

“If you don't get the outcome, the price you pay is lower, if you get more we share in the upside.”

## Innovation Global briefings

Leading agchem giants Bayer and BASF both announced plans at their global press briefings to introduce outcome-based pricing. *CPM* was there to push them to explain.

By Tom Allen-Stevens

**If you've ever bought a crop input and hadn't received the expected yield or productivity benefit, you'd probably wish you didn't have to pay for it. But surely that won't ever happen?**

Well now it is, and it's closer than you might think. Two of the world's leading crop protection companies, Bayer and BASF, have both announced plans to introduce “outcome-based pricing”. These were unveiled to the world's press at separate events this autumn — Bayer's Future of Farming Dialogue at their headquarters near Monheim, Germany, and BASF's Media Event at Nunhem in the Netherlands.

“Imagine a world where Bayer makes a recommendation to a grower and, for example guarantees a certain amount of yield, and we get paid according to whether or not that prediction comes true,” said president of Bayer's crop science division Liam Condon.

“This wasn't possible in the past because

# No gain, no pay

no one had the predictive capabilities to make a promise about an outcome. That is rapidly changing as we now have so much information about what is happening on the farm.”

Liam's talking about FieldView, Bayer's digital farming platform the company acquired with its purchase last year of Monsanto. Launched in 2015, there are now farmers across 36M ha paying to use the platform, mainly in N and S America — an area increase of 50% in the past year alone.

### Site-specific recommendations

What FieldView does is process farm-specific information — weather, soil, past cropping and yields, etc — combines this with data Bayer has on its products and makes site-specific recommendations. It's been in field trials for the past 12 months across Europe, including the UK, and is set for commercial launch here in 2020, although this won't include outcome-based pricing — that's being launched only in the US to start with.

“We can put the data through a predictive model and make a recommendation to a grower that if you use a certain portfolio of products, you will get a certain outcome, and we will price accordingly,” continued Liam. “So if you don't get the outcome, the price you pay is lower, if you get more we share in the upside.”

This theme of feeding farmers' data back to Bayer was picked up by Dr Bob Reiter, head of R&D at the company's crop science division. He talked of the creativity required

for the “transformative changes” he believes Bayer has to make as agriculture faces up to its challenges.

“Many of the big transformative breakthroughs often occur at the interfaces,” he said. “In Bayer we have many tremendous interfaces we have created within our research organisation, between our expertise in chemistry and in biology, for example.

“We now have capabilities in digital and we're leveraging them not just by using data within Bayer, but by using customer data from the farm. This richness of information in terms of capacity and knowledge is what will allow us to drive forward these transformative changes.”

So are farmers happy with their data being used in this way? *CPM* put the question to Sam Eathington, chief strategy officer with ►



Bob Reiter (centre) and Liam Condon (right) say Bayer now has a wealth of data on which to base outcome predictions and drive transformative change.



More than 250 participants from over 30 countries attended Bayer's Future of Farming Dialogue.

► Climate Corporation, the subsidiary of Bayer responsible for FieldView, who explained how outcome-based pricing works.

"In the pilot we ran in the US this year, we needed to have some information about the farming operation that comes through on FieldView, which is the way we capture the information and understand what's going on. We set up a way to measure whether we were correct with our recommendations through FieldView so that the farmer can see it in real time. So FieldView becomes the arbiter of the truth in each and every field."

He explained there was a lot of sensitivity four to five years ago when they first started talking to farmers in the US about helping them assemble their data. "But we have a

very clear data policy that says it's the farmer's data, and the farmer decides how it's used and who they share it with," he said.

"When it came to sharing pricing information to reach the outcome-based pricing, in fact more than 90% of our farmers accepted the data-use policy. When you get to the point where you're creating value and they see it and trust what you've done with the data, then the conversation goes away."

## Healthy fields

At BASF Agricultural Solutions' Media Event, president Vincent Gros introduced the concept of what the company calls Healthy Fields. "Here the idea is to have outcome-based business models," he said. "So in a nutshell, we won't sell individual crop protection products, but we will sell the assurance and the convenience of a well protected field — a weed-free and disease-free crop."

