Bayer AG – Investor Relations

Crop Science Investor Webinar 2021

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Welcome

Oliver Maier

Head of Investor Relations, Bayer AG

Good afternoon and good morning, everyone. It's a pleasure to welcome you all to our 2021 investor webinar for Bayer Crop Science. This will be the first of several investor webinars we envision going forward in an effort to keep you appraised of key developments and milestones across the group post our Capital Markets Day in March 2021. Showcasing our latest innovation in regular updates, and in the field has been a hallmark of sharing our Crop Science story with you.

Normally, we would have had a field event around this time of the year as we did back in August 2019. Given the fact that we can't bring you to the field yet – despite ongoing progress against COVID-19 – we thought you would appreciate it if we are bringing progress in the field to you through today's webinar. It has been a very busy year for us and we are very excited about sharing the headway that we have made on our pipeline and on our commitments.

Joining me today are Liam Condon, President of the Crop Science division, and Bob Reiter, our Head of R&D for Crop Science. We will begin the webinar with some prepared remarks from Liam, followed by a brief video showcasing some of our latest technologies in the field with our grower customers. We will then open up the floor for about 30 minutes of Q&A, and you will find instructions for participation in the Q&A in the Zoom chat, and I will also remind you of those later on again.

Finally, in the appendix of the webinar presentation posted on our IR website today, you will find a link to our Bayer Investment case, located on our Investor Relations website, which we also updated today. We hope you take the time to review and reach out to me or to the IR team with any questions you may have.

Forward-looking statements: before we begin, as always, I would bring your attention to the forward-looking statements included in the materials today and currently on the screen.

See disclaimer

With that, the floor is yours, Liam.

Opening Remarks

Liam Condon

President of Crop Science Division, Bayer AG

Thanks a lot, Oliver, and good afternoon and good morning to everybody from me as well. I'm really excited to update you today on how we are shaping the future of Agriculture and progressing towards our mid-term commitments, aligned to our long-term vision. We continue to accelerate our operational performance and deliver world-class innovation, while simultaneously pioneering the digital transformation of agriculture and setting new standards in sustainability.

As we shared at Capital Markets Day in March, our primary goal in the mid-term is to grow our sales 3% to 5% annually from 2022 to 2024, and to expand our industry-leading profitability to a 27% to 29% EBITDA before special items margin by 2024. But first we need to deliver on 2021. We knew this would be an important transitional year for our company as we had to deal with some negative one-time effects.

However, we've also experienced some unexpected tailwinds that allowed us to raise our sales guidance at Q2 from 2% to 7%, currency and portfolio adjusted. In addition, we maintained our EBITDA before special items margin guidance of 23% at June 2021 currency rates, reflecting the ongoing higher costs the entire industry is experiencing.

Since the year began, we've had record first-half sales in Crop Science, delivering more than 8% currency and portfolio adjusted sales growth in a greatly improved market environment. Nearly 15% sales growth in herbicides, buoyed by XtendiMax recovery and strong global Roundup pricing, and more than 22% sales growth in fungicides, especially from Fox Xpro, has been particularly impressive in the first half of the year.

As the established leader in the ag input space in sales, profitability and R&D investment, we've delivered milestones that will advance our leadership and further increases our confidence in our ability to achieve our ambitious mid-term targets, and we look forward to sharing our Q3 results with you on 9 November. The year isn't over yet, and as I think back on what we've accomplished, the list is long, so with that let's explore 2021 in greater depth.

Let's begin with soybeans in the Americas, where according to both Kynetec and our internal estimates, we have defended our position as the number one weed control system in North America. We also estimate that we grew our US Asgrow brand share in 2021. We are quickly upgrading our Roundup Ready 2 Xtend footprint with XtendFlex soybeans, which reached approximately 15 million acres this year. And don't forget – this is just its first year on the market, and we did not even have the benefit of a full selling season. This latest offering adds glufosinate tolerance to Roundup Ready 2 Xtend soybeans to provide additional weed-control flexibility. Combined, these two trait offerings covered more than 55% of the US soybean acres this year.

In our 2020 germplasm trials, our newest top-volume XtendFlex soybeans had a greater than four bushel per acre yield advantage compared to Corteva's Enlist, and in our latest farmer survey, farmers rate the Xtend trait soybeans as delivering on higher yield compared to the Enlist trait. This performance, coupled with 14 days residual activity with XtendiMax with VaporGrip Technology, and control of significantly more weeds than the Enlist system, gives us confidence in

our growth plan. With combines now rolling across the US, we look forward to this year's yield results.

Sales of XtendiMax herbicide grew strongly in the first half. In fact, it was one of the key contributors to the approximately 15% CPA sales growth we saw in global herbicides in the first half. Farmer feedback we're hearing on the system has been very positive, and we're seeing a stronger start to our selling season this year.

