



“It’s rare a new active comes to market and probably even more rare that two come at the same time.”

Cereal weed control

Bolstering control

Grassweeds are going to have to put up an even bigger fight to conquer chemistry thanks to the recent registration of a new active in cereals. CPM finds out more about Isoflex.
By Charlotte Cunningham

Two years on from CPM’s first look at Isoflex active (bixlozone) in FMC’s French trials, it’s good news for growers grappling for grassweed control solutions as the active has now received registration in Great Britain, with products expected to be filling tanks by next autumn.

The journey to market has been a lengthy one, concluding most recently with three years of extensive trials with growers, distributors and industry bodies to see if Isoflex

really can ‘flex’ its potential when it comes to controlling some of the most yield-robbing grassweeds.

Delving into the details, Isoflex active is based on FMC’s novel new herbicide, bixlozone – from the isoxazolidine family – which has been classified by the Herbicide Resistance Action Committee as a Group 13 herbicide, explains Geoffrey Bastard, marketing and plant health lead (UK and Ireland) at FMC.

“Bixlozone was discovered a while ago and when we began looking at it, we quickly realised it had some really interesting levels of control against key grassweeds – specifically blackgrass and ryegrass, but also annual meadow grass which will also be on the label,” explains Geoff. “I think there are now only 11 primary autumn cereal herbicide active ingredients available at the moment, but there’s likely to be some significant changes to that space between now and 2030. So to be able to bring a new mode of action in cereals to market is something we see as being really important, especially given that the product will have both winter

wheat and winter barley on label.”

Mode of action

So how exactly does bixlozone work? “It inhibits susceptible plants from producing carotenoids – pigments that



To be able to bring a new mode of action in cereals to market is something Geoffrey Bastard sees as being really important.

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Adding in diversity to your early residual soil acting herbicide stack should be a priority – particularly at the moment – so it's quite neat that Isoflex active has come along at this time, believes John Cussans.



Bixlozone works by inhibiting susceptible plants from producing carotenoids – pigments that are critical to protecting photosynthetic processes and ensure normal plant growth and development.

▶ are critical to protecting photosynthetic processes and ensure normal plant growth and development. Essentially, it's a bleaching herbicide as it stops the photosynthesis in target weeds," explains Geoff. "Trials have shown that where it's used pre-emergence or early peri-emergence in wheat, we

get either lack of weed emergence, emergence with bleaching or, particularly in blackgrass and ryegrass, this pinky/purple colour before dying."

Studies of tolerant crops show that these symptoms are transient with little to no effect on the vigour and yield, continues Geoff. "In addition

to inhibiting the production of carotenoids, Isoflex active slows down the production of key amino acids in susceptible plants. It's also able to control weeds through the combination of disruption of light reactions as well as protein turnover and degradation."

ADAS' John Cussans says having this ▶

Isoflex in the field

An important part of the extensive trials process has been testing Isoflex on commercial farms with varying degrees of grassweed and broadleaf weed challenges, says Geoff.

Among the growers involved in these trials is Andy Meecham who runs a 1130ha arable farm near Wimborne, Dorset. The rotation typically includes winter wheat, winter barley and oilseed rape as well as spring crops like barley and oats to help tackle problematic grassweed issues, says Andy. "Blackgrass is our main weed problem here, and we're starting to see more wild oats."

As well as using management strategies such as rotational planning, careful variety selection and hand rouging, a robust herbicide programme is vital and it's for this reason he was particularly interested in trialling Isoflex.

"The trials took place last year, in a particularly high-burden field," explains Andy. "We set up split blocks around the field where Isoflex was trialled with various partners, and then applied the usual farm approach around the outside which typically includes flufenacet, diflufenican and pendimethalin and we've just moved to using Avadex granules (tri-allate).

"We left a stale strip where no products were applied to be able to compare control levels. This was really interesting as we didn't quite realise just how bad the blackgrass was in that field and it showed that what we'd been doing up until now has been doing a good job. But there's obviously still quite a lot of seed burden there.

"The good news is we saw really good levels of control where the Isoflex was applied, too. Having another product is going to help us bolster



Trials at Andy Meecham's farm in Dorset saw Isoflex bolster blackgrass control (L - Geoffrey Bastard R - Andy Meecham).

our overall control – there are not many products available for blackgrass so having something else we can include in the programme and we know works will be really beneficial.