This is built around xarvio, BASF's digital farming platform, acquired last year from Bayer and due for commercial launch across Europe in 2020 although this won't include Healthy Fields at launch. In the first instance, this acts to "smarten and support" BASF's existing crop protection portfolio, said Vincent. It'll be used with new introductions to provide tailored, localised support to help growers get the best from the new fungicide Revysol, for example.

The next step is to interact with digital systems growers already have, and establish a data relationship through xarvio to improve decision making on farm. "We want to establish data relationships with growers and other partners in order to enhance our digital offering," continued Vincent.

So will this have the effect of restricting the scope for farmers to make decisions? Not at all, assured senior vice president for BASF's Europe, Middle East and Africa (EMEA) region, Livio Tedeschi. "The concept we are pursuing is to use the technology to optimise different decisions. So that's around which varieties to use and which crop protection products, the timing of application and the way to apply the product," he said.

"This will vary across the EMEA region and farmers feel strongly it should be tailored to their situation. But farms get to a certain size at which you need a system that allows you to manage the many different situations and the decisions these involve. So it's not about taking decisions away, it's about empowering a much better informed decision. xarvio uses modern technology to manage variables that are not manageable by the individual."

With a product that hasn't yet been launched as a commercial offering, however, BASF's still working through the business model behind Healthy Fields, Livio admitted.

## What's in the pipeline?

Bayer's invested €2.3bn in crop science R&D in the past year, claimed Bob Reiter. "We're very proud of our leading R&D pipeline with 75 projects in seed and traits, crop protection and digital ag pipelines," he added.

Chief among these are short-stature corn, set to bring significant productivity benefits to the crop when it's introduced to the market, starting in Mexico next year, and its second-generation Roundup-ready soya. Already bringing a claimed 20M extra tonnes of productivity in Latin America, further varieties and introductions are planned.

There's not much to excite the European grower from this bristling pipeline, apart from Iblon, a new fungicide for cereal crops, and of course FieldView. Claimed to be the first third-generation SDHI, Iblon is based on the active ingredient isoflucypram, delivers "healthier crops and consistently higher yields" than current standards, and is due to arrive in the UK in 2021-22.

Liam Condon admitted the company has suffered a "disastrous" first half to 2019, but strong performance predicted for the second half will see growth for the year reach about 3%, he

said. 4% growth per year is the company's target, fuelled by a €25bn investment in its R&D over the next 10 years, expected to deliver up to €30bn in peak sales.

BASF is on target to grow by 5% per year, on average, said Vincent Gros. Investing €900M/year in R&D, the company's aiming for a 50% increase in sales by 2030, with a sales target of €22bn by 2025.

A pipeline boasting 30 new "blockbuster" products set for launch by 2028 have a claimed peak sales potential of €6bn, with Revysol set to take €1bn alone. BASF's Luximo blackgrass herbicide is set for launch from 2021. Both will be supported by xarvio.

"Europe is a very important region for BASF — it accounts for more than one third of our business," said Livio Tedeschi. "This is where we started our business, and our partnership with farmers and others in the supply chain is one of the things we're most proud of."

Balancing productivity with biodiversity, political, climate change and regulatory pressures define the challenges for the European grower, he said. "So our pipeline is not just a



Europe is a very important region for BASF, said Livio Tedeschi.

series of new products, it represents a mindset that is in line with the priorities faced by our customers."

BASF now has seeds and traits in its portfolio, which includes InVigor oilseed rape, and new hybrid wheat technology, which will be available in the mid-2020s, said Livio. "We're in a very promising area to deliver not only an improvement in yield but also varieties that will cope better with weather extremes, so more consistent performance," he said.

## Easyconnect promises safe spray transfer

A new closed-transfer system to improve the way crop protection products are handled has been launched by Adama, BASF, Corteva Agriscience, Nufarm and Syngenta.

Easyconnect consists of two components: a unique screw cap — pre-fitted with no foil on the containers — and a coupler, which transfers the product directly into the spray tank and rinses the container. By 2021/22, a broad range of containers is planned to be equipped with the standardised IS63 screw cap in 1-15 litre sizes.