We're also upgrading our soybean trait platform in Brazil, where we are transitioning from Intacta Roundup Ready 2 PRO to Intacta 2 Xtend. All regulatory approvals have been secured and launch is underway. Intacta 2 Xtend is built on the performance of first-generation Intacta, and adds two proteins for insect control, important for insect resistance management, as well as tolerance to dicamba. We are targeting a robust transition across our existing footprint in Brazil, which plants more than 95 million acres of soybeans annually.

The trait has been broadly licensed and is sold in more than 30 soybean varieties that are well adapted to the main soybean growing regions in Brazil. The performance advantage of the technology is significant for farmers, delivering approximately three bushels per acre compared to similar varieties that are on the market.

We launched Intacta 2 Xtend with a 5% premium over varieties with Intacta Roundup Ready 2 Pro. Intacta 2 Xtend is the cornerstone for how we're leading the industry in protecting soybean yield against insect and weed pressure, and we're supplementing that with continued momentum in fungicides.

Fox Xpro continues to upgrade our Fox Family of fungicides in Brazil for excellent control of Asian Rust – the industry's only offering to include three different actives in one product. The product has been a critical driver of our global sales in fungicides. In fact, sales rose nearly 22% in the first half, mainly as a result of higher volumes in Latin America for Fox Xpro. And today, the Fox family enjoys the leading position with 25% market share in Brazil, but we aren't stopping there. We will upgrade this again in 2022 with the launch of Fox Supra.

Let's transition to corn next, where we hold leading share positions in nearly every key corn market around the globe. And once again, according to Kynetec research and our internal estimates, we gained seed share this past season in the US, while maintaining our price leadership. We're particularly pleased to see DEKALB share climbing this year. Our strong innovation capabilities are key to the annual refresh of this portfolio. In fact, we expect to launch at least 150 new hybrids a year through the end of 2030, which is unmatched in the industry – also in terms of performance, as we see in ongoing trials.

We're protecting those yield gains with biotechnology traits, and the latest addition is our Corn Rootworm 3 technology, which we launched in Brazil this past season. Corn Rootworm 3 is our next-generation RNAi-based corn rootworm trait – the first in the industry – and supplements the Bt proteins we've used for biotech insect control for the last two decades. The additional mode of action helps protect against evolving resistance. In Brazil, we launched the technology as a part of the VTPro4 stacked trait offering and expect it on 500,000 acres in 2021. This is an exciting upgrade to our current corn trait offering, VTPro3, adding Corn Rootworm 3 and an additional mode of above-ground control.

And in North America we're introducing the Corn Rootworm 3 technology as part of SmartStax PRO, and the sales rollout for the 2022 launch is underway. This is a particularly timely introduction, and we expect it to be well-received by growers following increased rootworm

pressure this summer in the US. Not only did SmartStax and SmartStax PRO perform well, but we were particularly pleased compared to performance of Corteva's Qrome.

The efficacy could not be clearer in the photos from this year's US fields trials, which show better stands and stronger roots, which ultimately mean better yields for growers. In fact, hybrids with the SmartStax PRO technology demonstrated a 97%-win rate in the field. Because of that, we plan to transition our current 15-million-acre trait SmartStax footprint in the US over the next few years to this new technology. That begins in 2022 with more than 50,000 acres of SmartStax PRO in trials across the Northern and Central corn belt, and we expect to ramp significantly in 2023.

While insect control will remain core to how we protect yield, we have a new entrant in the segment. Our breeding and biotech engine is developing yet another innovation, which is short-stature corn. Supplemented with biotechnology and gene editing approaches to derive the same characteristic, short-stature corn will change the way corn is produced. The excitement here is really building. We featured it in demo trials throughout the US corn belt this year, in addition to the Vitala beta launch of the breeding version in Mexico. The grower interest has been truly tremendous.

Shorter than corn grown today, it has several beneficial features. First, it has thus far shown unparalleled production stability in high winds, as evidenced by our still-standing plots of short-stature corn in Iowa following last summer's devastating windstorm, and again at our Field of Dreams plots this summer. Second, it allows for extended in-season crop access due to its shorter height, which enables tailored solutions for precise, late-season applications of fertilisers or crop protection. Finally, we see a more sustainable future with this technology. There is a potential to optimise nutrients with late-season access, as well as less land and water with the opportunity to plant at higher densities, as seen with our Vitala beta launch.

