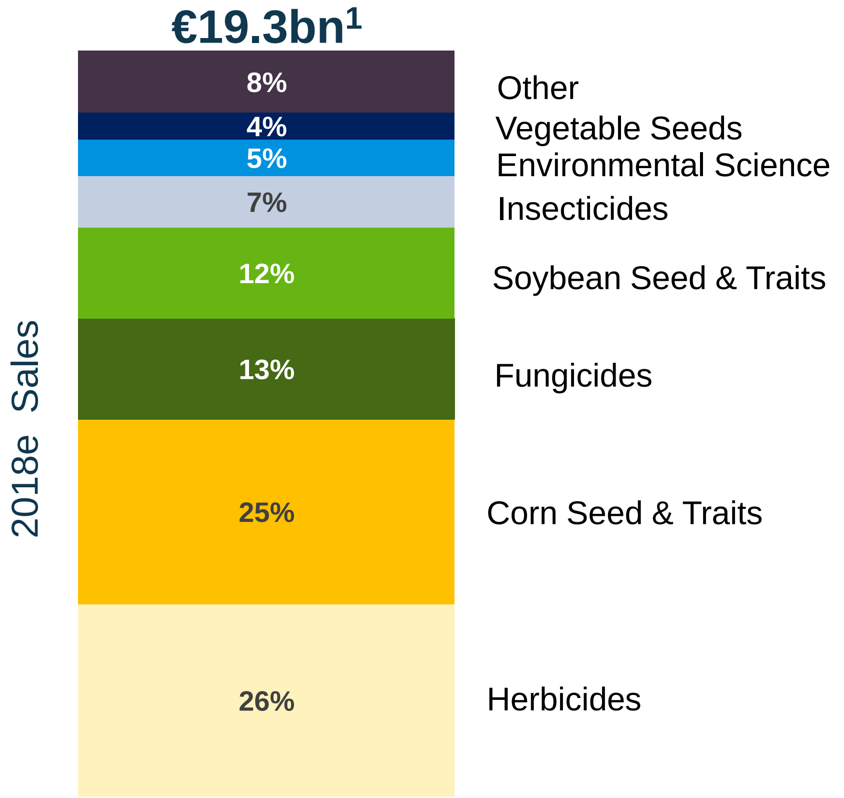
For more information on factors that could cause actual results and future events to differ from those anticipated in forward looking statements, please refer to the factors discussed in Bayer's public reports which are available on the Bayer website at https://www.investor.bayer.com/en/reports/annual-reports/overview/, including in the Annual Report 2017 under the caption "Report on Future Perspectives and on Opportunities and Risks".

Target Greater than 4% Sales CAGR from 2018 to 2022

Leadership and Innovation Translate into Above Market Sales Growth



Key Sales Growth Drivers

- Deliver annual germplasm refresh across the seeds portfolio to drive price and share gains
- Continue penetration of Roundup Ready Xtend crop system; transition to XtendFlex with expected U.S.A. launch in 2020[2]
- Continue penetration of Intacta RR2PRO; transition to Intacta 2 Xtend with expected launch in South America in 2021[2]
- Increase crop protection sales on the >400m acre seed & trait footprint; FieldView platform an enabler
- Maximize sales synergies

[1] The unaudited Pro-forma data are presented as if both the acquisition of Monsanto and the associated divestments had taken place as of January 1, 2018. Sales of Monsanto are presented in periods as per the Bayer fiscal year. One-time effects of business operations, the accounting for discontinued operations and the recognition and measurement of sales from certain business transactions have been adjusted in line with our accounting. Due to this simplified procedure, they explicitly do not reflect sales according to IFRS or IDW RH HFA 1.004, meaning they have not been audited.
[2] Pending regulatory approvals

Corn Seed & Trait: Leading Share Position Enhanced by Innovation

Annual Germplasm Upgrade, New Technology Launches and Digital Ag Key to Growth

Germplasm Position and Share[1]

U.S.A.	**#1**	**>50%**
Brazil	**#1**	**~45%**
Argentina	**#1**	**~75%**
E.U.	**#2**	**~20%**

2018 global trait acres[1] **~110 m**

Sales Growth Opportunity Areas: 2018 - 2022

DEKALB

INSECT CONTROL: SmartStax Pro

WEED CONTROL: New herbicide tolerance traits

DIGITAL AG: Climate FieldView

SEED GROWTH: BioRise 2 corn offering and NemaStrike Technology

SEED: Annual launch of ~200 new higher-performing hybrids globally

NEAR TERM **2022+**

[1] Internal estimates of branded and licensed germplasm share positions

Annual Germplasm Upgrades Serve as Foundational Growth Driver

Leading Global Germplasm Libraries and Advanced Breeding Tools Deliver High-performing Products

Corn

- Deployed >200 hybrids in 2018
- Maintain average >7 bu/acre U.S.A. yield advantage with leading hybrids

Soybean

- Deployed ~200 varieties in 2018
- Maintain average ~2 bu/acre U.S.A. yield advantage with leading varieties

Cotton

- Deployed 20 varieties in 2018
- Maintain lint/acre U.S.A. yield advantage with leading varieties; 2018 was 81lbs of lint per acre advantage

Vegetables

- Deploy ~150 varieties annually; focus in tomatoes and peppers
- Focus on disease resistance and yield with new launches

Protect performance with NemaStrike Technology and other seed-applied solutions

Provides for annual price mix gains as growers trade up to higher-performing seeds

Digital Ag becomes proof point for performance advantage

Leading Go-to-Market Choices Complement Product Performance

~7,800 Customer-facing Employees Meeting Customers Where They Want to Purchase our Products




GO-TO-MARKET

Value Proposition	**Product Performance**	**Full Season Service**	**Relationship**	**Value**

Multi-Brand Strategy 'Seed'	// DEKALB
	// Asgrow
	// Deltapine
		// Channel
		// Agroeste
			// U.S.A Regional Brands
			// Agroceres
				// U.S.A. Corn States
				// Latijereta

Multi-Brand Strategy 'Crop Protection'	// Luna
	// Alion
	// Sivanto
		// Velum Prime
		// Xpro
		// Movento
			// Fox	// Confidor
				// Nativo

Channel Strategy 'Route to Market'	// Direct Dealer
	// Retailer
	// Magnum
		// Agency
		// Dealer
		// Direct
			// Dealer
			// Direct
				// Licensing
				// Indent

Digital Ag has the potential to inform and improve our customer relationships and go-to-market strategy

Soybean Seed & Trait: Key Trait Upgrades Expected to Fuel Growth

New Solutions in Insect and Weed Control Provide More Options for Farmers in the Americas

Germplasm Position and Share[1]

U.S.A.	#1	>40%
Brazil	#1	~20%

2018 global trait acres[1] **~220 m**

Sales Growth Opportunity Areas: 2018 - 2022

ASGROW®

- **INSECT CONTROL:** Intacta 2 Xtend
- **WEED CONTROL:** XtendFlex Soybean
- **DIGITAL AG:** Climate FieldView
- **SEED GROWTH:** NemaStrike Technology
- **SEED:** Annual germplasm upgrade of ~200 higher-performing varieties annually

NEAR TERM → **2022+**

[1] Internal estimates of branded and licensed share positions

Roundup Ready Xtend Crop System Continues Record Growth

XtendFlex Soybeans Serve as Next-generation to Provide Tremendous Flexibility in Weed-control Options

Roundup Ready 2 Xtend Soybean

- **>40m acres in 2018;** expect the Roundup Ready Xtend Crop System for soybean and cotton to grow to 60m acres in 2019
- **EPA continues registration of XtendiMax with VaporGrip[2]** technology, a low-volatility dicamba formulation for in-crop use
- Potential fit on all soybean acres in North America**; broadly licensed to U.S.A. seed companies with >90% share**

XtendFlex Soybean

- Trait combination to provide tolerance to three herbicides; **glyphosate, glufosinate and dicamba**
  - Aligns with the successful approach in Bollgard II XtendFlex cotton
- Stewarded Ground Breakers trials expected in the U.S.A. in 2019, with **anticipated launch in 2020[1]**

[1] Pending regulatory approvals [2] XtendiMax with VaporGrip Technology is a restricted use pesticide

South American Soybean Trait Technologies Continue to Advance

Insect-protected Soybean Technologies Have a Fit on ~100m Acres in South America

Intacta RR2 PRO

- Exceptional performance, penetrating 60m acres in South America in just five years
- Consistently provides yield advantage and reduces insecticide applications for the primary insect pest in tropical soybean

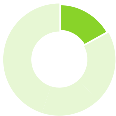
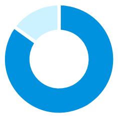
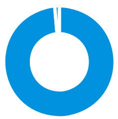
Intacta 2 Xtend

- Intacta 2 Xtend trait technology to provide an additional mode of action for insect control and both glyphosate and dicamba tolerance for weed control
- Targeting stewarded trials starting in 2019 and expected launch in 2021[1]

[1] Pending regulatory approvals

Herbicides: Capitalize on Opportunities with Leading Portfolio

New Value Capture Concepts Around Integrated Weed Management in a Changing Weed Control Market Environment

	Global Herbicide Market[1,2]		Seed & Trait Footprint[3]	Key Growth Factors	Digital Tools
	Crop % of Mkt.	Bayer Position[4]	Bayer % of Planted Acres		
Corn		#1	NA  LATAM 	**Corn in NA and LATAM:** Expand share of combined portfolio by including selective herbicides in existing grower offers	 In-season Field Health
Soybean		#1	LATAM 	**Soybean in LATAM:** Launch new selective herbicides to complement glyphosate business and contribute to holistic crop solutions	 In-season Field Health
Cereals		#1	*Not relevant*	**Cereals in EMEA:** Defend/expand industry-leading position in cereals through differentiated lifecycle management	

[1] Global Market: Represents the defined crop's portion of the global herbicide market. Optimas forcast for Market 2018, Status October 2018
[2] Bayer Indication Position: Agrowin 2017 + estimations for DowDupont and Bayer divestments split and allocation, Status October 2018;
[3] Bayer S&T Footprint: Internal estimations of percent of planted acres in the region containing at least one seed or trait technology from Bayer
[4] Corn herbicide position is head-to-head with ChemChina

Glyphosate is a Vital and Effective Tool

Every Year, as much as 40% of World's Potential Harvests are Lost to Pests, Including Weeds

Glyphosate was developed 40+ years ago and is today the most widely used, non-selective herbicide in the world. It is extremely effective in controlling weeds by blocking an enzyme necessary for photosynthesis. When used as directed, glyphosate is not harmful to people and animals.

