

Bayer AG Capital Markets Day

Crop Science Sessions

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Excellence in Commercial Integration and Execution

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Good afternoon. I'm Brett Begemann, Chief Operating Officer and Head of Commercial Operations for the Crop Science Division of Bayer. It is a pleasure to be here with you this afternoon for an in-depth commercial review of our newly combined business.

Our aspiration is to take agriculture to the next level. With the broadest technology platform and our talented teams around the globe, we will deliver more innovation faster to the field for the benefit of our customers, consumers and the planet.

As you heard from Liam this morning, delivering more value to our customers and partners, along with operational excellence and synergy benefits, will translate to above market growth expectations for our business.

This begins with the annual refresh of our seed footprint around the globe, as our breeding program turns out hundreds of new higher-performing hybrids and varieties each year. And then expands with new trait upgrades, particularly in soybeans, where the XtendFlex trait technology is awaiting final regulatory approvals for expected launch in the U.S. in 2020 and the Intacta 2 Xtend trait awaits approvals for expected launch in Brazil in 2021. Finally, we have an opportunity to expand our crop protection footprint on our newly acquired 400 million acre seed-and-trait footprint.

Let's take a deeper look at our corn seed and trait portfolio where we have the number one overall global position. This leading share position reflects the success we have had with the multi-channel approach that has been in place for many years. Essentially, we are meeting customers where they want to purchase seed and with the trusted brands and performance they are seeking. It also considers the germplasm licensing approach we have had – particularly in the U.S. – where smaller seed companies can benefit from in-licensing parent lines into their programs to expand choice for customers. We also have the industry's largest biotech trait footprint in corn, reaching 110 million acres this past year through our own germplasm footprint, as well as through this industry-wide licensing agreements we have in place.

Some of our leading customers of our biotech traits are also our leading competitors in the ag input space and we look forward to continuing to serve the industry with traits like next generation of rootworm control, expected in our SmartStax PRO corn offering. This trait technology is designed

to offer growers a unique RNAi approach to manage insect resistance and expand control. We also have new herbicide tolerance traits in corn waiting in the pipeline.

Additionally, we have a robust breeding pipeline to support significant annual germplasm updates, new technology launches and digital ag solutions that will enhance our leadership in the years to come and build from our roughly five billion Euro annual sales base in corn seeds and traits.

We expect to launch approximately 200 premium-priced hybrids annually and drive genetic share gains to build on our leading position based on the yield advantages our hybrids convey. These new technologies, along with our seed growth and digital ag solutions will drive further potential upgrade and licensing opportunities to drive sales growth.

One of the leading drivers of growth in our corn seed and trait business will come from the annual introduction of hundreds of new hybrids annually. Plant varieties and hybrids can always be improved. They can be bred to yield more, better resist pests and diseases, survive shipping better, or simply taste better. And our considerable investment in diverse germplasm libraries and innovation leadership in advanced breeding tools are foundational elements to enabling our plant breeders to meet grower needs and deliver top-performing products year-in and year-out.

We take that difference in value and yield that those new hybrids are bringing into the marketplace, look at the commodity price, look at the economic conditions for the farmer. That's the annual price improvement that we get across the portfolio that lifts the whole portfolio. So it isn't about taking every seed in your portfolio up every year. It is about those new genetics that are coming in, plus minus 20% of the portfolio, that you're pricing that based on the new yield potential that those genetics have.

It is important to understand that I've used corn as the example, but we're doing that in soybeans on an annual basis, we're doing that on cotton, we're doing that in our vegetable business as well, so across the whole front we're bringing that forward. Yield is the big driver on soybeans and corn, and when you look at vegetables there's a whole lot more things we're looking at there with durability for shipping, and taste, and health qualities. So they are different, but it is still driven from a breeding programme bringing those new superior genetics into the marketplace.

We go to market a lot of different ways, because our customers are no different than I would say most consumers. We have consumers and we have farmers that would like to buy different ways. I like to think about it in the context that we like to sell inputs to a farmer the way the farmer wants to buy inputs from us. Some farmers, all they care about is driving absolute yield, getting the very best return – that is all they are focused on. We have approaches for them in the marketplace. There are other farmers that place a real emphasis on having someone with them day-by-day, side-by-side, helping them manage the crop from an agronomic standpoint throughout the year. We have brands and seed that go to market in that way, as well as some of the crop protection.