This next slide further reinforces the sustainable future of the technology, demonstrating precise in-season access for over-the-top nitrogen application at our technology development location in Poseyville, Indiana this summer. This product has true global potential, with unique benefits that address diverse needs worldwide, and with three technological approaches, it has an addressable market of more than 220 million acres. For North America alone, we see an incremental peak sales opportunity of €1 billion, related to the premium and share gains this technology could drive. There's significant upside potential from the rest of the world that we have not yet factored in – a true blockbuster in the making.

Short-stature corn is the next big thing in agriculture, and you'll hear from a grower in Mexico in our video about the experience he is already enjoying with short-stature corn, and the benefits aren't just one-dimensional. In fact, we're also developing a full-season recommendation for short-stature corn, fully optimized with Climate FieldView. This will be the result of the convergence of the new short-stature corn technology, next-generation crop protection and digitally enabled tailored solutions.

Like the full system recommendation with short corn, getting the most out of seed-and-trait and crop protection products is where digital tools, like Climate FieldView, really shine. We are focused on expanding FieldView's footprint, which grew to more than 180 million subscribed acres this year, and operates in 23 countries, several of which are in Europe. You'll hear from a customer shortly who is using FieldView in France to help maximise his productivity in wheat. Wheat farmers are using the tool to monitor crop health and crop progress to inform fertility applications. As the season advances, they're able to analyse yield by zones, by field and by variety.

Within the US, where US corn growers have been using our FieldView tools for several years now, we see increased corn seed sales amongst our FieldView users. In fact, Bayer-branded corn seed customers, who used FieldView Plus from 2018 to 2020, on average, purchased more than 5% more Bayer-branded corn seed volumes than non-users. The increasing transparency of digital tools showcases the strength of our Bayer portfolio. Examples like these help explain how we plan to use this platform to enable tailored solutions and unlock growth from new digital business models, and this is really where we see the future heading.

The carbon market is a great example to highlight next, because FieldView is enabling how carbon sequestration will be incentivised in agriculture. This is a new market, and a new revenue stream for farmers, that we are developing. FieldView is expected to enable a simple, robust, scalable process to measure, verify, and report on practices that sequester carbon. When we pair this with our global sales organisation to assist in the adoption of climate-smart practices and a new generation of products that yield more and sequester more carbon, we see the potential to create a continuous cycle of new value creation in 'carbon farming'.

Carbon markets are worth more than $200 billion annually, so there's tremendous growth opportunity and we are working with regulators and other partners around the world to help make carbon farming a reality. In fact, the trials we conducted with more than 2,500 growers in the US and Brazil, including Cristian in our video, are a testament to the strong interest, and we are proud to be ranked number one in the carbon space by US growers, ranking especially high in terms of grower trust.

Carbon sequestration isn't the only place we're setting the standard for sustainability. Our crop protection portfolio has a very low environmental impact relative to our high market share, which was confirmed earlier this year by a preliminary assessment from an independent academic consortium. This strong starting point underlines progress toward our environmental commitments and the progress Bob's team is making in R&D advancements to further improve our pedigree in this area.

Those same crop protection products will also play a critical role in our goal of empowering 100 million smallholder farmers, and you'll hear from a farmer in the video who is experiencing the benefits of our approach today. Already today, we estimate we reach nearly 45 million smallholders, who generate roughly €1.7 billion of our annual revenue. That's about 9% of our 2020 Crop Science sales, and we think we can grow this to at least €3 billion euros by 2030.

Whether on farming operations large or small, in the United States or Africa, we know we can help answer challenges that agriculture is facing. The most recent evidence of our progress is the announcement just last week that Bayer has been ranked number one in the Access to Seeds Index for Eastern and Southern Africa, as well as for Western and Central Africa. This was based on a benchmark of more than 30 companies in each region and is a true testament to our commitment to smallholders.

We are highly confident that our unmatched innovation, the leading digital platform and our exceptionally strong customer access and penetration will deliver above market sales growth and leading profitability as we look out to 2024. We know we can deliver because it is working today. The convergence of these solutions is already driving value for our grower customers, and it is allowing us to grow very competitively with industry-leading profitability.

In fact, the integrated experience throughout the entire growing cycle, that really only we can provide, is already helping to shape the market today. FieldView is helping analyse farm data in one place, and then delivers tailored agronomic advice to growers. Then we help them act on that

tailored advice. In a country like Brazil, our Orbia marketplace helps growers compare offers and purchases, access credit, collect loyalty points, and trade farm outputs. It's been an incredibly popular model, and in Brazil alone Orbia is reaching more than 185,000 farmers, covering more than 70% of the country's planted area – and it's growing, not only in Brazil, but throughout Latin America. The platform just launched in Mexico, Argentina, and Colombia.

