

BASF Roundtable Agricultural Solutions

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Transcript Q&A session by topic



Q&A Session I: Introduction and BASF Crop Protection

Questions on BASF Group

Norbert Barth (WestLB): If I could ask perhaps the first question not related to the Agro business, but to the overall situation.

The markets, at least the capital markets, are playing a rather deep slowdown to come. Mr. Marcinowski, can you give us a little bit of an indication now that July has ended how this in overall qualitative terms has been, and especially if you see already some order patterns from clients which are showing a little bit signs of what has been going on, especially also perhaps on the inventory level?

For example, Mr. Bock also has mentioned in the last conference call that e.g. in China they are expecting some price declines and people then stopped ordering a little bit. Does that spread out overall? Can you elaborate a little bit on the situation?

Dr. Stefan Marcinowski: It is actually not a real surprise that this is the first question. Of course it's of interest to all of us.

As I said, today, we really reconfirm our guidance for the company. There is no reason to walk away from that. July in total showed higher order entries than July 2010. The overall situation indeed is rather different in the financial market than eleven days ago when we had our conference call. But we don't see any impact at that moment on our operational business side.

Of course, everyone is alert in the company. Of course, no-one has put things on automated or remote control, but we are very close now to find out with our market intelligence what's going on in the individual businesses. But we have no new information that anything has changed from our perspective as we have seen today.

What a reaction at this moment of course is: You have a real strict cost control. I believe that all that is too early to say: Will that financial market turmoil have an impact on GDP expectations? Will it have a major impact on the energy prices? At that moment, oil is bouncing around \$110 per barrel on the Brent level which still seems to be rather close to what we are working with.

We don't see at that moment, of course, a general upside trend, but of course we will have to follow now in the next months, in the next weeks very carefully what's really happening.

You have mentioned China. There is also not anything new from that side. China has had a certain destocking impact which, I would say, is not out of any normal reaction. We, of course, had also a very close look internally, within BASF, to make a very active current asset management in all kinds of regions and in all kinds of businesses.

But sorry for not having now any other ideas. Or maybe I don't have to say sorry. It's good that we don't have breaking news in terms of seeing now a real spill-over from the nervousity we see in the financial markets to the business environment. But we will be very close to that. And if there is anything new, which is then also worth to be told, of course we will do so. But at that moment we really stick to what we have said, i.e. our guidance for 2011 is: significantly higher sales and significantly higher EBIT before special items excluding the non-compensable oil taxes – which I think is the clear EBIT. We have talked about that eleven days ago in length.

Krim Delko (Orange Capital): This question is probably more for the Group, but maybe you can also talk about crop protection. It's about the supply chain which has been pretty tight, let's say, a few months ago. In the good times, that was one of the concerns: Yeah, you grow, but you might have issues with commodity, input cost and you might not be able to actually push everything down to the customer.

Has that improved a little bit recently, maybe in trying to put a bit of a positive spin on this whole turmoil? Would you say, from that perspective at least, you are a bit more comfortable with your margins or is it the same across the business as a few months ago?

Dr. Stefan Marcinowski: I think after the quick pickup of the economy there was of course in some areas a tremendous shortage of some products like in the pigments or in other major products for the coatings industry. That has pretty nicely levelled off. So I think there is a more, I would say, balanced situation in the supply. Nevertheless, we have seen in some areas still an above-the-average price increase. Just to take one: Titanium dioxide e.g. went through the roof. There we have to catch up of course with our price strategy to keep our margins in balance.

But in general terms, of course, there are some shortages now within BASF's portfolio, e.g. BDO, where we had an outage, where we had to declare force majeure because of a fire in a precursor plant. But these, I would say, are normal things that happen from time to time if there is unexpected outage in our plants.

Some products continue to be tighter than others, but I would say, the situation we have experienced some 18 months ago has come to a, I would say, less tense situation.

That's, I would say, the overall picture. On the other side, when it comes to engineering services that we are looking for or mechanical equipment, that might still be something where you have to line up and wait until you are served. That is something we have seen of course now also with the slowdown during the crisis and with the quick pickup afterwards: Capacity need was very obvious.