Benefits of Glyphosate

- In past, farmers controlled weeds by hand
- With mechanization, farmers moved to plowing soil, which contributes to topsoil erosion, and using multiple selective herbicides
- Using glyphosate-based herbicides, farmers can leave soil intact, supporting soil health and reducing greenhouse gas emissions
- Overall, more effective, more sustainable and leads to larger harvests

History of Safe Use

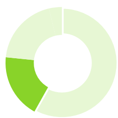
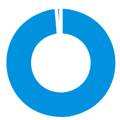
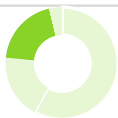
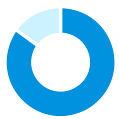
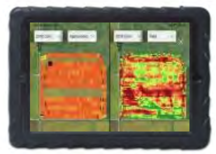
- For 40+ years, overwhelming conclusion of regulators worldwide has been glyphosate can be used safely according to label instructions, including EPA, EFSA, and ECHA
- Extensive body of science (800+ studies over several decades) confirm that glyphosate-based products are safe when used as directed and EPA's 2018 risk assessment examined more than 100 studies and concluded that glyphosate is not likely to be carcinogenic to humans.
- 160+ countries have approved use of glyphosate

"I need glyphosate on my farm. It helps me be more sustainable, both environmentally and economically, it helps me protect my soil from erosion and build soil health, and it helps me sequester carbon, reducing greenhouse gas emissions …"

Jake Leguee
Leguee Farms, Saskatchewan

Fungicides: Soybean and Horticulture Portfolios Expected to Drive Growth

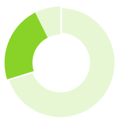
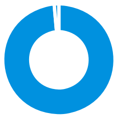
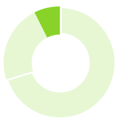
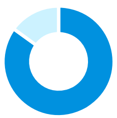
Securing a Plentiful Supply of High Quality Produce Through Effective Disease Management

	Global Fungicide Market[1,2]		Seed & Traits Footprint[3]	Key Growth Factors	Digital Tools
	Crop % of Mkt.	Bayer Position	Bayer % of Planted Acres		
Horti-culture		#2	**#1 in vegetable seed sales**	**Horticulture globally:** Growth driven by innovation and portfolio breadth, e.g. Luna, with multi-crop performance and produce shelf-life benefits, and expansion of Nativo and Infinito	
Soybean		#1	LATAM 	**Soybean in LATAM:** Growth driven by Fox and Fox Xpro with performance that addresses rust. Further synergies to capitalize upon with seeds and herbicide portfolio.	
Cereals		#1	*Not relevant*	**Cereals globally:** Retaining leading position through breadth of modes-of-action and innovation for sustainable solutions	
Corn		#3	NA 	**Corn NA:** Develop fungicide market through novel business model demonstrating the customer value of Corn fungicides	 Fungicides Trials

[1] Global Market: Represents the defined crop's portion of the global herbicide market. Optimas forcast for Market 2018, Status October 2018
[2] Bayer Indication Position: Agrowin 2017 + estimations for DowDupont and Bayer divestments split and allocation, Status October 2018;
[3] Bayer S&T Footprint: Internal estimations of percent of planted acres in the region containing at least one seed or trait technology from Bayer

Insecticides: Innovation and Portfolio Enable Growth Above Market

Growing Food and Feed Demand, Pest Epidemics and Resistance Challenges Drive Demand

	Global Insecticide Market[1,2]		Seed & Traits Footprint[3]	Key Growth Factors	Digital Tools
	Crop % of Mkt.	Bayer Position	Bayer % of Planted Acres		
Horti-culture		#1	**#1** **in vegetable seed sales**	**Horticulture globally:** Growing demand for high produce quality and addressing nematodes. Further growth with brands like Movento and launch of new innovations like Velum and Sivanto.	
Soybean		#3	LATAM 	**Soybean in LATAM:** Dynamic growth induced by pest pressure and resistance prevention, including integrated resistance management. Launch of innovations like Arvis, Oberon Speed and Belt Vision.	 In-season Field Health
Corn		#3	NA  LATAM 	**Corn in North America and LATAM:** Complete offering for insect control with foliar and soil-applied products complementing leading traits and seed-applied solutions.	 In-season Field Health

[1] Global Market: Represents the defined crop's portion of the global herbicide market. Optimas forcast for Market 2018, Status October 2018
[2] Bayer Indication Position: Agrowin 2017 + estimations for DowDupont and Bayer divestments split and allocation, Status October 2018;
[3] Bayer S&T Footprint: Internal estimations of percent of planted acres in the region containing at least one seed or trait technology from Bayer

Seed Growth: NemaStrike Technology Launching

Novel Nematicide Reaches Underserved Market in Launch Across U.S.A. Corn, Soybean and Cotton

Successful NemaStrike Technology Ground Breakers trials in 2018

- ~1,200 growers across corn, cotton and soybean in 2018 trials; represented >10,000 acres
- Expected 2019 product launch across three crops on several million acres
- Continued strong 5 year average yield protection advantage in corn, soybean and cotton

NEMASTRIKE™ TECHNOLOGY

	Corn	Soybean	Cotton
5 yr. avg. yield advantage	**+5 bu/ac[1]**	**+2 bu/ac[1]**	**+80 lbs lint/ac[1]**

[1] Compared to seed treated with Acceleron Seed Applied Solutions without NemaStrike Technology. Results will vary based on nematode pressure in each field. Represents the four-year average from trials conducted in 2014 to 2018

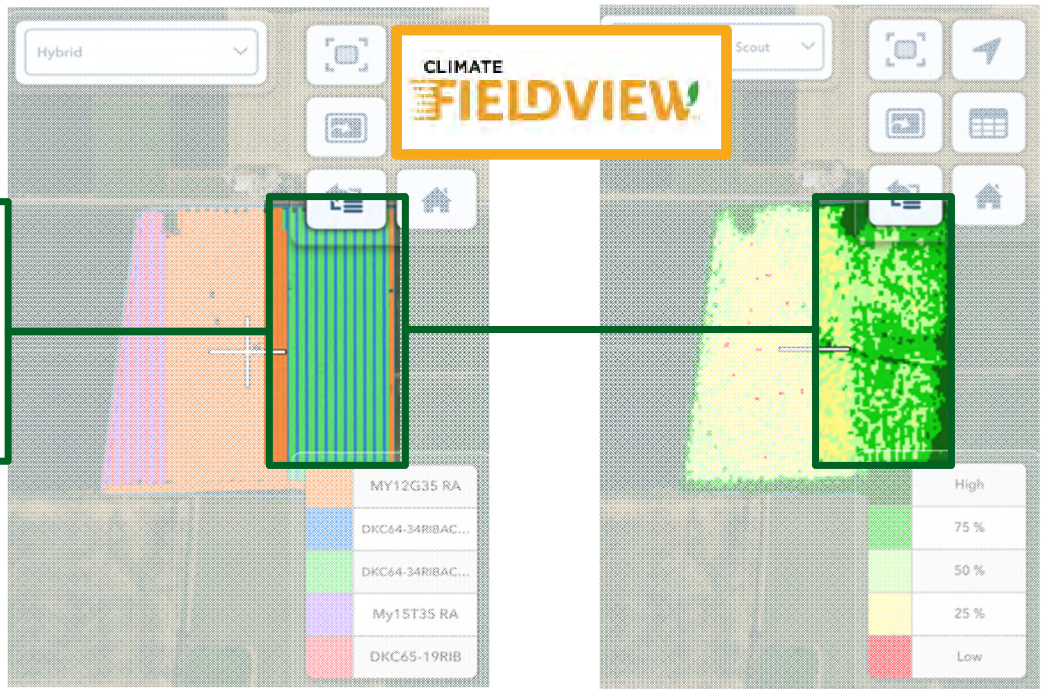
Seed Growth: NemaStrike Technology Launching

Climate FieldView Imagery Demonstrates the Strong Early Season Performance of the Technology

Climate FieldView imagery and corn root comparison from a NemaStrike Technology Ground Breakers trial[1]

NEMASTRIKE™ TECHNOLOGY

- NemaStrike Technology delivered +12 bu/ac in this trial
- Blue lines represent strip trials with NemaStrike Technology



[1] Jackson, MO, 2018

Key Takeaways

Shaping agriculture to benefit farmers, consumers and our planet

1. **Deliver financial targets through operational excellence, new technologies and synergy benefits**
2. **Provide new value to growers from the annual germplasm refresh across the seeds portfolio**
3. **Advance new soybean trait technologies across the Americas**
4. **Seek synergistic opportunities in crop protection and for new product launches on large seed footprint**
5. **Pioneer the digital Ag transformation in the industry with FieldView platform**

Excellence in Commercial Integration and Execution

Capital Markets Day
London, December 5, 2018

Brett Begemann / Chief Operating Officer /
Crop Science Division

World Class Innovation Platform

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Capital Markets Day
London, December 5, 2018

Bob Reiter
Head of Research & Development
Crop Science Division

Disclaimer

Cautionary Statements Regarding Forward-Looking Information

This presentation contains forward-looking statements. A forward-looking statement is any statement that does not relate to historical facts and events, but rather reflects Bayer's current beliefs, expectations and assumptions regarding the future. This applies, in particular, to statements in this presentation on revenue growth, including product introductions and peak sales potential, synergies, especially in relation to the acquisition and integration of Monsanto Company, portfolio adjustments, cost reduction, financial targets and earnings, cash flow generation, deleveraging and other similar statements relating to future performance, including with respect to the markets in which Bayer is active.

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Next Growth Opportunity: Convergence of Leading R&D Platforms

Extensive Germplasm and Biotech Foundation, Combined with Leadership in Chemistry and Biologicals and Data Science Optimization, Serves As Innovation Engine To Accelerate Benefits Across The Industry

Seeds & Traits

Breeding

Leading germplasm libraries in corn, soybean, cotton and vegetables

#1 field trial footprint

Biotech

Reach **>350**m acres annually

>20 new and next-generation traits in development

+

Crop Protection

Chemistry

Strong discovery platform for molecules with new mode-of-action and differentiated profiles

30-60 molecules selected for field trials annually

Leader in formulation technology

Biologicals

>10,000 microbes screened *in vitro* annually

80m acres of commercial products reached annually in row crops

+

Digital Ag

Data Science

#1 database of grower and field trial seed performance data in the industry

60m paid acres in U.S.A., Brazil and Europe represents industry's **leading platform reach**

Best positioned to discover, combine and tailor solutions for growers

Driving the Largest and Most Valuable R&D Pipeline in Ag

Highly Effective in Converting Investment into Meaningful Products for Farmers

Newly Combined Pipeline

Scale	*Advancements*	*Value*
Unmatched in the Industry	**Outpacing Competitors**	**Up to €30bn Peak Sales[1]**

Scale

- **>75** projects in seed & traits, crop protection and digital ag pipelines
- **100's** of new hybrids and varieties commercialized annually

Advancements

- **>70** advancements in 2016 and 2017
- **>50** advancements in 2018

Value

- Potential to accelerate with combined pipelines
- Climate tools serve as an enabler to reach peak opportunity

Peak Sales Opportunity by Crop

- **Corn** ~ €11-14bn
- **Soybean** ~ €6-7bn
- **Cereals & Other** ~ €4-5bn
- **Horticulture** ~ €3-4bn

[1] Represents non-risk adjusted estimated peak sales for the combined breeding, biotech, crop protection and environmental science pipelines. Applied FX rate of USD/EUR of 1.15

R&D Platforms Supplemented by 'Open Innovation' Model

Designed to Ensure Growers have Access to the Best that Science can Offer

Internal R&D

BAYER

Universities & Research Institutes

JÜLICH · I · Embrapa · Rothamsted Research

Customer- sponsored research

GRDC · CRDF Citrus Research and Development Foundation, Inc.