To see why we're highly encouraged by the power of technology convergence, let's look at a compelling example. In Brazil, we have a valued customer in Cristian Dalben, who is also an avid Orbia user. Cristian recently returned to the family farm, and Bayer's solution set is helping to make a tremendous difference in his productivity, profitability, and sustainability on the operation. He's a four-year user of FieldView, a participant in our loyalty program, is piloting an outcome-based pricing model in the country and is now part of our Carbon initiative.

The performance of these technologies and systems have helped earn his business year after year. In fact, just a few years ago, he planted only 33% of his farm to Bayer hybrids. Today, we've earned all of his corn seed business, and 80% of his soybeans are Intacta Roundup Ready 2 Pro. In addition, we've earned more than half of his crop protection business, from a base of just 16%.

I think it's one thing for us to tell you about these technologies and show them on slides. However, the real power in these offerings is best told by our customers, like Cristian, and our field teams. We compiled examples from all over the globe to illustrate the benefits they are seeing from recent launches, so let's hear from them, in their own words, how Bayer technologies are delivering value on their farms. Let's go to the video, and following that, Oliver will start the Q&A session.

[Video played]

Questions & Answers

Oliver Maier

Great video. Thank you so much, Liam, for your comments. And with that, let's move, as Liam indicated, to the Q&A with Liam and with Bob. Before we start, some housekeeping items in the Q&A session from my end. If you have a question, please click on the 'raise your hand' icon. If your question has been answered or you wish to cancel your request, please click on the 'lower your hand' icon. When you will be called to ask your question, you first have to unmute yourself by confirming the corresponding prompt that will appear on your screen. If you have joined the conference via telephone, slightly different – please press the star followed by the 9 on your telephone to queue for asking a question, and when you are being prompted to ask your question, please press the star followed by the 6 to unmute yourself.

We need – I see there's quite a big crowd that joined and we have the first hands up, so we need a little bit for the first question, but I see Michael Leuchten from UBS raised his hand, and I would ask Michael to ask his question first.

Michael Leuchten, UBS

Yeah, thank you very much, Oliver. So Liam, question to you – given we've seen the input prices go up and bringing farming income down a little bit, I guess it's reasonable to argue that we might see a shift in crop in North America next year, maybe away from corn towards soybean. Given the outline you've just given on corn being important for your performance going forward, does that

matter? Does it shift the timeline? Does it shift the strategy? Would you focus more on the XtendiMax focus and then maybe on corn a little bit later, or is it just normal seasonality and it doesn't make a big difference?

Liam Condon

Thanks a lot, Michael. I think a very topical question right now, but in actual fact it's really completely too early to call what the corn and soybean planting intentions are really going to be next year. It is very clear that input prices, whether it's fertiliser, crop protection, seed prices have gone up. Costs have gone up in the entire industry, so of course prices are going up, but I think what's really important to always reflect on is that most farmers have a fixed rotation between corn and soybeans, so they usually look at what they had in the past season and they want to rotate something else, just to keep the fertility of the soil as well. It's really important, where are they in their own rotation of the crop. Typically, corn is a very profitable crop and if you have, for example, increases in fertiliser prices, typically in the past we've also seen then increase in corn prices as well.

Those final planting decisions, they're not going to be taken until the spring and they also will depend a little bit on the overall weather situation. So right now we would classify this as rather not-normal seasonality and we don't see any big – right now we're not foreseeing any big shift between corn and soybeans. We do expect – we've had record acreage planted this year, if you take corn and soy together. We do expect, with where commodity prices are, that growers will be pushing for similar record acreage also next year. What it finally is will depend heavily on weather, but we don't see any – let's say any impetus now to have any change in strategy around this. We believe this has played out in the past and will play out in the future as well.

Michael Leuchten

Thank you.

Oliver Maier

Okay, great, thank you. I see the next question comes from Laerke Engkilde from J.P. Morgan. Laerke, please ask your question.

Laerke Engkilde, J.P. Morgan

Hi, everyone. Thanks for taking my question. Just two from my side. Firstly, it would be really great if you could tell us a little bit about the potential impact from the Louisiana plant having been offline for about six weeks or so, I believe. And secondly, maybe just following up on your commentary just now, I appreciate you can't give guidance but how should we think about the higher input costs for crop in terms of that impacting the gross margins in 2022 and beyond?

Liam Condon

Thanks a lot, Laerke. Just to give the context for those who also are not familiar with it, our main production site actually for glyphosate is in Louisiana, is Luling and it was actually in the eye of the storm of Hurricane Ida, and as is standard practice then when you have a hurricane of that kind of magnitude, we had to shut down the facility, basically all facilities in that area, and most of the south were actually shut down.