Questions on Crop Protection strategy

Jenny Barker (Nomura): You mentioned that Strategy 2020 was developed within the last twelve months and you talked about some reorientation of your people out there. What was it that stimulated in your mind the need for this reorientation of your strategy?

Markus Heldt: I would say the main driver is obviously competitive changes in the market place, a strong belief that a stronger farmer and grower orientation is really needed to drive your own destiny and the need really to shake up here and there the organization as well to take care of farmer needs, changing competitive environment, but also portfolio changes we have to make sure we capture maximum value of our current and future pipeline.

William R. Cross (Eaton Vance): If I am doing the algebra correctly, on the top of page 17 of Markus' presentation, you are guiding to a 2015 Agricultural Solutions' sales level of perhaps about 5 billion euros or maybe a bit more. I was never good in maths, so the algebra could be incorrect.

But maybe you could also talk about what might make that longer term sales outlook. One might hope for more and it would be helpful to understand the contributions of volume and price and mix, particularly since you make an excellent case for better growth prospects given the significant R&D investments and the growth outlook for the markets.

Markus Heldt: Without challenging now on your maths, I think your 2015 math of 5 point something and a bit more is not off our plan.

So clearly that's what we have in mind as a next target. That growth will be driven by innovation, but we also have certain challenges in our portfolio which we have to balance against innovative new solutions. The challenges are coming from post-patent generic situations with regard to Fipronil and also regarding imis (imidazolinones).

So we are looking for profitable growth, mainly R&D and life-cycle management driven growth, but there are also a couple of challenges on the road that will have an adverse impact on our business development. That is basically perhaps here and there slowing down our growth instead of just taking the 2010 line and extrapolating this for the next five years.

William R. Cross (Eaton Vance): So what are you thinking about in terms of price contributions to support this?

Markus Heldt: As of today, our target is to grow 1 to 2 percent more than the market for the next ten years. That's our target in the 2020 strategy.

I have to say, if you look at the portfolio and the mix between volume and price, again you have to reconsider generic impact because that has to be figured in instead of just assuming pricing for everything will remain stable for the next five years. That is clearly not the case.

Now it's not like that. It might be like that, depending on the portfolio, depending on the crop and the competitive situation. But we are definitely not interested in maximizing volume and losing track of profitability. That's not part of our model.

Andreas Heine (UniCredit): One question regarding your Asian strategy: Basically, Asia is very much coupled with the success of insecticides. You have very much stressed the fungicides and herbicides, not so much the insecticides in your speech.

So how are the new products Chlorfenapyr and Metaflumizone growing? In the pipeline you have one insecticide. Will that be a star like we know it from Rynaxypyr from Dupont or how can you achieve this Asian strategy with the lack of insecticides?

Markus Heldt: You are touching on a weak spot, Andreas, unfortunately. Our existing insecticides in Asia are growing, but they are not going to change the needle of our business in Asia.

If you look at our fungicides and herbicides in Asia, take F500: We launched F500 in India, in China, in Indonesia for this Plant Health application in soybeans, in corn with very good results. So there is a focus on fungicides and herbicides in broad acre crops, but also with regard to differentiated offers for speciality crops, for fruit and vegetables in the Asian market. So also in Asia the growth, the 1 billion euros we have targeted will come from herbicides and fungicides.

As Stefan has mentioned, we have a global deal with a Japanese company, Meiji. That insecticide we expect to introduce in 2015/16. That will help to address the gaps in insecticides, especially in fruit and vegetables, but it will be a small product compared to Rynaxypyr, to put things into perspective.

Dr. Stefan Marcinowski: Andreas, just a complement because maybe Markus is too polite to tell this. Jenny asked about the 2020 strategy. I think a major philosophical change in the mindset of our regional teams was that: not dreaming of molecules that one day might show

up or that one day might fill the gap, but focussing on what we have in our portfolio and ask ourselves how we can leverage on this portfolio on a global basis.

People have been very, very creative. For example, one of those outcomes was the Samruddhi project. It's training, it's downsizing the packages, so that the individual farmer can handle that as a toolbox. This is a tremendous success. I believe that that was a real game changer in the overall philosophy.