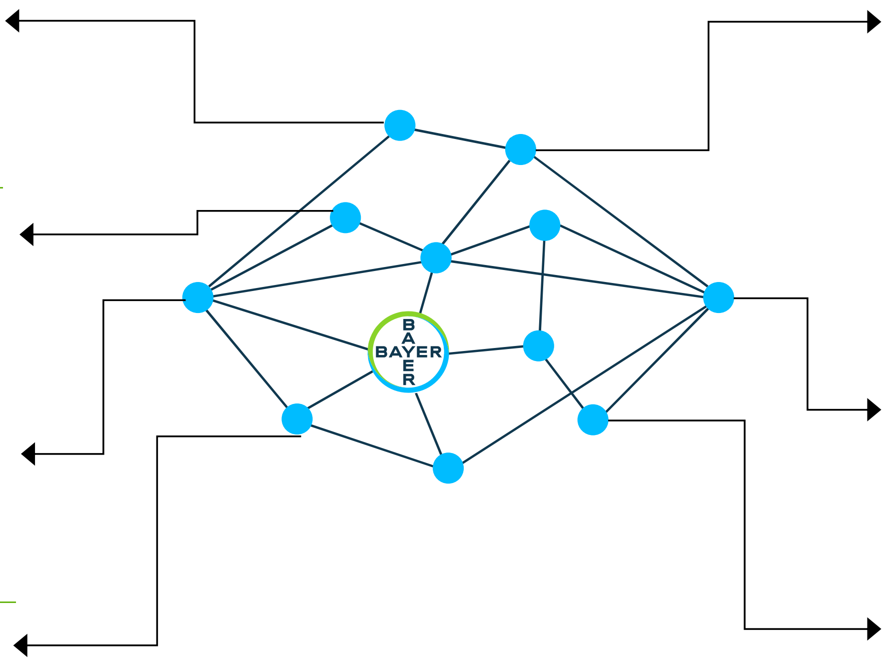
Crowdsourcing

Grants4Targets™

Grants4Traits™

CAMTech

Cross-organizational innovation



Venture Capital

Bayer Growth Ventures

Flagship Pioneering · Trendlines · Radicle · Finistere Ventures · anterra capital · AgTech Accelerator · BLSC · JOYN BIO · CoverCress Inc. · Pairwise · Resson · Understory

Innovation Centers

Life Hub Boston

Technology Collaborations

Nimbus Therapeutics · agrimetis · The BioAg Alliance · elementa enzymes · Second Genome · Pairwise · 2Blades Foundation · targenomix · Atomwise

Breeding: Constantly Optimizing Large, Diverse Germplasm Library

Continued Investment in Data Science and New Technologies are Driving Future Opportunity

Advanced Breeding Methods

- Trait integration in the cloud enables better trait combinations even faster
- Key parts of the pipeline are protected and accelerated in the greenhouse

Data Science and Artificial Intelligence

- Apply advanced analytics to every decision
- Partner with Climate to enable next-gen product development

Prescriptive Operations and Logistics

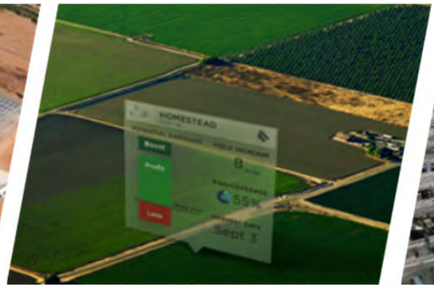
- Better logistics enable innovation in seed testing and product characterization
- Every North American field location is prescribed using analytics
- Manage hundreds of thousands of SKUs

Product Performance Validation

- Prescriptive planting and environmental characterization to maximize product placement
- Integrating and applying imaging to guide decisions
- Globally connected harvest

Tailored Solutions Outcome

- Product recommendations that have been field proven
- Input optimization by product and environment


SKU = Stock Keeping Unit

Breeding: Strong Yield Performance of Recent Deployment Classes

Technology Advancement is Making a Difference in Corn, Soybean and Cotton Products

Corn

>7 bu/ac advantage[1]

- DEKALB outperforms competitive products for the **13th** consecutive year
- Consistent **7-10** bu/ac average yield advantage

Soybeans

~2 bu/ac advantage[2]

- Asgrow outperforms competitive products for the **9th** consecutive year
- Strong performance advantage of **~2** bu/ac on average

Cotton

81 lbs lint/ac advantage[3]

- Deltapine outperforms competitive products for the **9th** consecutive year
- Data show strong performance advantage of **81** lbs/ac on average

[1] Bayer estimates – Annual yield advantage calculated each year by comparing 5 leading DEKALB products within each state having a minimum of 100 comparisons to national competitor products containing similar crop protection traits as of **November 12, 2018**. All comparisons are head-to-head using +- 2RMs and weighted average calculated using 15% moisture.
[2] Bayer estimates – Annual yield advantage calculated by comparing the top five Roundup Ready 2 Xtend competitor products by volume to the top five performing Asgrow Roundup Ready 2 Xtend products within a +/- 0.3 day maturity group as of November 13, 2018. The average across comparisons was weighted based on number of comparisons.
[3] Bayer estimates – Data as of November 15, 2018. Yield advantage calculated over three years (2016 to 2018) comparing commercially available leading Deltapine products by region to leading commercially available competitive products with similar traits. A minimum of 6 comparisons within a region were required for inclusion.

Well Positioned to Create Value in Ag with Genome Editing

Tools and Capabilities Build on Existing Core Competencies to Usher in New Benefits in the Next Decade

Transformative Editing Tools

Numerous technology licenses and partnerships, including:

Broad Institute

RNA-guided nucleases:
CRISPR-Cas9 and CRISPR-Cpf1

Pairwise Plants

Base editing technology, which
is the next-generation of editing capability

Enabling & Differentiating Competencies

Germplasm

Plant genetics central to leading brand positions in key crops and countries

Genomics

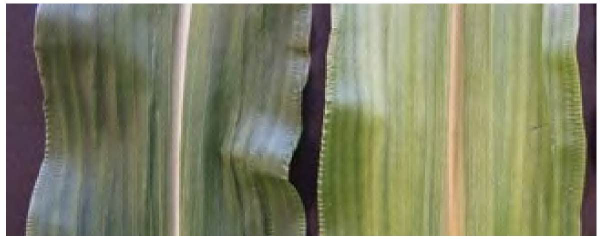
Leading genome libraries and whole-genome sequencing capabilities

Testing Network

Leading field testing network, wraps around the globe twice

Unlocking Opportunity

Bring new products to market: improved silage quality in world-class germplasm



Current corn germplasm | Improved Silage edited allele

Deliver future agricultural benefits, including disease resistance, stress tolerance, and plant growth and development

Biotech: A Global Leader in Offering Farmers New Solutions

Current Commercial Biotech Trait Offerings Reach More than 350m Acres Annually

Leadership Position

- Using proprietary technology and extensive **Bt libraries** to discover more insecticidal proteins faster than ever
  - Includes optimization of expression and the ability to target the selected pests to tailor the solution and the application metagenomics and machine learning
- **Protein expression expertise** that delivers first-ever solution to target a piercing/sucking pest
- **More complex stacks** delivered through improved site directed integration enabled by gene editing
- Focused on superior, sustainable insect and weed control solutions that are **broadly licensed**
- Sustaining and growing the base with **more than 20 new and next-generation traits** in development

Next Generation Biotech Solutions

Example Soybean Herbicide Tolerance

Third-Gen **Phase 4**

- Glyphosate
- Dicamba
- Glufosinate

XTENDFLEX SOYBEANS

Fourth-Gen **Phase 2**

- Glyphosate
- Dicamba
- Glufosinate
- HPPD & another mode of action

Fifth-Gen **Phase 1**

- PPO tolerance added to earlier generation tolerance stacks

HPPD = 4-hydroxyphenylpyruvate dioxygenase
PPO = Protoporhyrinogen oxidase

Biotech: Continued Progress in Advancing Next-Gen Insect Control

Near-Term Projects Refresh Insect-Control Options in Corn, Soybeans and Cotton

Third-Gen, Below-Ground Corn Insect Control

2017 Idalia, CO

- 3 modes-of-action for rootworm control
- Novel RNAi mode-of-action
- Tailored trait configurations and product name for each region
- Planned commercial launch early in next decade[1]
- Phase 4
- Acre opportunity of >100m

Second-Gen Soy Insect Control

Uberlandia, Minas Gerais, Brazil 2017/2018

- Multiple MOA to improve durability for podworm complex and expands insect spectrum to include armyworm
- 2021 planned commercial launch[1]
- Offers additional herbicide tolerance MOA
- Phase 4
- Acre opportunity of >100m

Lygus and Thrips Control in Cotton

Traited
Jackson, TN June 2018

Non-traited
Jackson, TN June 2018

- First-ever biotech solution for the control of piercing and sucking insect pests, improving yields and reducing insecticide use
- Early next decade commercial launch planned[1]
- Phase 4
- Acre opportunity of >10m

[1] Pending regulatory approvals

Short Stature Corn Offers Transformational Shift in Production

Borrows from 'Green Revolution' Agronomic Science Pioneered by Dr. Norman Borlaug

Jerseyville, Illinois, U.S.   August 2018

Short Stature Corn Offers Transformational Shift in Production

Benefits Include Plant Stability, Late Season Applications of Crop Inputs and Efficient Use of Key Nutrients

Reduced Crop Loss

- Enabled by improved plant stability and lodging tolerance
- Reduces crop loss from challenging environmental conditions
- Annual yield losses due to stalk lodging in the U.S. range from 5% to 25%[1]

Precision of Crop Input Applications

- Extended in-season crop access due to shorter height
- Supports tailored solutions with precise in-season crop protection

Increased Environmental Sustainability

- Potential to optimize use of key nutrients like nitrogen, as well as reducing land and water requirements

Acre Fit

Potential fit across

140 Million Corn Acres

in the Americas

Multiple Generations in the Pipeline

- Lead project through conventional breeding, in **Phase 2**
- Biotechnology approach in collaboration with BASF, also in development, in **Phase 2**

[1] Purdue University (https://www.extension.purdue.edu/extmedia/ay/ay-262.html)

Enhancing Processes to Identify and Optimize Small Molecule Candidates

New Safety Testing and New Screening Approaches, Combined with New Data Tools, Collectively Contribute