We were offline for approximately five weeks. The reason we were offline was less because the plant was heavily impacted; it was simply because the surrounding infrastructure was partially destroyed. There was no regular access to energy and water supplies were challenged, and, quite frankly, a lot of employees were very – basically had to look after their own families in the situation. I think our teams did a fantastic job in getting the plant back up and running as fast as possible, and as safely as possible, and that's been achieved, so we're now back fully on track, but we have lost five weeks of production, in essence. And this will of course involve some idle cost, it'll have some impact on sales, but nothing to any degree that would impact our full-year guidance for this year. That's just to give you a bit of context on the Louisiana plant and that overall Luling impact.

On the higher input prices and potential impact on margins going forward, of course we're only going to guide – typically we guide end of February – when we do our full-year reporting we would give guidance then for the full year in 2022. The whole industry is seeing higher input costs, but our strategy has always been to pass on inflation clearly into the market. This is the only way we can maintain a sustainable business, and we're confident in our ability to do that. So just from an overall margins point of view, I wouldn't see this impacting us negatively going forward, but we'll give you further colour on that when we give our guidance then for 2022.

Laerke Engkilde

Thank you.

Oliver Maier

Thank you, Liam. I see a lot of hands. The next one I see is from Sebastian Bray from Berenberg. Sebastian, please ask your question.

Sebastian Bray, Berenberg

Hello. Good afternoon, everybody, and thank you for the presentation and taking my questions. I would have two, please. The first is what the actual margin target for 2024 would be at the moment. If I were to imply spot FX and take out the ES business due for divestment, is the answer somewhere around 26% EBITDA? My second question is a little simpler. It's on short-stat corn. When would I, as an – if I were to pretend to be a US farmer, be able to buy this on a commercial basis? Have I interpreted the [inaudible] correctly in saying that the year is 2024? Thank you.

Liam Condon

Thanks. So on the margin in 2024, of course when we gave the original guidance this was at constant currency rates, so that was – what we've basically given out in March was on the constant currency basis, so that's still the 27-29% is what we're aiming for in 2024. And I wouldn't expect this to be negatively impacted by the divestment of the environmental science business, so overall that has an impact on the absolute sales and profitability that we have but shouldn't have on the relative profitability, on the margins, just to give a bit of context on that. And short-stature corn, Bob, do you want to take commercialisation? When will growers get that first in their hands in the US?

Bob Reiter

Yeah, sure. So what – first commercial sale will actually happen in ’23, but it’ll be with our Ground Breakers trial, so that’s a restricted launch with limitation on how many growers will have the opportunity to have a direct experience with short-stature corn, so full launch would be in ’24. That’s of course our first generation of the technology, so that is based on our approach that we use with traditional breeding. The biotech version will be launching later in the decade, and is really the one that I think opens up the full opportunity for us because that technology has certain attributes that favour us in terms of full deployment across our genetic base, and really will be the one that unlocks, I would say, the biggest part of the value proposition. But we’ll have a great opportunity with growers beginning in ’23 and beyond to really start to position the technology, build the system components for growers and get them to start to adapt the technology over the next years as we move toward the biotech version in the later part of the decade.

Sebastian Bray

Thank you very much.

Oliver Maier

Thank you so much, Liam and Bob. I see the next question from Vincent Andrews from Morgan Stanley.

Vincent Andrews, Morgan Stanley

Thank you and good morning, everyone. Just on short-stature corn, you talked about the opportunity for over-the-top nitrogen application, which I assume has a convenience orientation for the farmer that has value. You also talked about reducing actual nitrogen use. Could you talk about what sort of the order of the magnitude is of that in terms of the value proposition to the farmer? And then also I just – within that, I want to understand how much of that capability was coming from short-stature corn itself versus your Field View platform and the nitrogen application that you’ve had in place for a number of years.

Bob Reiter

Yeah, so, Vincent, we’re still working through, I would say, the magnitude of the benefits, particularly in the fertility space with short-stature corn, so that’s kind of the work that’s ongoing right now as we talk about how do we launch the product into a systems approach and really leverage the full advantages that we see the technology having. So I’d call that a work in progress. But I think clearly we see these management opportunities for the grower because of the improved access to the field and, I would argue, a continuing shift in terms of nitrogen application technology and how growers are looking at best optimising their fertility usage on the farm.

As it relates to the Field View platform and some of the work we did in the past with the nitrogen advisor, a lot of the learnings of course that we have there from a fertility perspective and how do you best optimise fertility utilisation one the farm, and the data access that we had in building that platform and the learnings we’ve gotten, they all feed into our approach in terms of what we’ll ultimately do with short-stature corn as well because they’re obviously corn – it’s still corn, and so a lot of the core features of what we learned there can apply to short-stature corn, but of course then there’s the optimisation because of the novelties of short-stature corn itself. So work in progress, but a lot of good learnings coming out of the field in this season and in the next ones coming.