You never have the perfect portfolio, never ever. So the real thing is: What can you do with the existing chemistry? Where do you have gaps? Can you fill them in by inlicensing or by doing research? But there is no guarantee that you will really hit the nail at the moment when you need it. That, I believe, is a real change and this is also why we have this rather, I would say, positive outlook for the emerging markets because there is a different sense of willingness to carry those products and make them a profitable contribution for BASF.

Jean de Watteville (Nomura): I am interested in your collaboration with Monsanto, particularly in the context of the change of the setup of some of your competitors. Syngenta has announced more integration between seed and crop protection and they see definitely some upside potentials in terms of revenues there. You have a very successful collaboration in R&D with Monsanto, but you know that also on the herbicide technology there will be some complementarity between your portfolio and Monsanto. What are your discussions, what are your thoughts about going ahead in your collaboration with a more commercial and marketing collaboration?

Markus Heldt: I will perhaps start and then Robb, if you want to complement, or Stefan.

Obviously, the BASF Plant Science/Monsanto collaboration in biotechnology has been a very solid starting point.

In Crop Protection, we have a co-promotion for our fungicides, we are discussing a certain fungicide co-operation with regard to the seed treatment market. We have a broad global collaboration with regard to Dicamba. And we are evaluating opportunities to partner with Monsanto wherever it makes sense, also with other herbicides, but it has to be a win-win for both parties. Otherwise, it's not a very long-lived and exciting opportunity.

But as we say in German: Sometimes if you find somebody to dance it's easier for the tango for the next round. That's obviously our hope that we find the synergies for both parties, both companies to extract maximum value for Monsanto and for BASF.

Dr. Robert T. Fraley: The only thing I would add is: It's been a very good collaboration and it's one that we've steadily built on. We started out working in yield and stress. We have added wheat to that platform to expand it. We have added the collaboration on the Dicamba tolerance, not only in terms of the development and registration of the trait, but also the co-development of new, lower volatility formulations.

As Markus indicated, from a marketing perspective, we have collaborated in Plant Health where the ability to control disease in corn and soybean has been a strong collaboration.

I think there is a number of demonstrations and we continue to look for how we can create value for growers around the world.

Dr. Stefan Marcinowski: The only thing which I think is really different is that in plant biotech it's a clear exclusivity guided legal contract and here it's more case by case and is covering all those things that are of mutual interest.

Just to draw your attention to some personal signals which we are sending out: If you look at the corporate identity we are sharing today, every one of us took a dark blue jacket this morning which is not a real surprise for an event like that. But if you look at your shirts, unin-

tendedly they have been all white blue with squares, different, but nevertheless a good corporate identity. This is maybe an additional flavour of how well we are aligned.

Questions on Crop Protection pricing

Andrew Benson (Citi Investment Research): Can you talk about crop protection pricing? Some of your competitors are encouraging people to consider price increases and they are trying to push the price increases. You saw negative pricing so far this year and you explained it in terms of generic competition in herbicides. What are you trying to do on pricing in the second half and how are you positioning for 2012?

Markus Heldt: That's a great question; I was nearly expecting it. To be honest with you, Andrew: That's one target we have not achieved so far in 2011: improving pricing at least for the year-to-date performance up to June. You will see improved pricing in the second half, as we have also announced at the half-year conference call. That price increase and improved situation will mainly come from price increases in Latin America and price improvements in the fall business in Europe.

Some of our competitors talk a lot about price increases. If you look at the facts and what they are reporting it's not visible. So to be honest with you: We are not happy with the pricing situation. We have seen in the second quarter that the gap has narrowed from declining prices to a stabilizing price and we are definitely committed in the second half of 2011 to increase prices.

The two drivers why we had, at least from the BASF portfolio, a negative price development was generic impact in the herbicide business, especially in Canada, and the impact of the Headline Advantage programme, the Plant Health Advantage programme, which we have adopted for 2010 and 2011 which has shown a negative price impact, but has helped us to drive adoption and penetration of those acres in the US.

So I would say, for the full year you will see a positive pricing impact, mainly coming from those two geographies I've mentioned before: Latin America and the autumn business in Europe.