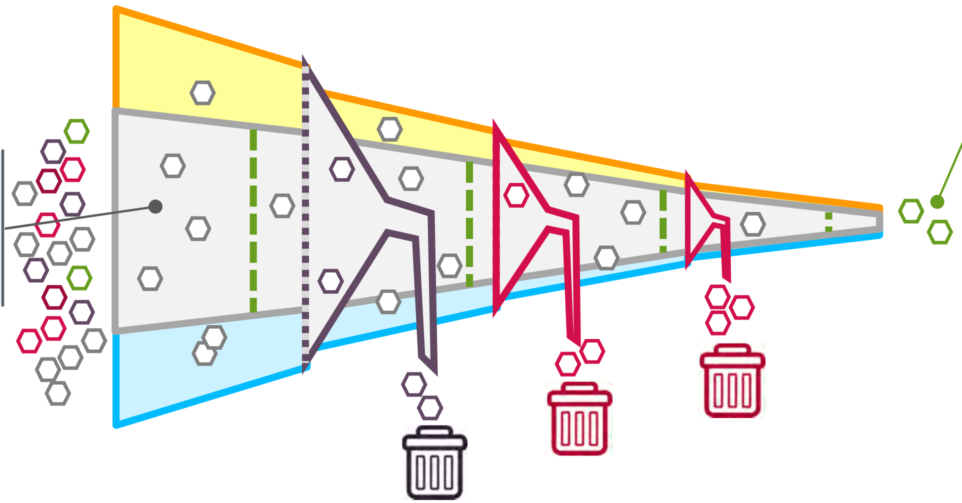
Additions to conventional testing cascades 1

Find New Starting Points

Target-Based Screening
Direct focus on promising new modes-of-action

Phenotyping
Find new starting points missed with conventional screening

Biological Screening
Conventional approach



Increase Probability of Success

High-throughput safety testing
Select against chemistries with high failure risk early in the process

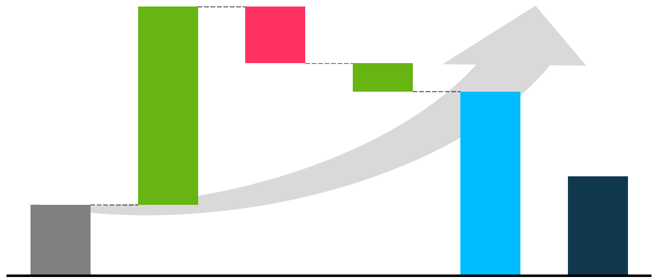
Project specific safety testing
Drive chemical optimization towards registrable compounds

Objective 2

Diverse **development candidates** with higher probability of regulatory success targeting new modes-of-action

Progress in Herbicide Discovery 3

New herbicidal chemistries in discovery process 2015-2018



Biologicals: Industry Leading Position

Broad Footprint, Unique Capabilities in Microbial Discovery, Characterization & Stabilization

Leadership Position Drivers

- Collection of >125,000 microbial strains to leverage genetic diversity to enable product development
- Integrated technology platforms achieve differentiated performance, while driving societal and grower acceptance
- Focus on classical microbial products and exploring gene-editing technologies

Selected Strategic Partnerships

- Gene-editing technologies
  - Synthetic biology for e.g. nitrogen-fixation
  - Delivery of biologically active proteins
- BioAg Alliance

JOYN BIO
elemental enzymes
novozymes

Project Spotlights

Candidate for leaf diseases in fruits and vegetables

- Identified from Bayer strain collection
- Optimized with tools comparable to breeding technologies and high-throughput screening for consistent field efficacy and favorable application characteristics


Untreated Control


Treated with Candidate

Crop efficiency candidate for current and new soybean targets

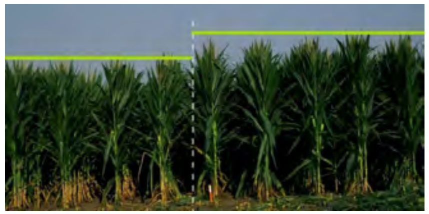
- Benefits include yield optimization, enhanced crop establishment (below) and root system efficiency


Untreated Control


Treated with Candidate

Crop Efficiency product Acceleron BioRise 2 for corn

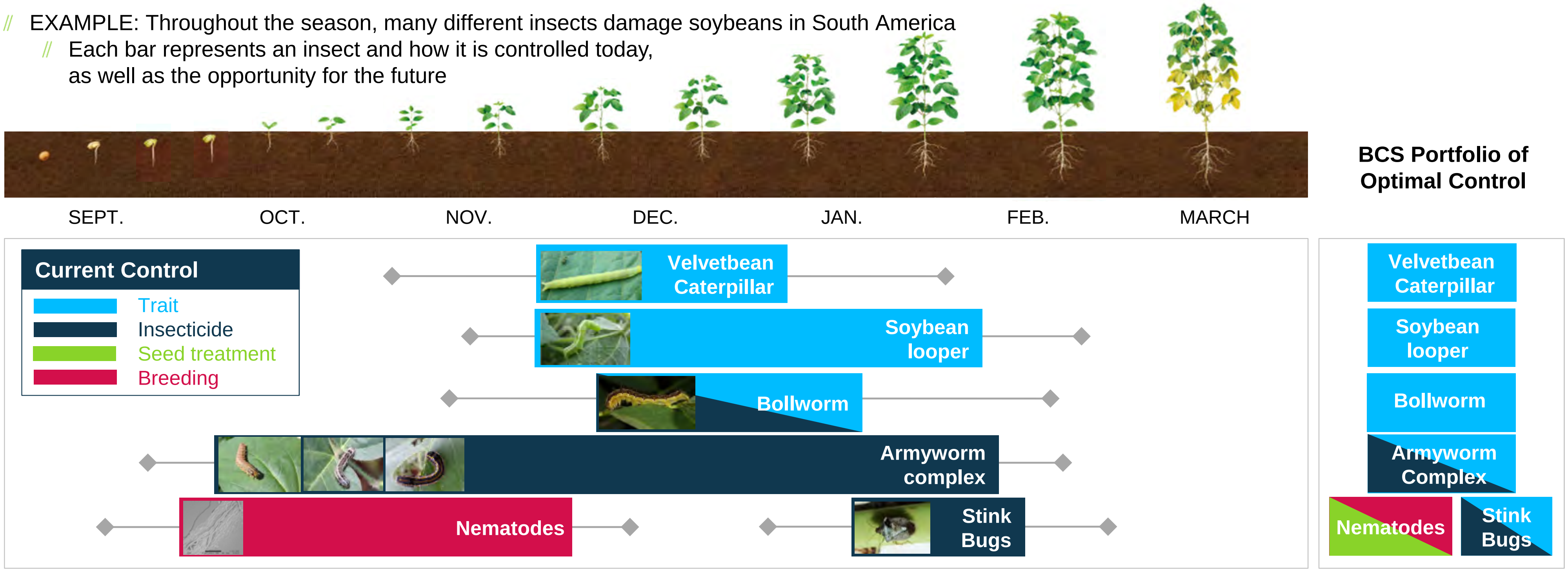
- Increases phosphate availability and stimulates mycorrhizal spores, which can improve water and nutrient uptake
- Part of BioAg collaboration with Novozymes


Untreated Control **BioRise 2 treated**

Combined Scientific Expertise Unlocks New Potential

Accelerates Rate of Innovation and Allocates R&D Investment More Efficiently

- **Our combined expertise in crop sciences will allow us to:**
  - Design **complete solutions** that combine traits with chemistry for control of persistent insect pests
  - Focus research investment where control challenges currently exists to drive the development **of new product offerings**
  - **Minimize redundant R&D investment** to unlock new solutions that provide greater grower value now and in the future
- EXAMPLE: Throughout the season, many different insects damage soybeans in South America
  - Each bar represents an insect and how it is controlled today, as well as the opportunity for the future



Key Takeaways

Shaping Agriculture to Benefit Farmers, Consumers and our Planet

1. **Leading R&D platforms and pipeline frontrunner in scale and value**
2. **R&D supplemented with open innovation model**
3. **Optimizing large and diverse germplasm library with advanced breeding technologies**
4. **Leader in next-generation biotech traits; technology provider to the industry**
5. **Advancing new approaches in new molecule discovery and biologicals**
6. **Unlocking new potential by combining R&D platforms**

World Class Innovation Platform

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Capital Markets Day
London, December 5, 2018

Bob Reiter
Head of Research & Development
Crop Science Division

Appendix

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R&D Pipeline

Corn R&D Pipeline – Peak Sales Potential: €11-14bn

R&D Target	Br	PBt	CP	Phase* 1	2	3	4	Enhancement** Dev.	Subm.
YIELD & ABIOTIC STRESS									
Annual germplasm upgrades	✓								
Short Stature Corn	✓								
Short Stature Corn [1]		✓							
PEST MANAGEMENT									
Chewing Pests									
Above Ground (Lepidoptera)									
4th generation Lepidoptera protection		✓							
5th generation Lepidoptera protection		✓							
Tetraniliprole			✓						
Belt Smart			✓					NEW	
Below Ground (Coleoptera)									
SmartStax Pro		✓							
4th generation Coleoptera protection		✓				NEW			
Sucking Pests									
Stinkbug pipeline									
ARVIS			✓						
Nematodes									
Nemastrike 2			✓					NEW	
Early Pipeline									
New Insecticide			✓	NEW					

R&D Target	Br	PBt	CP	Phase* 1	2	3	4	Enhancement** Dev.	Subm.
DISEASE MANAGEMENT									
Plant Health Systems									
Corn Disease Shield - Annual upgrades	✓								
Acceleron - Annual upgrades			✓						
Goss Wilt resistance	✓								
Leaf Spots and Stem Diseases									
New Fungicide			✓		NEW				
WEED MANAGEMENT									
Herbicide tolerance									
3rd generation weed management system		✓							
4th generation weed management system with RHS2		✓							
5th generation weed management system		✓			NEW				
Improved Dicamba formulations			✓						
Improved Dicamba & Glyphosate Premix			✓						
Next Generation Roundup			✓						
Next Generation Dicamba Premix			✓						
Mesotrione-Acetochlor-Dicamba Premix			✓						
Early Pipeline									
Novel PPO Herbicide			✓						

***R&D Phases**:
1 – Research, 2 – Early Development, 3 – Late Development, 4 – Registrations Filed

****Product enhancement**: (Life Cycle Management activities)
Dev. – Under development; Subm. – Submitted for Registration

Br Breeding – incl. native traits and molecular breeding

PBt Plant Biotech – biotechnology traits and targeted genome optimization

CP Crop Protection – chemical and biological solutions applied as seed treatment, foliar or via soil

Progress achieved Phases 1 through 4

Status indication for Life Cycle Management Items

Strategic collaborations

Represents annual advancements and upgrades

Pipeline status highlighting significant development, progress or advancement in R&D Pipeline (pink) and Key Life Cycle Management (blue) work.