You also have those that are more relationship-oriented. They like buying from somebody local, somebody that they've known for a long time, somebody in many cases that farms in their neighbourhood. In that case, we have regional brands that we market through and take the products to market through them. Then, of course, and essentially in every market there is a group of customers that really, really – at the end of the day – what they really want is price, and they don't necessarily value a lot of those other things. So we have approaches to market that we can address those as well.

So they end up being different, but they co-exist in the marketplace together, and, of course, some farmers buy across multiple parts of that channel, that is understood, but we take it to the market the way the farmer wants us to bring it to the market, and that is something we are constantly

engaged with our customers, asking them those questions, and making sure that we stay up to date with them on those different ways.

If you think about the crop protection portfolio it is not a lot different. It shows us very much the same way, going to market different ways. There is a lot of overlaps between the distribution for seed and the distribution for crop protection, particularly in the first two categories where farmers like a full stop shop service, and that kind of thing, and we are very much in tune with those needs and positioning our products that way.

If we jump to soybeans, which has been and will continue to be in my opinion a really exciting area, because there is a lot going on in soybeans. The worldwide demand continues to grow, nearly 600 million bushels of demand increase every year that we have to figure out a way to increase the productivity to meet that, and, of course, bringing new varieties into the market that yield more, which we are in a really good position to do. It is also important to protect the fundamental yield potential of those seeds when we plant them, namely from insects and from disease, and weeds that are competing for nutrients from that crop.

And in soybeans the last couple of years have been super exciting, I recognise faces in this room that know I have been at it a while, and this last couple of years was so exciting, because I have never seen us introduce a new technology system that went on 25 million acres in the first year. That spoke volumes to me about farmers and the problem they needed to address, and it was weed control with difficult weeds, and they jumped on the Xtend system in soybeans and in cotton and we had a great year. We had some challenges, no question about that, I'm not hiding behind that, we had some challenges, we worked through those challenges. We did an enormous amount of training. We, of course, worked with the EPA on the label. That label had been extended as of early November for another couple of years, with some -- I would call them minor ---- changes to address some things in the marketplace, so we are set to go.

In the second year, from 25 million, even with those challenges, we went to 50 million acres. Those are just unheard of numbers, and unheard of penetration in a couple of years. I will tell you that platform will grow significantly again this coming year. There is no doubt in my mind based on talking to farmers and one of the things they are most excited about is the yield potential that they are getting from the genetics and that they are getting in the Xtend system, which as we continue to bring new genetics that system is working incredibly well in the marketplace. I am super excited about that, and the genetic potential of those.

I already, I should have advanced my slide, I was just talking about the Xtend system, but what is really cool in this business is you get all excited about Xtend soybeans and they are doing a great job. And they are penetrating the market really, really fast, but this year in '19 we are already going to start doing Ground Breakers, which is really just some early regulated trials that we grow with farmers in their own fields for the XtendFlex system. The XtendFlex system goes from two herbicide actions, or modes of action, to three.

So we'll have glyphosate, we'll have dicamba, and we'll have glufosinate. The farmer will have three choices from the herbicide system, and that's already going to be tested in the marketplace in '19 with an expected launch in '20, based on regulatory approval. Part of the reason I get so excited about it is that's the product we introduced two years ago in cotton, and a lot of those cotton farmers also grow soybeans, and they're really excited with that XtendFlex program and the options that that gives them to control weeds and in particular some of the more difficult to control weeds.

So it's a really exciting time when you think about North America and you think about soybeans. We had a great genetic position with new traits coming into the marketplace doing incredibly well.

Jump to South America and the difference in South America is they were predominantly after insects. Of course, they've got to control weeds, but insects are a much bigger problem. It's a tropical market, the bugs never go dormant, they are out there basically 12 months of the year, so the entire time the crop is growing, the soybeans are fighting off pests. We introduced a number of years ago down there a product called Intacta, which was insect control in soybeans. It has done incredibly well. It was on over 60 million acres this past year in South America. It could have been more if we had more confidence in the Argentine value capture approach, so we slowed that down a bit, but that growth is phenomenal and Intacta is doing incredibly well.