Catherine Tubb (Bernstein): Raw material impact, some of your competitors have talked about it. For 2011, I think, Syngenta saw about 100 million. Can you maybe comment on what you are going to see next year, especially the long lead time in crop protection versus some of the other segments?

Markus Heldt: I have seen the 100 million number. Our impact will be much smaller because our manufacturing assets are around the globe. We are not only dependent on one particular geography or the euro situation. So there will be a minimum impact, but it's more in the 20 to 30 million euro indication for 2012 with regard to key active ingredients, but also to adjuvants and solvents. There is an impact, yes, but it's not a very significant number that is creating a lot of headache at this stage.

Questions on portfolio and pipeline

Jean de Watteville (Nomura): Going more to the technology in the pipeline, I am interested in the herbicide technology, the herbicide-tolerant technology.

First of all, Clearfield has been in your portfolio for quite a while. I am interested in what exactly has been the development of revenues in Clearfield and how does Clearfield fit with the multi-trade herbicide technology in the future? How will that work together?

Secondly, Dicamba: Can we formulate Dicamba with glyphosate? Can we have the double mode of action or is it like we know from Bayer for the glyphosinate, it's alternatively one year glyphosate/glyphosinate?

Thirdly, I am interested in the collaboration with Monsanto. Are you currently working on new herbicides for herbicide technology replacement, or is it still working on the existing herbicides like Dicamba?

Markus Heldt: Clearfield is a non-GMO technology. It's mainly used today in sunflower, in rice, in some geographies also in corn and in wheat. We see a lot of growth potential in East European markets, here again in oilseed rape and in sunflower. We usually don't share the details of a product breakdown, but the Clearfield business today is north of 200 million euros and is going to double in the next five years, based especially on adoption and growth in the East European markets in the crops I have mentioned before.

The second question was on Dicamba. I am only now talking about the chemical piece, not the trait. The cooperation with Monsanto is a double stack of glyphosate and Dicamba. We are obviously working jointly with Monsanto – Robb you can chip in if you like – on innovations that will allow us to use glyphosate and Dicamba either as a tank mix or as a ready-to-use formulation on the same acre.

So the final concept of whether we grow sequentially tank mix or in a co-formulation is still in discussion. We still have two years to come up with the final decision, but the main objective is to bring an innovative solution, based on Dicamba together with glyphosate to address some of the broadly weed problems that are existing in different parts of the world.

New herbicides: We have decided two or three years ago to reinvest and expand resources in the herbicide arena because of the dynamics and changes in the market place. As you could see from the pipeline, we have a couple of existing active ingredients, products that are in launch and we are working on a pre-project that will be used for conventional herbicidal application, but we are also evaluating the possibilities for herbicide tolerance in herbicide-tolerant systems in the future. Because I think now every new herbicide has to fit conventional applications and potentially herbicide tolerance applications.

Dr. Stefan Marcinowski: But this is 100 percent BASF, this is not in collaboration with Monsanto.

Markus Heldt: That's right. It's an early-development compound which we will approve for project development at the end of this year.

Lutz Grueten (Commerzbank): Following on herbicides: You have mentioned in your presentation that you want to double the herbicide sales without giving a time frame. On chart 14, at least under 2020, I can't see the doubling. Could you discuss in more detail how you want to get there and the time frame, please?

Markus Heldt: The doubling, of course, was based on the starting point in 2008. Our business in 2008 with herbicides was 1.1 billion and the slide showed 2 billion. Perhaps I was a bit generous with rounding, but we basically see that that business can be doubled now if it's only increased by 88 percent, but it gives an indication of the dynamics and the opportunity we see in the herbicide arena.

Lutz Grueten (Commerzbank): And the time frame is 2020?

Markus Heldt: That's right.

Paul C. Christopherson (Gilford Securities): A question for Markus: On the four fungicides that you have got in your pipeline, could you just very quickly explain how they differ from each other? Related to fungicides, the lead strobilurin at Syngenta is coming off patent in the next couple of years, depending on regions. How does that impact the fungicide business at BASF? But my real question is: Could you differentiate those four fungicides?