RHS2 = Second Generation Roundup Hybridization System

[1] In collaboration with BASF

Soybean R&D Pipeline – Peak Sales Potential: €6-7bn

R&D Target	Br	PBt	CP	1	2	3	4	Dev.	Subm.
YIELD & ABIOTIC STRESS									
Annual germplasm upgrades	✓								
High Yielding Soy[1]		✓		NEW					
PEST MANAGEMENT									
Chewing Pests									
INTACTA RR2 pro									
2nd generation insect protection		✓							
3rd generation insect protection		✓				NEW			
Belt Smart			✓					NEW	
Sucking Pests									
Aphid & Whitefly pipeline									
Novel Sucking Pest Solution			✓						
Stinkbug Pipeline									
ARVIS			✓						
Novel Mite Solution			✓		NEW				
Nematodes									
Plant health systems									
2nd generation Soy Cyst Nematode resistance	✓								
Nemastrike 2			✓					NEW	

R&D Target	Br	PBt	CP	1	2	3	4	Dev.	Subm.
DISEASE MANAGEMENT									
Soy Disease Shield	✓					NEW			
Acceleron Upgrades			✓						
Asian Soybean Rust									
Indiflin			✓				NEW		
Fox XPro			✓						adv. to launch
Leaf Spot Diseases									
New Fungicide			✓		NEW				
Early Pipeline									
New Fungicide			✓	NEW					
WEED MANAGEMENT									
Herbicide tolerance									
3rd generation weed management system		✓							
4th generation weed management system		✓							
5th generation weed management system		✓							
New Soybean selective herbicide			✓					NEW	
Improved Dicamba & Glyphosate Premix			✓						
Improved Dicamba formulations			✓						
Next Generation Roundup			✓						
WARRANT® + Dicamba Premix			✓						
Next Generation Dicamba Premix			✓						
Podium Supra			✓						
Early Pipeline			✓						
Novel PPO Herbicide			✓						
New Herbicide			✓	NEW					

***R&D Phases**:
1 – Research, 2 – Early Development, 3 – Late Development, 4 – Registrations Filed

****Product enhancement**: (Life Cycle Management activities)
Dev. – Under development; Subm. – Submitted for Registration

Br — Breeding – incl. native traits and molecular breeding
PBt — Plant Biotech – biotechnology traits and targeted genome optimization
CP — Crop Protection – chemical and biological solutions applied as seed treatment, foliar or via soil

- Progress achieved Phases 1 through 4
- Status indication for Life Cycle Management Items
- Strategic collaborations
- Represents annual advancements and upgrades
- Pipeline status highlighting significant development, progress or advancement in R&D Pipeline (pink) and Key Life Cycle Management (blue) work.

[1] In collaboration with BASF

Cereals, Oilseed Rape, Cotton, Rice R&D Pipelines – Peak Sales Potential: €4-5bn

Cereals

R&D Target	Br	PBt	CP	1	2	3	4	Dev.	Subm.
YIELD & ABIOTIC STRESS									
Annual germplasm upgrades	✓								
WEED MANAGEMENT									
Selective Herbicides									
New Cereals Selective Herbicide			✓				NEW		
Atlantis franchise extensions			✓					adv. to launch	
New Autumn Herbicides			✓						
PEST MANAGEMENT									
New Cereals Seed Treatment			✓						
DISEASE MANAGEMENT									
Disease package annual upgrade	✓								
Isoflucypram			✓				NEW		
New Fungicide			✓		NEW				
New Bixafen extensions			✓					NEW	
Delaro forte			✓						
Redigo FS 25			✓					NEW	
New Fungicidal Seed Treatment			✓					NEW	

Oilseed Rape

R&D Target	Br	PBt	CP	1	2	3	4	Dev.	Subm.
YIELD & ABIOTIC STRESS									
Annual germplasm upgrades including Podshatter	✓								
WEED MANAGEMENT									
DEKALB LibertyLink Canola		✓							
TruFlex Canola with Roundup Ready									
TruFlex Roundup Ready		✓							
TruFlex Roundup Ready + LibertyLink		✓							
Dicamba-Tolerant Canola		✓							
PEST MANAGEMENT									
New Insecticide			✓	NEW					
DISEASE MANAGEMENT									
New Fungicide			✓		NEW				

Cotton

R&D Target	Br	PBt	CP	1	2	3	4	Dev.	Subm.
YIELD & ABIOTIC STRESS									
Annual germplasm upgrades	✓								
WEED MANAGEMENT									
4th Generation Herbicide Tolerance		✓							
Improved Dicamba formulations			✓						
Improved Dicamba & Glyphosate Premix			✓						
Next Generation Roundup			✓						
WARRANT® + Dicamba Premix			✓						
Next Generation Dicamba Premix			✓						
Early Pipeline									
Novel PPO Herbicide			✓						
PEST MANAGEMENT									
Chewing Pests									
4th Generation Bollgard		✓							
Sucking Pests									
Lygus & Thrips Control		✓							
Novel sucking pest solution			✓						
Novel Mite solution			✓		NEW				
Nematodes									
Nemastrike 2			✓					NEW	
Early Pipeline									
New Insecticide			✓	NEW					
DISEASE MANAGEMENT									
New Fungicide			✓		NEW				

Rice

R&D Target	Br	PBt	CP	1	2	3	4	Dev.	Subm.
YIELD & ABIOTIC STRESS									
Annual germplasm upgrades	✓								
Annual hybrid production	✓								
WEED MANAGEMENT									
Council Activ			✓					adv. to launch	
PEST MANAGEMENT									
Sucking Pest Tolerance	✓								
Tetraniliprole			✓						
Early Pipeline									
New Insecticide			✓	NEW					
DISEASE MANAGEMENT									
New Fungicide			✓		NEW				
Super Nativo			✓					NEW	

Horticulture R&D Pipeline – Peak Sales Potential: €3-4bn

R&D Target	Technology: Br	Technology: PBt	Technology: CP	Phase*: 1	Phase*: 2	Phase*: 3	Phase*: 4	Enhancement**: Dev.	Enhancement**: Subm.
Genetic Pipeline Upgrades									
>146 advancements to launch	✓								
Torelino tomato	✓								
Pfiefer bell pepper	✓								
Whitex cauliflower	✓								
PEST MANAGEMENT									
Chewing Pests									
Tetraniliprole			✓						
Sucking Pests									
Aphid & Whitefly pipeline									
Novel Sucking Pest Solution			✓						
SIVANTO brand family extension			✓						
Novel Mite Solution			✓		NEW				
Nematodes									
Nemastrike			✓						
Velum			✓						
Next gen nematode resistant tomato	✓								
Early Pipeline									
New Insecticide			✓	NEW					

R&D Target	Technology: Br	Technology: PBt	Technology: CP	Phase*: 1	Phase*: 2	Phase*: 3	Phase*: 4	Enhancement**: Dev.	Enhancement**: Subm.
DISEASE MANAGEMENT									
Plant Health Systems									
Geminivirus resistant tomato	✓								
Downy Mildew resistant lettuce	✓								
Dicot Leaf & Fruit Diseases									
New Fungicide			✓		NEW				
Isoflucypram			✓				NEW		
LUNA brand family extension			✓						
Serenade ASO			✓						
Oomycetes									
Fluoxapiprolin			✓						
Seed- & Soilborne Diseases									
Isoflucypram			✓				NEW		
High concentrated biological			✓						
Bacteria									
Isotianil			✓				adv. to launch		
Serenade ASO			✓						
Early Pipeline									
New Fungicide			✓	NEW					
WEED MANAGEMENT									
Early Pipeline									
New Herbicide			✓	NEW					

***R&D Phases**:
1 – Research, 2 – Early Development, 3 – Late Development, 4 – Registrations Filed

****Product enhancement**: (Life Cycle Management activities)
Dev. – Under development; Subm. – Submitted for Registration

- Br: Breeding – incl. native traits and molecular breeding
- PBt: Plant Biotech – biotechnology traits and targeted genome optimization
- CP: Crop Protection – chemical and biological solutions applied as seed treatment, foliar or via soil

- Progress achieved Phases 1 through 4
- Status indication for Life Cycle Management Items
- Strategic collaborations
- Represents annual advancements and upgrades
- Pipeline status highlighting significant development, progress or advancement in R&D Pipeline (pink) and Key Life Cycle Management (blue) work.

Biologicals R&D Pipeline

Legacy Monsanto Biologicals Projects

R&D Target	Crop: F&V	Corn	Soy	Phase*: 1	2	3	4	Enhancement**: Dev.	Subm.
BioAg Alliance[1]									
YIELD & ABIOTIC STRESS									
BioYield 2 for S America			✓				adv. to launch		
BioYield 2 (Acceleron 360)		✓					adv. to launch		
BioYield 3		✓							
BioYield 3			✓						
PEST MANAGEMENT									
Nematodes									
BioNematicide (Actinovate)			✓						
BioDirect[2]									
Virus / Disease Control									
Bee Health – Varroa Control	✓								

[1] BioAg Alliance – Monsanto legacy microbials, partnership with Novozymes

[2] BioDirect – topical RNAi

Legacy Bayer Biologicals Projects

R&D Target	Crop: F&V	Corn	Soy	Phase*: 1	2	3	4	Enhancement**: Dev.	Subm.
YIELD & ABIOTIC STRESS									
Yield & Quality									
High concentrated Biological	✓								
Early Pipeline									
New Biological		✓	✓	NEW					
DISEASE MANAGEMENT									
Dicot Leaf Spots									
Serenade ASO	✓								
Seed- & Soil-borne Diseases									
High concentrated Biological	✓								
Bacteria									
Serenade ASO	✓								
Early Pipeline									
New Fungicide	✓			NEW					

***R&D Phases**:
1 – Research, 2 – Early Development, 3 – Late Development, 4 – Registrations Submitted

****Product enhancement**: (Life Cycle Management activities)
Dev. – Under development; Subm. – Submitted for Registration

- Progress achieved Phases 1 through 4
- Status indication for Life Cycle Management Items
- Strategic collaborations
- Represents annual advancements and upgrades
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Advancing the Digital Transformation

Capital Markets Day
London, December 5, 2018

Mike Stern
Head of The Climate Corporation and
Digital Farming

Disclaimer

Cautionary Statements Regarding Forward-Looking Information

This presentation contains forward-looking statements. A forward-looking statement is any statement that does not relate to historical facts and events, but rather reflects Bayer's current beliefs, expectations and assumptions regarding the future. This applies, in particular, to statements in this presentation on revenue growth, including product introductions and peak sales potential, synergies, especially in relation to the acquisition and integration of Monsanto Company, portfolio adjustments, cost reduction, financial targets and earnings, cash flow generation, deleveraging and other similar statements relating to future performance, including with respect to the markets in which Bayer is active.

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For more information on factors that could cause actual results and future events to differ from those anticipated in forward looking statements, please refer to the factors discussed in Bayer's public reports which are available on the Bayer website at https://www.investor.bayer.com/en/reports/annual-reports/overview/, including in the Annual Report 2017 under the caption "Report on Future Perspectives and on Opportunities and Risks".