Oliver Maier

Great. I see the next one is from Laurent Favre, Exane BNP. Laurent, please ask your question.

Laurent Favre, Exane BNP Paribas

Yes, good afternoon, good morning, all. I'd like to come back to the margin point for 2024. You expect 400, 500 basis point margin improvement over three years after three years of flat margins. I was wondering if you could remind us of the main building blocks for this margin improvement story. In particular, how do – well, should we expect the ratio of R&D to sales to come down? Can you maybe give us a final update on the merger/synergy cost savings? Have you achieved now all of them or do you have more into 2022? What else can drive such a sharp margin improvement over just three years?

Liam Condon

Yeah, sure. Thanks, Laurent. Let me briefly recap the major points of that margin improvement. You can kind of put it into I'd say two categories. One is cost and efficiencies, which is roughly half of the incremental margin gain, and the other half is, in essence, pricing related to innovation but also simply related to the overall market environment.

So from our side, we have no intent on changing the overall R&D investment level or adapting further somehow reducing it significantly in any way. We think the whole innovation engine is ultimately what allows us to achieve premium pricing in the market, and we are the – we do have premium prices across the board, whether it's corn, whether it's soybean, whether it's crop protection, because we simply have the highest yielding and best products in the market.

So we've typically been at an R&D ratio to sales of about 10%. This, of course, can fluctuate a little bit depending on what's happening with sales, but we're rather looking at the absolute spend that's behind that. So, for example, if sales jump up by 20%, R&D doesn't necessarily need to jump up by 20%. But if sales were to drop, god forgive, by 20%, we wouldn't expect R&D to drop in any single year by 20%, because these are all long-term projects. It takes us 10 years to get something through the pipeline typically, so we have to take a long-term view on this.

That's why, in essence, we keep that relatively stable, our absolute investment, in R&D, and it'll work out at ballpark 10%, is that ratio. From a synergies point of view, in essence by the end of this year we'll have achieved our originally targeted integration synergies, which was in the region of €870 million, and we have already started a second efficiency programme which is, in essence, the next layer now, and this really kicks in from 2022 to 2024, and this is what will be helping us achieve then – on top of the integration synergies, what will be helping us achieve further efficiencies on top of the premium pricing that we're already seeing we can take this year. Particularly we see it in the second half of the year, and you'll see that going into 2022 as well.

And of course, the thing – I think the important thing to note is here once – it's difficult to increase prices in a low-commodity price environment. When commodity prices improve there is, then, of course a much better environment for increasing prices and those increased prices tend to stick. So I think you'll start to see that now showing up in the latter part of the year, and for sure you'll see that in '22, and that carries forward. The combination of that plus the efficiencies is what gives us confidence in the overall margin going forward. I hope that helps put it into perspective, Laurent.

Laurent Favre

Sure, thank you. And then if I can have a follow-up, I don't think you've mentioned at all cotton. I know it's a small crop. It's also a crop where prices have increased quite substantially over the last few weeks and months. I was wondering if you could give us a short update on, I guess, the pipeline there in terms of innovation as well.

Liam Condon

Yeah, sure. So cotton, let me just briefly say, and Bob will take it over to talk about the pipeline, acres were down. Acres went down from about 12 million in the US to about 11 million. Despite the decrease in acres, we were able to actually increase, and significantly increase our already-high market share, and that's actually due to the innovation that we have in the pipeline, but, Bob, you can maybe talk about what's driving market share today and what's to come.

Bob Reiter

Yeah, so we have excellent genetic performance in cotton. As the data's rolling in, and we're looking at that data for harvest in '21, we're very – we feel very good about the performance of our genetics and continue to see an opportunity there as far as our total performance. Then the other big exciting piece is we'll be launching next year – we had Ground Breakers this year with our ThryvOn technology. So this is our brand-new technology against a new class of insects, so again sucking, piercing insects, primarily lygus and thrips. This is a brand-new technology and a great complement to our existing insect protection and weed control systems that we have in place in cotton. So it puts us in a terrific leading position in terms of the total package that we'll have offering to growers for the '22 growing season, so we've got good momentum just in our core business there, and then when you put it together with an exciting new launch of technology for cotton I think we feel pretty good about our prospects over the next years as we grow the opportunity with ThryvOn and our core business in cotton.

Laurent Favre

Thank you.

Oliver

Thank you, Bob. I think the next question I see comes from Joel Jackson from BMO. Joel, you're next.

Joel Jackson, BMO

Hi, do you hear me?

Oliver Maier

Yeah.