Markus Heldt: If you go from the fungicides that are already on the market, the two that were on the slide that was F500 and Boscalid, F500 is a strobilurin, is a direct competitor to azoxystrobin from Syngenta and trifloxystrobin from Bayer Crop Science. I think we are having a good competition on a global scale between Syngenta and BASF, who is perhaps the leading strobilurin provider.

We focus on a profitable growth, we have invested in additional capacity and we are currently reviewing the further expansion of that capacity because of the strong global increase in demand. That's the first bucket: strobilurin.

Second is Boscalid which is a first-generation carboxamide. Stefan has mentioned before: That's a product that is produced in Brazil, is used in many different mixtures, initially for specialty crops, in the meantime also in cereals, in oilseed rape, a very differentiated compound.

Then coming to the innovative products, products that are currently in registration, not on the market: Initium, a novel mode of action fungicide for specialty crops in programmes to minimize, reduce resistance exposure. So it's really targeted for specialty crops. Then Xemium was the fourth one which is targeted at the three segments seed treatment, broad acre crops and specialty crops solo and in various mixtures with existing BASF fungicides.

That strategy will also help us obviously to expand the patent protection for F500-based products. There is a slight difference between azoxystrobin and F500. Syngenta has patent protection until 2011/12, depending on geographies and countries, whereas our active ingredient patent is valid until 2015, but with those mixture opportunities obviously we are extending the patent protection and we provide additional solutions to the farmers until 2022/23. So there is a slight difference in portfolio, but also the way we are using the various building blocks in our strategy.

Q&A Session II: BASF Plant Biotechnology and Update Monsanto BASF Collaboration

Questions on strategy and financials

Jenny Barker (Nomura): I apologize, it is rather a mundane question. But what we've just heard is that we are going to start to see these things coming into the real world, as it were, in two to three years' time.

How will we see that through the numbers that you report to the outside world? Will it be sales with a particular margin on them? Or will it be through some kind of license fee that will affect the EBIT but not the sales? How is it going to be visible to us?

Dr. Peter Eckes: It was pointed out earlier by Stefan: The goal is to establish a new division within BASF. So this will basically show up then in the segment figures. We will not report under "Others", but basically all the contributions will be under the Agricultural Solutions segment.

Dr. Stefan Marcinowski: Coming back to the question when Plant Science will become an operating division within our Agricultural Solutions segment, I would define this somewhere midst of the decade. This does not necessarily mean 2015 or that we have then really reached the break-even.

But this is more or less the time horizon when we talk about midst of the decade where we believe that we have seen at the market some revenues that will then also be in part sufficient to balance for the R&D cost; then we will have this discussion to put this officially as an operating division, if all – this is what we really have to say – our projects turn to become within the time frame viable from a scientific, from a technological and from a regulatory point of view. This is something we are very clear about.

We are working here at the front end of technology. It is great to see that next year we will hit the market with a second-generation product for the first time. This will be a world record. The drought tolerant corn will be the first second-generation GMO. We are really excited to see this being planted. But, nevertheless, we have to wait for the imports in the major target markets Europe, Japan, Asia. But the other projects also will then have to meet their target lines. But from our planning within BASF, we are somewhere around the midst of the decade.

Jan Hein de Vroe (ING): On the ramp-up towards your expected gross traits sales by 2020, you gave 1.9 billion euro before partner share. Could you give a rough figure what you expect to be in two years, three years etc.?

And a ballpark figure or a number what your margin expectation would be for the new division within the segment. What sort of margin are you targeting for the new division in the segment?

Dr. Peter Eckes: To the first question: If you look at the next years to come, the first products will hit the market.

So, overall the income that we will have is still relatively limited. We need, let's say, a really big product, corn yield, soybean yield, which will be the strong driver here.

In terms of profitability, this will be very different from the rest of BASF portfolio. What you have to keep in mind is that on our side – again, we are talking here about the collaboration on the BASF side. We basically have an R&D engine and so we have minimal cost in overhead and administration. So the majority of the income at the end minus the R&D expenses will be profits. In that respect it is really an asset light. So the percentage of profits will be significantly higher than the rest of the portfolio. But, again, we are talking also about smaller overall revenues.