Just like what we were talking about in North America, the Xtend programme we have already introduced, we will be introducing the Xtend programme in South America as well, so to bring another mode of action for weed control. It is going to bring two more proteins in for insect control, so we will be adding durability to our insect control platform, because, as you may know, those insects start as soon as you put it out there trying to figure out a way to get around it, like they've done for 40 years with the crop protection materials and everything else. So we've got to stay ahead of that, and Intacta 2 Xtend is going to be a real nice opportunity to step that up.

So we'll be doing those Ground Breakers as well, and we're expecting 2021 for that Intacta 2 Xtend to be introduced in Brazil, but just a great, great opportunity with the soybean business and the growth that we're seeing in our soybean business.

I'm going to shift now and talk a bit about the herbicides, insecticides, fungicides, and I want to talk about them in context of that seed footprint that I just talked about and how we're going to bring these portfolios together and the significant opportunity we have to increase the growth with our farmer customers and helping them control bugs, weeds, disease, and of course the genetics to get the growth. If you look at the herbicides, for example, the significance of the seed footprint here that I've laid out on the chart is to remind you of our position of seed in those key markets. So if you're looking at corn in North America, in South America we have an incredible position in seed, which gives us a really strong position to be talking to the farmer about the herbicide system that they plan to use, and the suite of herbicides that we have available to us now with the best crop protection portfolio in the market.

If you jump to soybeans and, again, thinking about Latin America with the strong position that we have in with soybeans, we have the opportunity there as well to talk to the farmers about the rest of the herbicide suite that comes along with it. So a tremendous opportunity to talk about that, and— I don't think farmers are all that different than most consumers. When you start out helping them grow a crop and you build a trusting relationship with them, and they trust you in the work that you're doing with them and helping them make better decisions, and you're bringing digital tools that are giving them true transparency of how your products work versus everybody else's, and you're actually the one giving them the tool to find the transparency, there is a propensity to continue to do business with you. And if we have products that fit on those acres, they're inclined to work with us, and use those products, and I have no doubt we will be able to see a pickup on those crop protection materials being used over that 400 million acre seed and trait footprint that Liam was talking about earlier this morning.

One of the most important foundational products in weed control is glyphosate. I use the example if you think about Canola in Canada, all the way through corn, soybean, cotton country, all the way down to Southern Argentina, somewhere between approximately 70% and 98% of all those crops are Roundup Ready crops, and glyphosate is used in nearly every one of those crops. And the reasons that farmers use it is it is because, it is very cost-effective, it is environmentally benign, it has no soil activity, it has no residual, no threat to groundwater, but just as importantly it allows them to do things they weren't able to do before around conservation tillage. They can do no till,

they can use reduced till, they don't have to plough the ground to control weeds, which released carbon every time they till the soil, it is another trip through the field, it is more use of fuel, etc. Glyphosate is what allows them to do that, so you reduce the trips across the field, you reduce the carbon release from tilling the soil, you hold more of the soil in place, so you minimise soil erosion from water, because you're leaving all that residue on the surface. It's a tremendously powerful programme that they use across all those acres and that's what drives that acre base.

That's true in many other markets in the world, not only in those areas where you can use Roundup Ready systems. It is true in Europe, it is true in Asia as well, and that is why the product has such a big footprint around the world, and it is an incredibly important one. It has its holes just like everything else does, and that's because of the difficult to control weeds. With the expansion of the herbicide systems, this is giving farmers another opportunity to control that.

I want to jump quickly to fungicides. We have a tremendous position in the fungicide market when you look across the various crops whether it be horticulture, which is by far the biggest market for fungicides. We have a great position in the horticultural market, both with our seed footprint that comes along with that, and the portfolio of crop protection fungicides that we have. So tremendous opportunity, again, to weave those solutions together for the farmer in a more tailored way around the operation that they have.

The same is true with soybeans. In South America, many of us heard of the Asian rust, which became a really big problem. A number of years ago, but even before that, farmers were fighting disease, the reason that one was so big is there weren't very good controls. Liam mentioned this morning FoxPro, another fungicide we are introducing in Brazil. It is going to be fantastic on that, bringing that together with the Intacta platform that I already talked about earlier on the seed side, a tremendous combination to bring those together to help the farmer. And, of course, in the cereals market where we don't have a [significant] seed footprint, a big market for fungicides where we are already extremely well positioned as a company and we will continue to leverage that, and in the case of cereals where we have a strong fungicide opportunity we will use that to bring the rest of the portfolio together on cereals, whether it be insecticides or Roundup in the stubble market and those kinds of things. So a tremendous, tremendous opportunity to bring those together.