Joel Jackson

Great. Thank you very much. Thanks for taking the question. Looking at Field View, you gave us some good information today and some of the value add you're getting from customers that are part of the PRO. What I want to know is where are we now? We're a decade into after Monsanto bought this technology. You and – Monsanto and Bayer put quite a lot of money into this now, and you've developed a lot of new application functionalities. What is the ROI right now on this set of tools [inaudible] providing superior tools you can help sell more products and services, or is this going to be more like what you're showing in your slides where you'll be able to show you're selling x more seed, and a higher brand of seed and more – and a better suite of crop categories?

Liam Condon

Okay, Joel, I think I got it. I'm not 100% sure, but I think I got it. I think you're kind of asking me about the core business model, where's the value creation in the digital platform, and for sure there's been a lot of learnings, as I say, over the past years. Monsanto started in this very early. After the acquisition from Bayer we actually accelerated further, and the original value proposition and thinking was that probably a purely subscription-based platform could be highly lucrative. I have to say very honestly that never really played out from a value creation point of view. Farmers love the technology, but just by creating transparency about what's happening on the farm there was never enough to justify any kind of a significant premium, so we have actually been adapting the overall business model further and we've done a lot of testing over the years. And what we've seen where we can create the most value is, in essence, two, three spaces.

Number one is when we can get Field View on a farm we can show the grower, with complete 100% transparency without any sales reps in between, show them the difference in performance between different products. And if you have the most innovative portfolio, you can show the additional benefit of that, and inevitably that is leading to higher sales of our own seeds and crop protection products. Part one of the value equation is actually we can sell more of our own portfolio by creating more transparency on the farm and helping the farmer take smarter or more real-time decisions that are ultimately increasing their yield and increasing their sustainability footprint. That's now something that we have basically learned over the – just the very recent years, that this is actually where the bigger – probably the bigger value – initial value for us is, as opposed to just trying to get a subscription for a certain service that we're providing.

The second area where we see tremendous potential is basically giving us access to entirely new business models, and here I think that carbon farming is the best example because, in essence, this is – it's something that is really only possible with a strong digital platform. If you have to track manually that a farmer is using the right practices to sequester carbon in a verifiable manner, it's prohibitively expensive. It's completely impossible. If you have a digital system that can do this in a very easy-to-use manner for a grower – in essence they just need to do the right practices but don't need to keep documentation because the system keeps documentation – and ideally connect them to a carbon emissions trading platform and ensure a flow of income back to the farmer, all of that is only going to be possible with a very strong digital ag platform, and that's why we're so intent here in investing heavily in this space, to also help create this new market of which we want to take, then, at least in agriculture, the lion's share.

A third value stream is ultimately going to be – we have a partnership model. We have over 70 partner companies, and depending on services provided to the grower, we can also take a portion of the value that we help create on the farm. That's the part of the model that I would say is probably least developed today, but the potential is there.

So our main goal right now is to increase penetration, market access, as in any digital platform model, to work on the three different legs of value creation and over time we would expect to be then putting, let's say, very clear numbers from an ROI point of view in how this is translating into value. But we're so convinced that this is actually going to drive the future of ag that we do put in a significant upfront investment, but we are starting to see it play through now already in our sales today, and one of our underlying hypotheses is the fact – or the assumption that we can grow above market from a sales point of view is also based on the fact that we'll have – or have the leading digital ag platform that will help us power those sales.

So that's just to give you a bit of flavour of how we think about it today and how that has changed over time, because it has actually changed significantly from what the original value hypothesis was.

Joel Jackson

That was a great answer. Thank you very much, Liam.

Oliver Maier

Yeah, thank you, Liam. I have the next question from Alexander Darwall from Devon. Alexander, you're next.

Alexander Darwall, Devon

Hi. Thank you very much. The R&D pipeline looks terrific, thank you. 2021 was a very good market environment, as you said. I find your guidance of EBITDA margin for this year very disappointing indeed, and I just wondered if you felt that it's an inevitability of the business model that it would always be slow, or are there any lessons to learn? I have to tell you, I'm very disappointed with what's happened. If a good market's actually bad for your margins, then what's going to happen in a bad market? This is the time to do well. So is it just absolutely inevitable or could you learn anything?

Liam Condon

Thanks a lot, Alexander. I think it's a completely fair challenge. I think what's underestimated in our business is there's a significant time lag between cost increase going up and price catching up or, ideally, passing out what those cost increases are. So to give the concrete example, on the seed pricing side we basically price once a year because you only sell the product once a year. If you miss the start of the uplift in the commodity prices then you've missed 12 months of pricing opportunity. On the crop protection side, we have very significant cogs, like material cost increases, freight cost increases, and it takes a while for this to pass through into pricing in the market. You have pretty long supply chains here.