Norbert Barth (WestLB): How do you deal with the US dollar/euro fluctuation? You have your common budgets; say, for us in US dollars. Was that fixed at the beginning or how do you deal with this fluctuation? How do you measure that each part has the same?

Dr. Robert T. Fraley: Basically, the teams meet frequently and set and revise the budgets on an annual basis. So we are making those decisions based on the individual projects, the advancement and the size and scale of a given year's discovering and testing programmes.

Dr. Peter Eckes: We have a mid-term plan. In BASF, we use to also hedge the currency effects when it comes to the R&D cost. In that respect we have a good, reliable prediction of our cost base.

Andrew Cash (UBS): Just a few questions. Forgive me if you have disclosed this in the past, but I am just curious: How much was the total investment that has been made - roughly? What has been the split between Monsanto/BASF? Looking ahead, what will be the annual budget over the next few years? Finally, how are you going to split the profits up?

Dr. Peter Eckes: To the investment: Now, we have jointly committed, with the expansion, over the lifetime of the collaboration 2.5 billion US dollars. I think we are still, I would say, in the early days. If you look at product development, there are a number of products that will go into the heavy development phase where really the majority of the cost will come. From that standpoint, we are still early in the investment.

When we come to the value share, Robb shared with you what the methodology is. It has been determined: Cost will be 50:50 and then the incremental value will be shared by Monsanto and BASF 60:40.

Andrew Cash (UBS): Just a follow up: the budget of US dollar 2.5 billion is for how long?

Dr. Peter Eckes: For the lifetime of the collaboration. Again, we are talking about a multitude of sequential products.

Andrew Cash (UBS): The 60:40 split: In the mind of a farmer, how do you determine where the value capture is?

Dr. Peter Eckes: Again, the way you determine it is: You have field results and the joint teams establish the basis for what is the value to the farmer. This incremental value then is being shared, by joint marketing studies. That is something that is established by the teams.

Andrew Cash (UBS): So like a third-party determination of what the value is?

Dr. Peter Eckes: Also including that.

Catherine Tubb (Bernstein): I just wanted to follow up on P.J.'s (Mr. Juvekar) question. You are talking about these multiple stack products. How do you see the revenue opportunity for you for each incremental trait that you add on? Because it strikes me that the R&D cost of developing these traits isn't going down particularly. So I am just thinking about how the returns profile for each of these products that you add extra traits is really going to change.

Dr. Peter Eckes: When you look at the product development, we have to ensure trait by trait that there is enough incremental value generated that can be shared and still pay for the R&D cost.

That's also, I think, in all R&D projects at BASF and in the collaboration a very important consideration that the incremental value generated really is supporting farmers, but also us as a business.

Dr. Robert T. Fraley: I think that's absolutely right. I just underline it: When you talk to growers, the absolute driver in their seed purchase decision is yield, yield and yield. The focus is acute.

As Peter was saying, as we bring products that hit the targets for yield expectations that the grower has, I think, it's that scenario were historically, whether you look at seed pricing or pricing of the traits, there has been a strong return for the value created.

Andrew Benson (Citi Investment Research): Can you just give me an idea, please, of the year in which you hope that this development will be meaningfully profitable to both companies and the year plus or minus, I guess, a couple that you think you will have got back the 2.5 billion dollars?

Dr. Peter Eckes: As it comes to BASF Plant Science, we continue with the clear prediction that we want to add to BASF profit in this decade.

Andrew Benson (Citi Investment Research): This was for the year, plus or minus, when you think it's going to be meaningfully profitable and the year that you hope to get ...

Dr. Peter Eckes: In this decade, yes.

Andrew Benson (Citi Investment Research): So both before 2020?

Dr. Peter Eckes: Yes.

Questions on technology and specific traits

Paul C. Christopherson (Gilford Securities): On drought tolerance: It seems to me that D1 has been sort of where it is for several years now. With what DuPont and Syngenta are doing in drought tolerance, wouldn't another strategy be to really put all your eggs in the D2 basket?