“Easyconnect allows crop protection products to be directly transferred from their original container to the spray tank and to accurately measure the volume of the chemical being transferred,” explained Livio Tedeschi. “This significantly reduces operator exposure and environmental risks from splashing or spilling.”

It’s been trialled on farm in selected countries, including the UK, since 2015. Based



*Easyconnect’s screw cap fits to a coupler, which transfers the product directly into the spray tank and rinses the container.*

on farmers’ feedback, the system has been steadily improved in terms of handling and speed, making the filling faster than via the commonly used induction hopper, and has now been given the thumbs-up by those who’ve used it, added Livio.

“Where there is a positive outcome, it’s a question of making sure there is a fair share of value in the outcome for both the farmer and for BASF. When it comes to preventing a negative outcome, we are working with yield-guarantee models in a number of countries and there will be different forms of insurance models as part of an overall package.”

Pilot trials of xarvio have been running across Europe, and although BASF claims it’s a platform suited better to the European

grower, it hasn’t amassed anything like the on-farm data bank claimed to power FieldView.

So how do farmers feel about sharing that data? Northants grower Andrew Pitts was among a number of farmers from across Europe who attended the Media Event. “It’s too early to tell whether this concept of Healthy Fields will be beneficial or not. We’re certainly open to trying it, and I have no problem with sharing my data, but it has to be a mutually beneficial agreement



*At BASF Agricultural Solutions’ Media Event, Vincent Gros introduced the concept of Healthy Fields.*

recognising the considerable value of that data, and it has to be the right overall package,” he said.

But German grower Stefan Cramm had reservations. “I’d use xarvio’s predictive and recommendation tools, but would be wary of giving up my data,” he said.

“I know my farm better than BASF, so I don’t think I have anything to benefit from sharing my data, while BASF has everything to gain. There will be a lot of farmers in this situation, so BASF stands to gain a huge amount of value from farmers sharing their data, but the individual farmers will gain very little in return.”

BASF Agricultural Solutions head of marketing for UK and Ireland Ben Miles noted that farmers are becoming increasingly used to sharing data with a growing range of apps and services, such as Google.

“Data sharing only happens if we perceive there’s value in doing so, as is the case with the xarvio range of services,” he added. ■

## New venture to explore how on Oerth to protect crops

Bayer has launched a new venture with Arvinas, a biotechnology company pioneering the development of a new class of drugs. Oerth Bio will explore crop protection applications for targeted protein degradation, a field Arvinas has led, focused to date in the pharmaceutical sector.

The new CEO of Oerth, John Dombrosky, told CPM there was “huge opportunity” to use Arvinas’ Protac technology in agriculture. “We could reverse weed resistance, disease resistance and perhaps address resistant insects as well.”

The technology harnesses a natural mechanism known as proteolysis. “This is biomachinery that all living things have on board in order to degrade proteins that are becoming dangerous, or not useful anymore, into simple amino acids. It’s similar to CRISPR in that it’s targeted and highly specific. So at extremely low rates we could control specific weeds or diseases very effectively.”

It differs from conventional crop protection chemistry, explained John. “Much of crop

protection hinges around finding a small molecule that fits like a key into a target pathogen, blocking a pathway that kills it. With proteolysis, there’s the same specificity to a target site, but you delete the entire door.”

Bayer has committed over \$55M to fund the company, based in Connecticut, USA. “It’ll take 2-3 years to develop initial products in the lab — our first job will be around assessing what’s different about a plant species, identifying a mechanism of action and then targeting that protein, before we then bring the technology out into the field for trials,” noted John.

“But we want farmers to be involved in its development early on. We want them engaged with the technology, to understand it and shape how it develops, because it really matters how they will explain it to the end user and to the consumer. A fantastic technology like this that has huge potential to radically change the way we approach crop protection into the future needs a



*John Dombrosky believes Protac technology has huge potential to radically change the way we approach crop protection.*

wide stakeholder base to be involved, to ensure we put it to the right use,” he pointed out.

Following extensive regulatory and safety testing, the first product is expected to be on the market in 10-12 years’ time.