The Digital Farming Opportunity

Providing Farmers with Timely Insights to Make More Informed Decisions and Increase Yield

Yield = f (g,e,p)

Yield is a function of genetics, environment and farming practices

FieldView yield map of a field in Illinois in the United States

// **+75 bu/ac yield difference** between red and green areas

Complex in-field interactions cause significant variability

Opportunity from optimized yield equation

2017 NCGA Corn Yield Contest Winner

NATIONAL CORN GROWERS ASSOCIATION

542 bu/ac ***vs.*** **175** bu/ac national average[1]

2017 Soy Yield Contest Winner

138 bu/ac ***vs.*** **49** bu/ac national average[1]

[1] USDA crop production summary report

FieldView Platform Leads the Digital Transformation in Agriculture

Provides Multiple Ways to Create Value for **Farmers**, the **Industry** and the **Enterprise**

Today: Agronomic services

- Applications that visualize, analyze and recommend
- Driven by data

FIELDVIEW plus FIELDVIEW drive

$1,000 subscription + $300 hardware

- Data Visualization and Storage
- Yield Analysis
- Manual Fertility Scripting
- Manual Seed Scripting
- Field Health Imagery

Per-Acre Offerings

Advanced Seed Scripting   Seed Placement Advisor

Today: FieldView platform[1]

50+ partners leverage FieldView platform to bring their digital Ag innovations to farmers, and pay for access to platform

Tomorrow: Enterprise benefit

Driving value across our internal operations and businesses by reducing production costs and enabling outcome-based pricing models to drive incremental sales

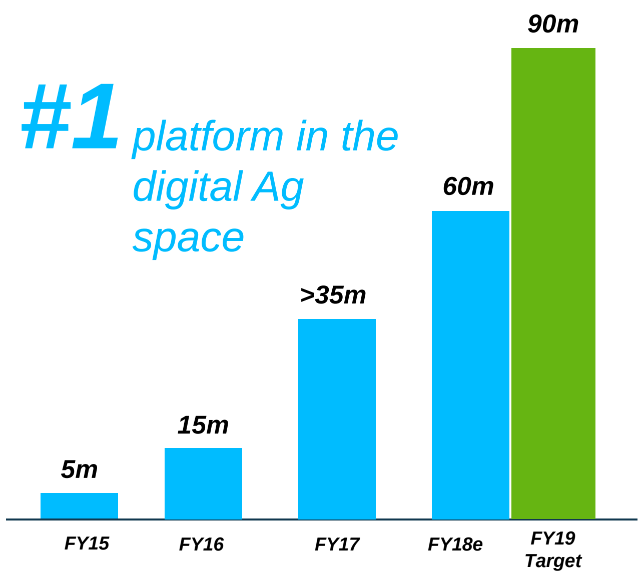
- Commercial sales
- Supply chain
- Technology
- Business analytics

[1] All trademarks are the property of their respective owners

FieldView: The Leading Brand and Platform for Growers

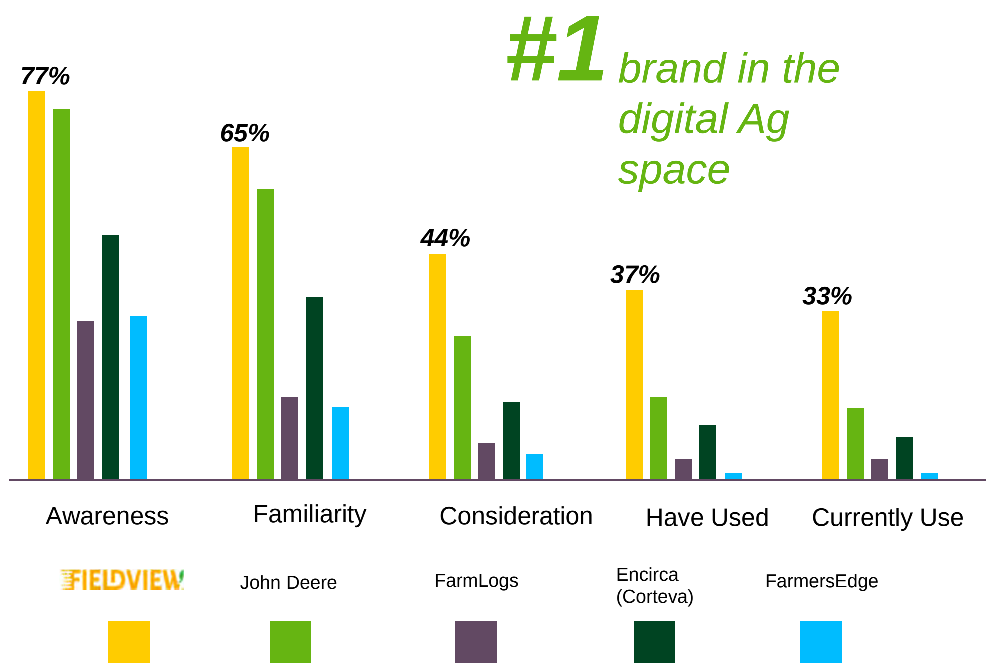
Our Value Creation is Supported by our Performance Trends; Paid Acres >7x Closest Competitor

Global Paid Acres[1]



On >3m in Brazil, >2m acres in Canada and launched in Germany, France & Ukraine in 2018

Brand Health[2] (U.S.)



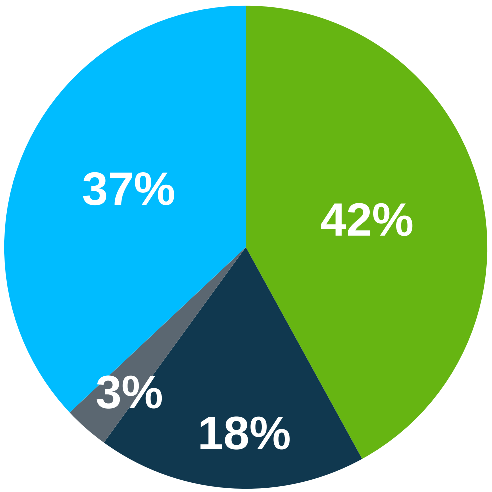
[1] Internal estimates
[2] 2018 Brand Health Monitor

Extensive and Unique Data Collection Capability

FieldView Drive Device Collects, Connects and Digitizes Farmer Activity Informing and Improving our Models and the Digital Tools Farmers are Deploying in their Fields

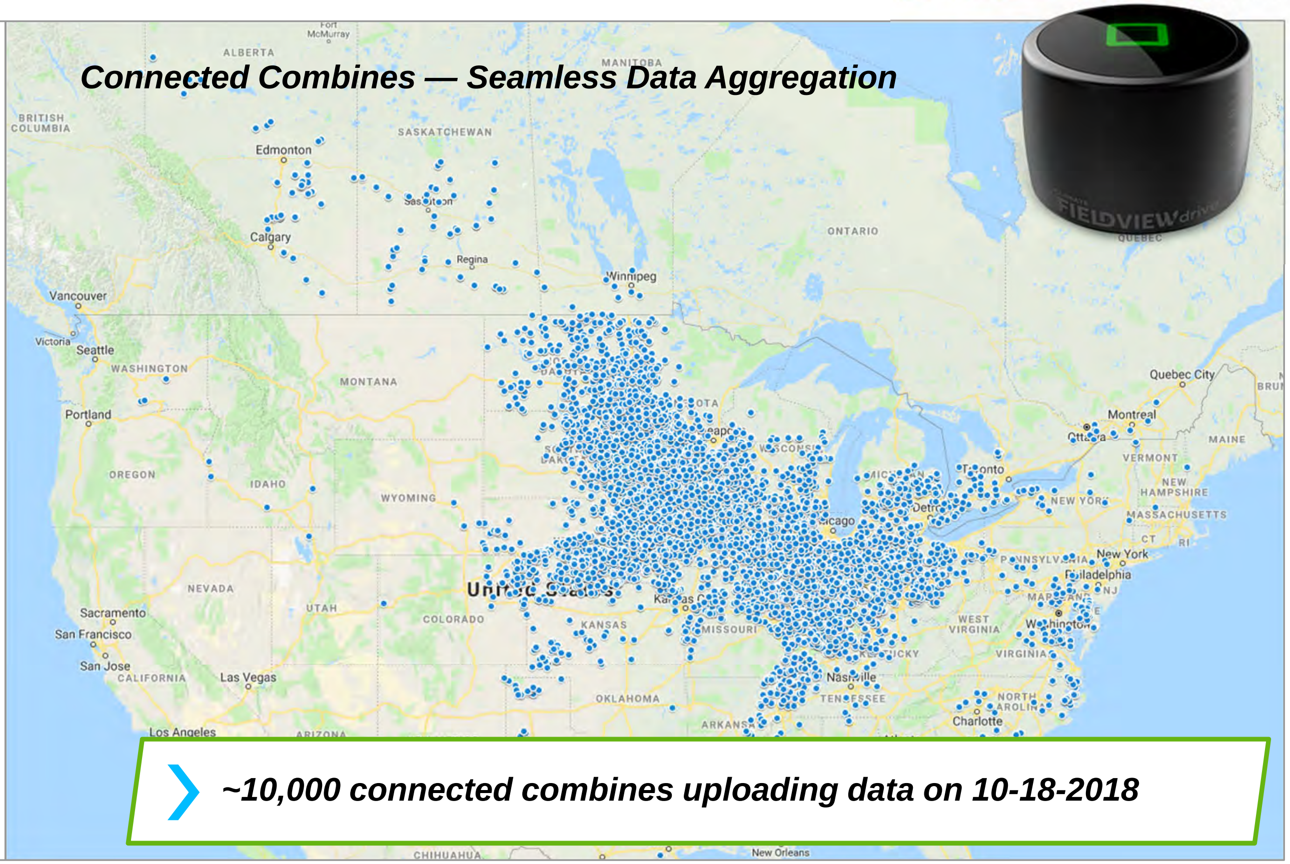
FIELDVIEW drive

Hybrid Brand Performance Data in FieldView



- Bayer
- Corteva
- Other (incl. Bayer licensees)
- Syngenta

Connected Combines — Seamless Data Aggregation



~10,000 connected combines uploading data on 10-18-2018

Vast, Diverse Data and Technical Infrastructure Drive Machine Learning Capabilities and Competitive Advantage

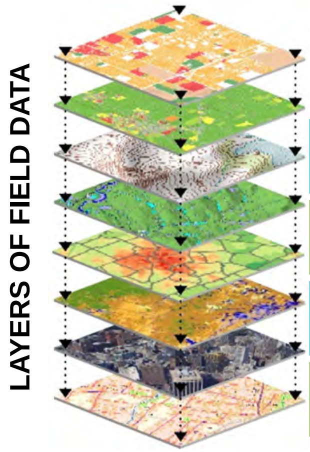
Smarter Digital Tools Enable Significantly Improved Decision-Making and Productivity for Growers

Data Sources

- Bayer Research Trials
- Climate Research Farms
- Climate Research Partners
- FieldView Data
- Environmental Data
- Platform Partner Data