The same is true with insecticides. So, again, insecticides you think of soybeans you think of South America where they have tremendous insect pressure. Intacta does a great job, but it doesn't get everything. We have insect control in corn in South America, but it doesn't get everything, so the farmers have to come back with selective use of insecticides to control the remaining insects and, again, we're already on the farm. We're there with our seed. We're there with our traits. In many cases we're there with our herbicide, or the herbicide system, the fungicide. It's just a way to bring that tailored solution all the way back to the farmer from our overall portfolio, and in the case you'll hear later when you talk with the digital team of being able to do that in real time as we're tracking across the field what's needed in real time in the marketplace. And, again, leveraging that big seed footprint to help bring more of that chemistry on to those acres to move us forward.

Our seed growth area is an area that was impacted by some of the divestitures, but I couldn't be more excited about this new one with NemaStrike. Nematodes are kind of the hidden pest, because they're underground. It's easy to see when a plant has a disease or has an insect chewing on it or something like that, or weeds in the field. It's really hard to see underground and see these microscopic worms chewing away on the roots, and that's nematodes, and that is what NemaStrike is going to be targeted to go after, and it works in soybeans, corn and cotton. We have had five years of results now and we're seeing some pretty phenomenal yield results coming from NemaStrike in the marketplace. A tremendous amount of interest from the farmer level this year, as we're taking it commercial this year from across all the crops, a lot of interest in having

NemaStrike added to the seed. It is a seed coating, so it would be put on the seed before the farmer is buying product.

A little more detail on NemaStrike, just to give you a perspective of how it works, if you think about these roots underground that nobody can see – this is just some roots from corn – looking at NemaStrike treated versus a non-treated plant, and at the end of the day you can see that there's a substantial increase in root mass on the ones that are treated with NemaStrike. And keep in mind that other than sunlight, all the other nutrients that a plant gets comes through those roots, whether it be the water, whether it be the fertility, whether it be other nutrients, the support structure to hold the plant up, etc. That's all the roots and they're all underground, so a significant change, and this data actually came from a really cool test that we have farmers doing now with FieldView, which is super-cool, because they can do this on fungicides, they can do this on insecticides, they can do this on nematicides, they can do it on everything. Put these strips through the field, it's all geospatial, and then they come through at harvest time and they can see exactly the difference, where I had these and where I didn't have these. It's the farmers doing their own trials basically, so every farmer's field becomes a test plot, which is the ultimate transparency, which doesn't scare you at all when you have the best portfolio. It might make you a little nervous when you don't have the best portfolio, that transparency can be a bit scary, but in our case, we're very confident in our products and how they're going to perform and this is a great example of where we've used FieldView to help the farmer identify the value of NemaStrike that they're using in their field.

So, at the end of the day, it's a tremendous opportunity to bring these two world class portfolios together and create real value for farmers, consumers and to protect our planet. I can't imagine any better combination of products coming together in portfolios and to make this happen. We're confident that we're going to grow - with the market somewhere around three percent, and we're planning to grow at four. If there's more opportunity, we'll take it. As it was said this morning, we didn't try to guess about when the down cycle ends in agriculture. If it does and there's more opportunity there, then nobody is better positioned than we are to take advantage of that opportunity if it presents itself, but at the same time we are mindful of the challenging position that our farmer customers find themselves in today.

We're super-excited about the opportunity to take this forward with a great suite of products. As I mentioned in the previous session, keep in mind that in '19 we're doing what legacy Monsanto planned to do on seed, and legacy Bayer had planned to do on chemistry, because we've only been together three and a half months, and we had to launch those plans before we were actually able to come together and talk about it. But we're building 2020 plans right now, so I've got my team in place. I've got the top couple of layers already done, they're getting along fantastic. They're having a great time – these were complementary portfolios, so they didn't have to get over the competitive nature of each other, they just got to get in a room and work with an incredible portfolio to start creating more value for our farmer customers, and they couldn't be more excited about doing that, and I couldn't be more excited about having the opportunity to lead that team to make it happen. So with that, we'll go to questions and go anywhere that you'd like to go.

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