But what I can tell you very clearly is you should expect to start seeing some of that already, the pricing – the positive pricing uplift already in the latter half of this year and clearly going into '22, and basically carrying forward then to '24. So I do not in any way see this as the new normal or somehow an inevitable consequence of the business model. There's simply a lag effect, and you don't have to wait until 2022 to actually see that the pricing will be kicking in, but I think we can give you more flavour on that when we have the third quarter results update on 9 November.

Oliver Maier

Great. Thank you, Liam. I think that answers Alexander's question. I'm very conscious to time. We have maybe time for maybe a couple more questions, and I see the next one from Dominic. Dominic Lunn from Credit Suisse. Dominic you are next.

Dominic Lunn, Credit Suisse

Many thanks. My question is on Europe and your latest thoughts on expanding in Europe with regards to shifting views on the use of GM or CRISPR. Recently, we saw the UK ease its restrictions on doing R&D with gene-edited crops, so just your latest thoughts on the evolving European attitudes in this space.

Liam Condon

Bob, do you want to take it? From a regulatory point of view, I think we're enthused by what's happening in Europe but we have to acknowledge as well that things tend to move a bit slowly in Europe as well. But Bob, maybe you give a bit a flavour around that.

Bob Reiter

Or maybe not always with full predictability, Liam. I guess that's the way I think about it. No, no doubt, GM crops, in the core of Europe, we don't really see the likelihood that we're going to see any foundational change for cultivation of GM crops in Europe, even though I would agree with Liam that the general tonality of wanting to use technology to help agriculture in Europe is improving. So the hot topic continues to be around gene editing. Certainly with the UK I would say going independent the UK is taking, I would say, a faster view on change and looking again at how they want to benefit their agricultural production systems and continue to make it competitive. I think it'll be – we'll see this consistently, I think, where the UK probably will be a leader in the European framework around regulatory and the adoption of new technology for their growers, and I think that's across the board, not just with gene editing and with GMO approval and other things, but also even in the space of crop protection, and that's good because it can have a positive influence on what will ultimately happen in Europe as well.

It's moving. I would say still we're far from having a place where we know where we'll land fully with gene editing technology and what it'll mean for growers, but there is good positive momentum. I think there's a recognition at the end of the day that if you're going to achieve some of the goals around climate change sustainability and agriculture that innovation is core to that, so given that those are some fairly foundational topics in terms of sustainability, biodiversity and climate change for Europe, it is an environment where we have some optimism that things will ultimately open up and prove to be an opportunity for us, but we'll see. Still a ways to go on this.

Dominic

Great, thank you.

Oliver Maier

Great. Thank you, both. Thank you, Liam. I don't see any hands raised anymore. I personally conclude the meeting today with a question because, Liam and Bob, we found in the preparation of

the webinar a lot of people always ask what our lead time is on competition with respect to short-stature corn. Anything you could indicate there in terms of lead time on competition? That would be a question that we've heard a couple of times.

Liam Condon

Bob will give you the technical answer but I'd say if your competition's not talking about something they're probably not very far.

Bob Reiter

Yeah, I would've started there as well, Liam. I think the fact that we don't hear any of our – I'll call it core competition really talking about it yet gives us a bit of an indication of where they stand with the technology. We certainly feel that we're significantly ahead with the biotechnology version of – and the gene editing version of the technologies. We can see that with IP filings and regulatory work that's going on. So we know that we've got a significant lead there, and that's important because we still think that's really the one that helps to unlock the big opportunity that we see in front of us for certainly the Americas and then obviously with gene editing and just going back to the earlier question, I have some optimism that I'd like to see gene edited short-stature corn being cultivated in Europe some day, so let's hope we get there both technically as well as from an acceptance perspective as well.

But yeah, we feel pretty good about our lead, and we feel pretty good about our overall approach because, again, it's not just a trait. It's about a whole different way of a grower to thinking about how to produce corn. I think it's also, for us, really a sentinel[?] opportunity to kind of move to where we're going to go as a business, in terms of not just selling products but selling outcomes to growers.

Oliver Maier

Great, thank you, Bob. Great answer. I think that's some flavour.

Closing Remarks

Oliver Maier

With that, I think that concludes our programme for today. I would like to thank all of you for your participation. We hope you enjoyed this event and would appreciate your feedback on the format. Stay tuned for an invitation to our next upcoming webinar, as I indicated, where we like to feature I think finerenone, Kerendia, our late-stage pharma asset for the treatment of chronic kidney disease type 2 diabetes. In addition, we look forward to speaking to you, as Liam indicated to you, again on our 9 November Q3 disclosure for the quarter and the financial results call there. And until then, I'd like to thank you for your continued interest and stay safe. Thank you so much.

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