

Pride in Pentre



Crop nutrition backstage

Although often revered for its crop nutrition portfolio, a series of strategic acquisitions has led FMC to significantly expand its biological product offering. CPM joins the team at their site at Pentre in Wales to learn more.

By Janine Adamson

Some would say it's difficult to rally excitement when it comes to visiting a chemical production site or factory, and that having seen one, there's nothing left to see. However, a combination of continuous improvement, commitment to safety and passionate staff means FMC's site at Pentre leaves a rather positive impression.

The pride plant manager Garry Clarke has in Pentre is clear. What was once known as Headland before being taken over by Cheminova A/S and finally FMC, the facility manufactures 130 bulk formulations and 1400 finished product lines. Garry says maintaining this output is all thanks to putting safety and efficiency first.

"With a team of less than 50 individuals operating across 22,000m², it might seem small-scale, but there's never a boring day. We're an upper tier COMAH site [Control of Major Accident Hazards; facilities that

store, handle or process significant quantities of hazardous substances] and with that comes a responsibility of operating a manufacturing site that is highly regulated by the competent authorities with whom we work closely with, to ensure safe and compliant operation," he points out.

Continual investment

Pentre has seen much investment during the past five years. Recent additions include a semi-automated filling machine to help reduce manual handling, and a soon-to-be commissioned replacement stainless steel nitric acid storage tank which has improved safety features.

And with a fully kitted out on-site laboratory manned by three scientists, all product batches are tested prior to release as well as raw materials as required, to ensure quality.

But other than the obvious, does this have a benefit for the customer — the farmer? Garry says it's all about consistency. "We've invested in automation primarily for quality and safety reasons throughout the manufacturing process. This includes features such as automatic capping, weight assurance, a vision system and a labeller.

"But this also means there's little ambiguity for the customer — they know exactly what they're getting each time; consistent performance is our focus."

This commitment to continual investment will arguably assist FMC as it moves through uncharted waters to bring new technologies to the UK market. With mixer tanks at Pentre already dedicated to

seaweed/biostimulant production, that's only the tip of the iceberg when it comes to what's on the horizon.

Head of marketing and plant health, Geoffrey Bastard, says the acquisition of BioPhero in 2022 has opened the gates ready to integrate new biological technologies with FMC's existing crop nutrition portfolio. "Globally, we're already a leader in the biologicals space but it's how we make these technologies fit to the UK

market. An example being using pheromones to control fall armyworm in Africa and Asia," he explains.

"While this pest isn't native to the UK, there's potential to use the same techniques to produce specific pheromones to target diamondback moth in brassicas or codling moth in top fruit — both are troublesome for British producers."

But for the here and now, Geoffrey says FMC is investing considerably in the UK field testing of new biostimulants such as Accudo, which was first launched in South Korea for fruit and vegetable crops.

"We're also looking at wider biocontrol measures for cereals. However, our primary objective is to find a way to integrate these exciting solutions with plant nutrition and wider crop protection products."

Despite this focus on biological innovation, the company remains committed to its 'bread and butter' — foliar crop nutrition solutions. Product manager for plant health, Chris Bond, says formulation development in particular is a strength in FMC's armoury. ▶

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► “Research has shown there are three integral aspects of a quality formulation — solubility, contact with the leaf surface, and surface retention. As a result, we’ve undertaken a lot of work to evaluate the efficiencies of fertiliser salts — such as nitrates versus sulphates,” he explains.

Furthermore, studies have shown that manganese, for example, is taken up by the plant much better in the nitrate form, which can have a positive impact on crop yield. “If you look at the speed of uptake of manganese into spring barley, FMC Jett (manganese nitrate) is the quickest. The

plant’s photosynthetic ability is also more efficient, thus crops are healthier and photosynthesising better,” says Chris.

As part of work to further understand the nutritional status of crops nationwide, FMC conducts an annual tissue analysis survey

Overlooked deficiencies.

Chris explains that while the main culprits are often well understood due to visible symptoms, such as nitrogen, magnesium or potassium deficiencies, the team wanted to investigate whether there are other nutritional issues being overlooked in the field.

The survey involves farmers and agronomists collecting plant tissue samples which are sent to a laboratory for testing. Once complete, reports are returned to the person sampling, as well as to FMC to formulate a reference database.

In 2023 alone, 1305 samples were analysed of which 73% were wheat, 20% barley and 7% oats. “The results indicated greater levels of zinc deficiency than in previous years, which could be attributed to the conditions — wet saturated soils not only increase the chance of leaching, but they also increase lock-up of micronutrients such as zinc,” says Chris.

To crunch the data further, samples are mapped geographically to evaluate regional differences, which Chris says enables greater tailoring of nutritional products.



Products manufactured at Pentre are sold in more than 40 countries worldwide.

“Last year, the survey showed that magnesium deficiency was the worst in the South East, East Anglia and Central England regions. These areas had the greatest amount of plant tissue samples with below the optimum level of magnesium,” he adds.

As for this season, Chris predicts a similar scenario. “Inclement weather has meant poor soil conditions and nutrient depletion, again due to both leaching and lock-up. Applying foliar, from the leaf down, will be most effective in current conditions, and not just for nitrogen and phosphorous.

“That’s because foliar applications are the most efficient way to plug gaps in micronutrients too, which we know are yield building and therefore related to profit.”

But with constant supply chain volatilities and global geopolitical events, what is FMC doing to protect the company and their customers? Garry admits the supply chain is a continual concern.

“We acknowledge we have to take action to de-risk the supply chain for raw materials and strive to offset the impacts which are beyond our control. After all, the products manufactured here at Pentre are sold in more than 40 countries worldwide which isn’t insignificant.

“It’s important to remember that we’re also contributing to local employment while representing UK manufacturing. Where other industries have taken production abroad, we remain here in North Wales. It’s something we’re very proud of,” he concludes. ■

Isoflex active update

Isoflex active, a new winter cereal herbicide, should be available for growers to use in autumn 2025 pending product registration.

FMC’s Geoffrey Bastard says this is the biggest product launch to come from the company since it was established in its current form. “Trials are currently in the ground and we hope to host agronomy tours this summer. Equally, we have growers who are already experimenting with Isoflex active through R&D permits, to see how the active fits within their conventional weed control programmes.”

Isoflex active is a new herbicide from the isoxazolidine family and is suitable for use in both winter wheat (pre- and peri-emergence) and winter barley (pre-emergence). Being a new mode of action, Geoffrey says it provides another solution to help combat blackgrass, ryegrass and broadleaf weeds while adding further diversity to aid resistance management.

“As with all crop protection manufacturers, protecting the longevity of all existing chemistry is of paramount importance,” he concludes.



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