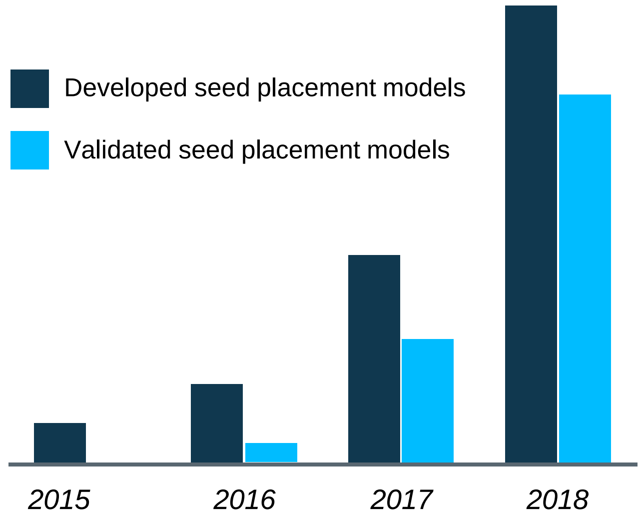
Proprietary Data Science Warehouse

- Ingest
- Clean
- Standardize
- Grid
- Integrate



- *Scalable Machine Learning*
- *Scalable Data Visualization*
- *Rapid Prototyping Framework*
- *Derived Data Layers*

Machine Learning Algorithm Development

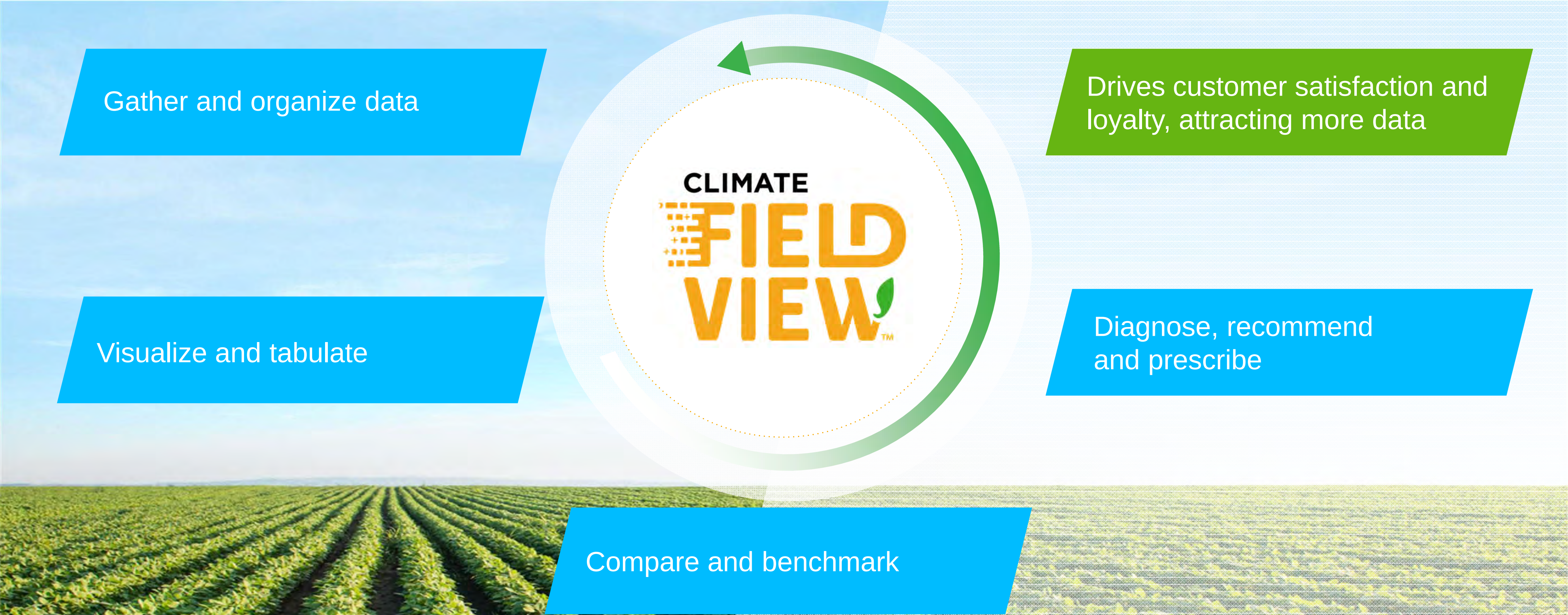


Climate Corporation internal algorithm development tracking

Our data science warehouse and machine learning platform dramatically improves predictive models

Building a Global, Integrated Platform for Farmers and Our Enterprise

Benefits to Farmers from FieldView Create a Virtuous Circle of Value Creation from Richer Data Sets, Leading to Smarter Digital Tools that Inform Farmer and Enterprise Decision-Making



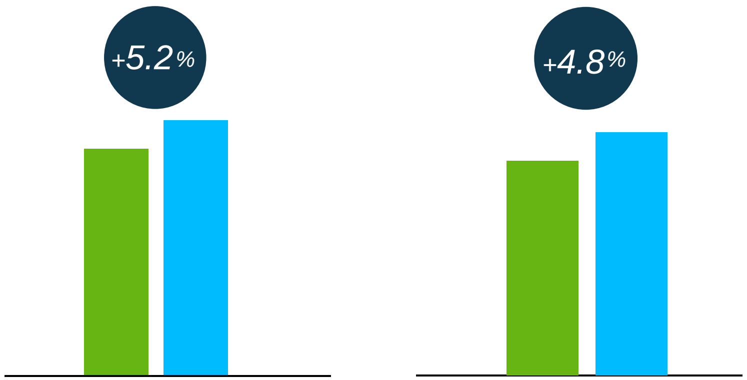
FieldView Platform Creates Value for Our Seed Business

FieldView Use Correlates to Share of Farm Growth and Customer Retention Gains by Allowing Growers to Easily See Product Performance on Their Farms

Increased share-of-farm[1,2,3]

FieldView Corn Farmers in 2016 & 2017
(n=4,072)

FieldView Soybean Farmers in 2016 & 2017
(n=3,519)



Share of Farm of Bayer Brand Seed for FieldView Engaged Users in 2016 vs. 2017

2016 *2017*

Higher customer retention[1,2,3]

+5.5% ***Bayer Corn Seed Brands***

+3.1% ***Bayer Soybean Seed Brands***

[1] Data set consists of farmers with planting and yield data in FieldView in 2016 and 2017
[2] Share of Farm: Percentage of Bayer corn/soybean seed brand on total acres of farm, based upon FieldView data ingest
[3] Farmers using FieldView Yield Analysis vs. those not using Yield Analysis

The Critical Seed Purchase and Placement Decision

Launching FieldView Seed Placement Advisor to Help Farmers Place the Right Seeds in the Right Fields

Products

Which *products should I purchase?*

Portfolio

How *much of each product should I purchase?*

Assignment

Which *fields do I optimally place each hybrid?*

Density

What *density do I use for the hybrid in this field?*

Introducing Seed Placement Advisor for Corn

Using Multiple Algorithms and FieldView Data to Support Seed Selection and Field Placement has Significantly Improved Productivity in Field Tests

Algorithm Development[1]

- 5 years of Bayer R&D Data
- 6m Data Points
- +53K Fields, ~7,600 Hybrids
- Validated Using 4.4m Acres of FieldView Customer Data

› Algorithm selection of corn hybrids ***predicted win rate of 80%*** and 3-4 bu/ac advantage

Field Tests[1]

2017 Results

77% win rate
+6 bu/ac

2018 Results

89% win rate
+10 bu/ac

› Additional data points increase algorithm efficacy and ***predicted win rate of >90%***

2019 Beta (Launch)

- $4/acre per season
- 50 dealers, 3 states
- 200 farmers

› Developing algorithm for soy: beta testing in 2020

2016	2017	2018	2019

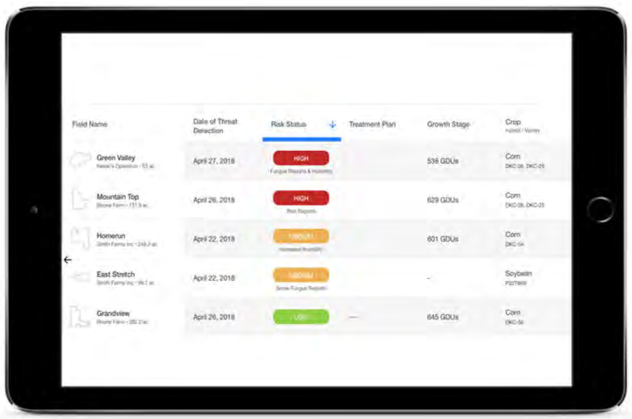
(30 trials to date)

[1] Internal estimates and field trials

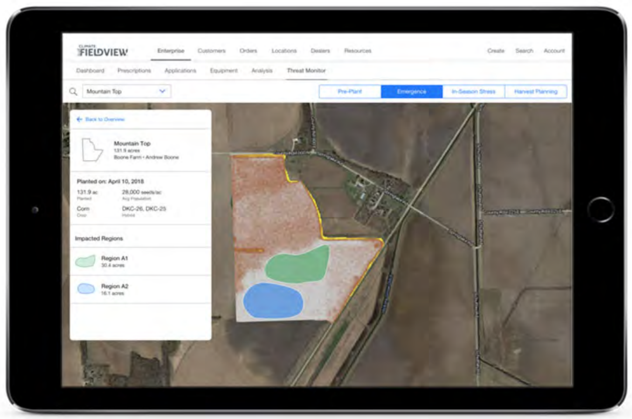
In-Season Disease Risk Prediction to Identify Susceptible Fields

Planning 2019 Pilot for a Solution for Faster Scouting and More Timely Deployment of Crop Protection

Risk-ranking dashboard



Field-level risk report



Disease identification tools

- In-season predictions of disease impact for each field
- Identify fields with highest likelihood of positive return on investment for fungicide application

- Faster, simplified scouting with automatic disease identification
- Automatic plant health issue tracking
- Incorporate history into next season management and product selection

Outcome-Based Pricing Expected to Drive Increased Purchases

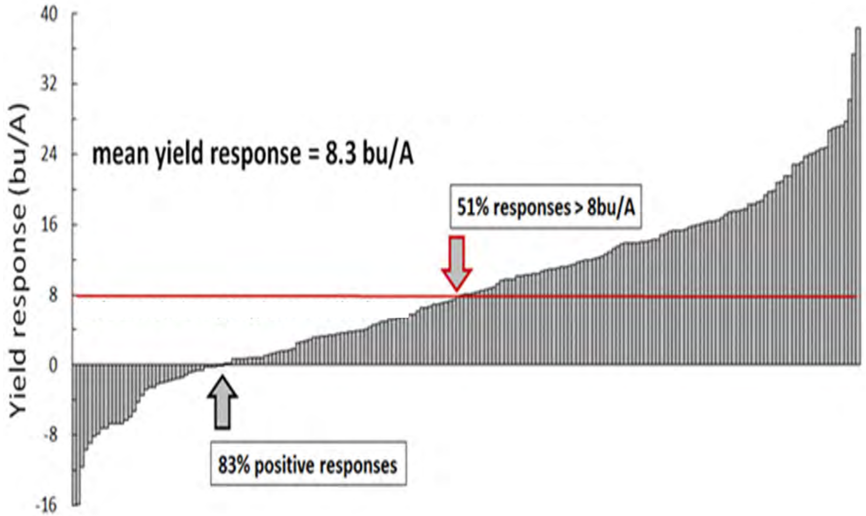
Potential to Expand Fungicide Use in Corn and Create Value for Growers

Outcome-Based Pricing Research[2]

Three-quarters of farmers are more likely to purchase a product with outcome-based pricing.