Dr. Robert T. Fraley: I am not sure I really understand your question. D1 has advanced in the pipeline. We are simply waiting on the regulation which should occur in the 2012 timing and then, as we get all the international approvals, we will launch biotech drought tolerance in new hybrids with full agronomic trait packages in that timeframe.

So if you think about the D1 product, it's really the combination of a biotech drought gene targeted to engineer drought tolerance, an agronomic package of the right bug and weed control traits for that western geography and the evolution of the best germplasm screened for dry land and drought production in the West. So It's really a stack of all that technology.

Other companies – you mentioned Pioneer and Syngenta – have labelled some hybrids as drought tolerant that are selections from just a breeding programme.

I think the D1 technology in combination with the breeding and the agronomic platforms will be very exciting and very unique. They will be the first of many drought biotech trait products that have come out of the market place. For the foreseeable future those will be the only biotech drought products in the market place.

Fabian Smeets (ING): With regard to your drought tolerance traits in corn you were talking about seeing the opportunity to also introduce this into areas where there is less drought. What has been your experience until now with corn which has drought resistance in areas where it is wetter? Is there an impact on yield, maybe a negative impact? How do you see this going forward?

Dr. Robert T. Fraley: The issue hasn't been the impact on yield. The issue is really: It takes a much more sophisticated agronomic recommendation. If you think about dry-land corn, the geography is from South Dakota to the panhandle of Texas, where they would typically be looking at 8 to 12 inches of rainfall and probably yields in the 75 to 125 bushels per acre range.

The testing, except for the last couple of years where they have had so much rain there, is relatively straightforward. You plant your drought tolerant and your conventional genetics under the same side-by-side conditions and you look for the yield differential under those harsh environmental conditions.

Once you move out of the dry-land market and you look at the irrigation market, where farmers probably are using a central pivot irrigation and depending on where they are they may have the ability to utilize between 12 and 18 inches of water through that pumping system. The first thing you have to tell that growers: when does he turn off the pump. So it is a much more sophisticated agronomic recommendation. We need more data to be able to optimize when the performance of the yield gene compensates for the absence of water. It just takes more testing to do that.

Several years ago we opened up a dedicated drought and water management site in Gothenburg, Nebraska, which was set up with all the under soil probes for actually measuring moisture content and the ability to look at water stress in the plants so that we can literally match now the performance of the D1 gene, but ultimately the D1, the D2, the D3 with differ-

ent moisture conditions and different agronomic recommendations based on the physiology of the crop.

So, I think, from a gene performance, we will eventually get to the point where corn hybrids across most of the US have a drought gene. We need to be able to make sure we can drive the agronomic recommendations to optimize that performance.

Prashant Juvekar (Citi Investment): I have just a couple of questions. BASF's rice yield product seems quite interesting. Why did Monsanto stay out of it rather than joining BASF?

Dr. Robert T. Fraley: It is interesting and we are testing similar versions of that gene in corn and wheat today. Basically, our platform has been based on the value created by both bringing the traits in, the germplasm and breeding programmes together.

In the case of the crops that we have focused on in the collaboration – corn, soybean, cotton, canola and wheat – we have extensive breeding efforts and molecular breeding efforts. In the case of rice we don't have that position. So we are probably not the best partner for someone with those traits.

So our view is: In the crops that we are going to focus our effort in we want to be in a very strong position on both the biotech and the breeding front to create that ultimate value.

Prashant Juvekar (Citi Investment): Robb, you mentioned that in ten years we may have 15 or 20 genes; you combine Dicamba, drought, stress, yield, all that stuff.

Is there a risk of too many genes? Could that be a risk?

Dr. Robert T. Fraley: No, I don't think so. If you think about the starting point for that question: The smart stacks product today has eight traits. We are moving down that path. Generally, as you know, I spend a lot of time talking with the growers. They are very, very excited about technologies that will drive yield. Traits have been a huge benefit and a huge differentiator for growers.

To be successful, I think it really requires a very simple and integrated solution. I think one of the things you have heard from both companies is: Making that seed selection, the trait package, the disease package that that grower uses as simplified as possible is key.

They are very interactive. One of the keys to driving corn yield has been increasing corn population. The way you can increase corn population is having built in better bug and weed control and then complementing that with better disease control.