Half of farmers say they would be likely to **SWITCH** brands with outcome-based pricing.

DEKALB Corn Hybrid Response to Fungicide[1]



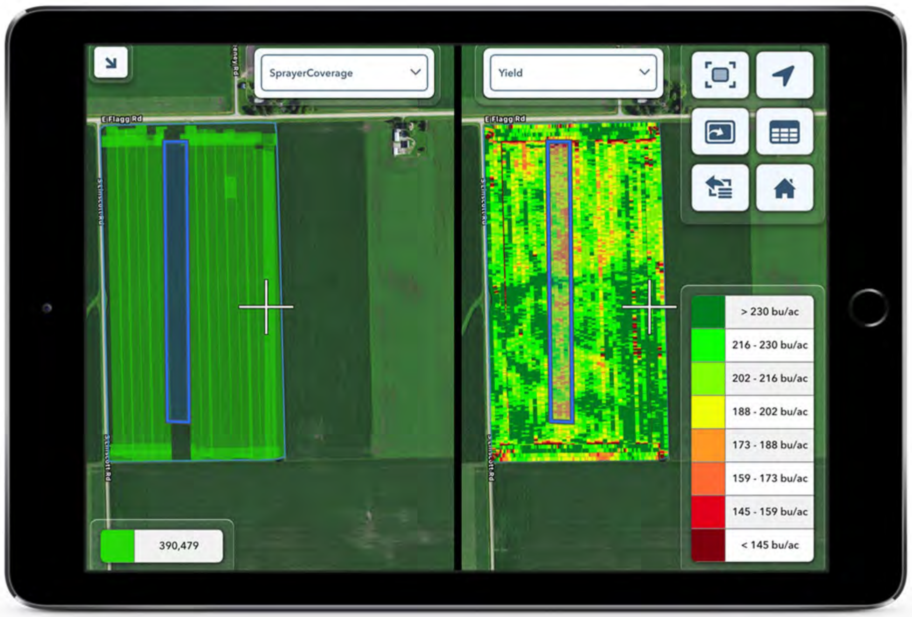
2016 study reveals that ***fungicide*** treatments used ***with DEKALB hybrids*** offer average ***yield protection of >8 bu/ac***; however, ***only utilized on about 15-20%[3] of U.S.A. corn acres today***

[1] Internal R&D trials
[2] 2017 and 2018 Market Probe Research commissioned for internal study
[3] USDA NASS 2016/2017 report, figure 2 and internal estimates

FieldView Enables Outcome-Based Pricing Model for Fungicides

Farmers Share Value with Bayer for Yield Achieved Above Threshold, as Measured by FieldView

FieldView Maps of 2018 Fungicide Trial



Fungicide Pilot Offer

- Offered outcome-based price at a defined bu/ac threshold using FieldView as tool to assess in field performance
- If yield gain is not achieved, a rebate paid to grower for fungicide and application cost

› Blue box on yield map on the right depicts lower yields on portion of field not treated with a fungicide, as depicted in spray map on the left

Next Opportunity: Advance Ag Landscape with Tailored Solutions

Enabled by FieldView Platform and our Leading Seed and Crop Protection Portfolio

Seed Advisor

Seed Advisor picks the best hybrid for your field and provides a customized variable rate seeding prescription

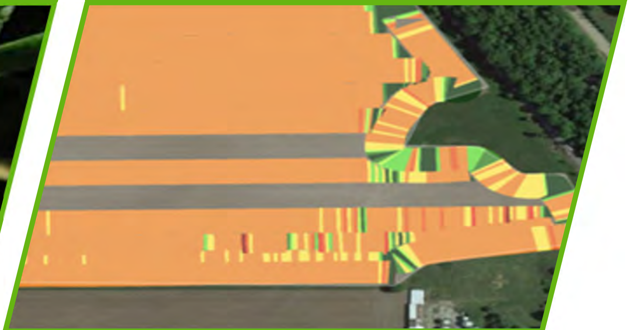
Launching

Disease Prediction

Disease monitoring and prediction algorithms identify fields susceptible to fungal disease by taking a simple photo of a leaf

Late Stage Development

Fungicide Pilot



An outcome-based pricing model is offered to the grower to protect his field and drive branded fungicide sales

Pilot Program

Significant Opportunity to Expand Digital Ag Footprint

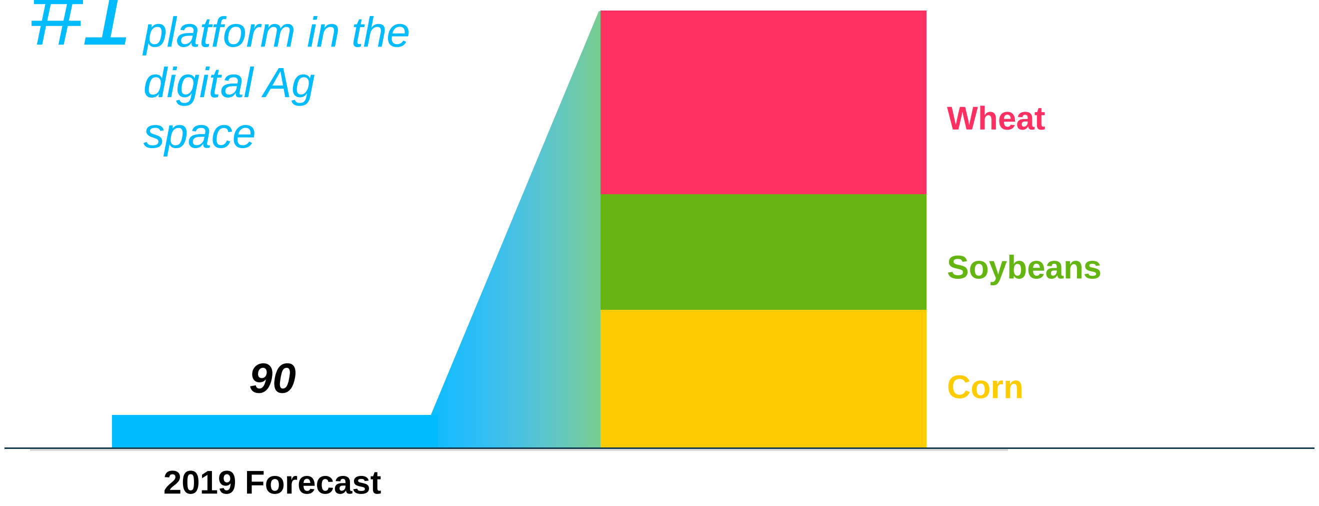
Growth Fueled by Leading Infrastructure, Data, Distribution and Partnerships

FieldView paid acres (m)

#1 platform in the digital Ag space

Global acres (m)

~1bn Global Acre Opportunity for Corn, Soybean, Wheat[1]



Growth fueled by platform advantages

- Most established, scalable digital farming infrastructure
- Largest database of grower and field trial seed performance data in the industry
- Established global distribution footprint
- Strategy to drive innovation through FieldView platform from partners around the world

[1] Harvested acres – USDA FAS 2018-10-11, ex China

Key Takeaways

Shaping Agriculture to Benefit Farmers, Consumers and our Planet

1. **Significant opportunity to minimize variability and optimize yields with digital tools**
2. **FieldView platform is leading digital ag platform and U.S. brand in the industry**
3. **Widening the gap with our leading proprietary data, warehouses and algorithms**
4. **Experiencing increased seed customer retention and share of farm with FieldView**
5. **Significantly higher win rates achieved in corn production with Seed Placement Advisor**
6. **Piloting first-ever outcome-based pricing models, enabled by FieldView**
7. **Pursuing next opportunity to advance the agricultural landscape with tailored solutions**

Advancing the Digital Transformation

Capital Markets Day
London, December 5, 2018

Mike Stern
Head of The Climate Corporation and Digital Farming

Appendix

Digital Ag Pipeline

Digital R&D Pipeline

R&D Target	Phase* 1	2	3	4	Enhancement* Development
FERTILITY					
Sub-Field Nitrogen Monitoring (US, Corn)					
Manual Fertility Scripting (US, Corn & Soy)					
P & K Scripting (US Corn, Soy, Canola, Wheat, Cotton)					
P & K Scripting (Brazil & Argentina, Corn)	NEW				
Advanced Nitrogen Scripting (US, Corn)					
Advanced Nitrogen Scripting (US, Wheat)	NEW				
Advanced Nitrogen Leads (US, Corn)	NEW				
SEEDS AND PLANTING					
Advanced Seed Prescriptions - Image Based Zones (US, Brazil, EU, Corn)					
Seed Advisor – Regional (US, Corn)				Advanced to Launch	
Field Specific Seed Selection (US, Corn)					
Seed Advisor – Designed Hybrid Side by Sides V2 (US, Corn)					
Seed Advisor V2 (US, Soy)					
Enhanced Field Zones & Improved Seeding (US, Corn)					
Advanced Seed Prescriptions – Pop. By Zone (Brazil, Corn)					
Advanced Seed Prescriptions – Pop. By Zone (Argentina, Corn)					
Advanced Seed Prescriptions – Pop. By Zone (EU, Corn)					
Advanced Seed Scripting (Soy)					
Seed Advisor: Field Specific + Density (US, Corn)	NEW				

R&D Target	Phase* 1	2	3	4	Enhancement* Development
FIELD INSIGHTS					
Enhanced Directed Scouting (Global, All Crops)					
Field Health & Scouting Insights (US, Brazil, Canada, Corn)					
Field Health & Scouting Insights (EU, Corn)				Advanced to Launch	
Advanced Irrigation Recommendations (US, Corn)					
Corn Disease Vulnerability (US, Corn)					
Disease Identification (US, Corn)					
Disease Identification (US, Soy)					
Disease Identification (Global, Wheat)					
Fungicide ROI (US, Corn)	NEW				
Hourly Data Service / Pest & Disease (EU, All Crops)	NEW				
MEASUREMENTS					
On-Equipment Soil Mapping (US, All Crops)					
Nitrate Sensor (US, Corn)					
On-Equipment Imaging (US, Corn)	NEW				
On-Equipment Spray Sensing (US, All Crops)	NEW				
YIELD ANALYTICS					
Yield Analytics (US, Corn, Soy)					
Advanced Yield Forecast V1 (US, Corn)					
Automated Experiments (Global, All Crops)					
Advanced Yield Forecast V1 (US, Soy)	NEW				
Replant Models (US, Corn)	NEW				

***R&D Phases**:
1 – Proof of Concept, 2 – Development, 3 – Pre-Commercial, 4 – Commercial / Launch, 5 – Post-Commercial / Enhancement

P = Phosphorus
K = Potassium

Progress achieved Phases 1 through 4
Status indication for Enhancements to Commercial Products

Pipeline status with color highlighting significant development, progress or advancement in R&D and commercial work