Simplifying the complex is really, I think, the opportunity to move forward with wide adoption and full utilization of the technologies.

Dr. Peter Eckes: I guess we don't want to make a farmer think of eight or ten traits, but of a better performing product.

Jean de Watteville (Nomura): My question is on wheat, actually a significant part of your R&D budget in your collaboration.

My understanding is that in order to develop a multi-trait solution on wheat is that you need first to get a hybrid wheat. So I would like a conformation: Where do you stand in terms of hybrid wheat? Have you got a GM solution to reach a hybrid wheat or is it a traditional breeding solution? Is it part of the BASF/Monsanto collaboration to find such a solution? Is that a significant part of the billion R&D budget?

Dr. Robert T. Fraley: Our base model for introduction is not based on hybrid wheat, it is based on an introduction of superior performing varietal wheats that will have not only the benefit of the biotech traits, but we are investing in wheat with the same type of sophisticated mapping and sequencing technologies that we used in the corn.

As we have looked in different product launches it will be more similar to the value captured that has been used in crops like soybean both in the US and Brazil, based on incremental seed pricing or capturing the value at the elevator or point of delivery system.

I think hybrid wheat would add incremental value, but also introduces an incremental challenge. I know BASF is looking at hybrid wheat technology independently. As we look at the evolution of the technologies, we are looking for those opportunities, just as a smaller side. We are continuing to develop biotech-based solutions for hybridization in corn. We are looking at variable technologies. But I think we would premise the initial product launches on varietal wheats that are protected under various types of intellectual and business proprietary protection schemes.

Miscellaneous

Krim Delko (Orange Capital): My question is about maybe specifically China, but maybe also other parts of the world where I would think it is a pretty low-hanging fruit to increase yields there. It will be much easier than double yields in the US. You and other people in the industry just don't talk about that. It seems like that just isn't a market you are interested in. Maybe you can talk about that a bit.

Usually they go for the best technology in many other fields, but in this particular field, again, given the size and the opportunity there, I am just a bit curious if you could talk about that.

Dr. Robert T. Fraley: Sure. The collaboration is set up so that we can add countries based on mutual decisions. We focused obviously on those big markets like the US, like Brazil, like Argentina, where the markets are established. But there is certainly an opportunity and an upside. The challenge and the opportunity in China is: It is a significant opportunity, but it is also a complex opportunity.

So one of the things that you have to consider in China is: The last time I looked in the corn business there were 10,000 small seed companies. The government still precludes majority ownership of any company and there are still rules that if you own a seed company you can't be a biotech trait developer. So it has not been an easy market to penetrate, it is not for lack of interest.

I think the good news is that the Chinese government is signalling now that they would like to see their industry transformed into a high-value, high-technology seed industry and they are talking about a number of reforms for the future. If that's the case, given the size and the attractiveness of the market, I think there would be significant interest. But it is a very complicated market that we've studied quite carefully.

Andreas Heine (UniCredit): One question regarding Metanomics. I think it was years ago that there was the intention to use the vast knowledge you have in the metabolism, not only for crops, but also for human beings. Is there anything you can add of what you have achieved and whether this becomes more or less challenging? Is there any progress?

Dr. Peter Eckes: We have not included this since it's an Agricultural Roundtable. But we still are pursuing this opportunity. Actually, we have a number of studies in different disease ar-

eas to establish molecular markers to use this technology basically to better predict disease. But there is not really an update that I can give you today on that. It's still pursued.

Dr. Stefan Marcinowski: When you talk about emerging markets, you don't have to rush in right from the beginning with a GMO. There is a lot of potential by just rolling out existing technology, existing agronomic practices into areas where they suffer today from lower yields.

This is what we have seen from Markus' examples in the emerging markets, which then, of course, could be added by additional new seed technologies and things like that.

But the prime target is to increase yield and this can be very quickly rolled out with existing technologies, whereas in the mature markets and the highly developed markets, you are at that end where you have more or less no more leverage on existing technology. This is exactly where I would say modern plant protection and, of course, seed breeding through GMOs really is contributing value.