"We use a traffic light system to rank blackgrass pressure in individual fields, so we'll definitely be adding this to the programme at pre-emergence to bolster control in the worst affected areas of the farm."

The addition of the beflubutamid in the co-form is also likely to be beneficial due to broadleaf weed pressures on farm too. "We have weeds like groundsel which can be a bit of a challenge, so Isoflex will just bring a bit more to the control party which will be really helpful."

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Cereal weed control

► family of actives available in a cereal herbicide for the first time is a real positive for growers. “What this means for grassweed control in cereals is that we’re bringing in a totally new mode of action – a very different piece of chemistry. In order for herbicides to be sustainable in crops we really have to maximise the diversity of what we’re applying, so this is a really welcome addition.”

“Adding in diversity to your early residual soil acting herbicide stack should be a priority – particularly at the moment – so it’s quite neat that Isoflex active has come along at this time.”

The first Isoflex-containing herbicide coming to market – and expected to land next autumn – is a co-formulated product which actually brings two new herbicide active ingredients to UK markets, explains Geoff. “What we’re offering is a co-formulation which brings together bixlozone and beflubutamid – which is also new. It’s rare a new active comes to market and probably even more rare that two come at the same time.”

By pairing it with beflubutamid, growers will also benefit from enhanced



Isoflex has been proven in a rigorous trials programme which have incorporated commercial farms, including at David Jones’ farm (pictured left, with Geoffrey Bastard).



Isoflex active will have 21 broadleaf weeds on the label including cleavers, groundsel, mayweeds, red-dead nettle and speedwells, and four grassweeds – blackgrass, Italian ryegrass, annual meadow grass and rough meadow grass – making it one of the broadest labels in the autumn cereal herbicide market.

broadleaf weed control too, points out John. “That’s something we’ve missed as we’ve lost products like trifluralin and isoproturon. As a result, we’ve landed with programmes that only deal with grassweeds and consequently, growers end up with broadleaf weeds emerging. I’m quite keen on co-forms because they bake in multiple modes of action and diversity of chemistry in one ready-to-go product.”

Looking at this weed control spectrum in more detail, Geoff says Isoflex active will have 21 broadleaf weeds on label including cleavers, groundsel, mayweeds, red-dead nettle and speedwells, and four grassweeds – blackgrass, Italian ryegrass, annual meadow grass and rough meadow grass – making it one of the broadest labels in the autumn cereal herbicide market.

Integrated approach

While Isoflex will provide good activity across a broad range of weeds, John warns that it’s important to be realistic about the expectations of products alone and advocates using Isoflex as part of a programme and integrated weed management strategy. “It will add an option and diversify the herbicide base,” he says. “In some scenarios it might be an alternative to existing approaches, but in high grassweed pressure situations I don’t see it as necessarily replacing

things already in the programme, in every single field. Instead, its inclusion as part of a programme will bolster control and bring in a great diversity of controllable weeds.”

Geoff agrees and concurs that Isoflex should be used as part of a programme, rather than alone. “I think Isoflex active will be a nice confidence tool for growers,” he says.

“Every farm, every field, every patch of ground has a different dominant set of weeds and this is a product that, in the pre-emergence slot, will give growers the confidence that they’re covering a broad base with one product, which they can then build on as a part of a sequence to make sure they get crops off to a good start and stay weed-free. The autumn slot is the first chance to control weeds so getting that off to a good start is vital.”

Considering how Isoflex active has performed in trials, FMC has looked at the levels of control possible when used alone and as part of a programme. “Firstly, looking at blackgrass control and, based on 64 UK trials at a rate of 1 l/ha pre-emergence, Isoflex active alone gave an average control of 53% on high-pressure sites – where blackgrass counts were on average 332/m², which would be considered quite high-pressure sites,” explains Geoff. “This level of control increased to 65%, compared with untreated, where

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- ▶ blackgrass headcounts were <math><150/m^2</math>.” On ryegrass, the performance has been particularly strong, giving an average of 64% – across 27 trials – when applied alone in similar high-pressure ryegrass fields. “However as mentioned, solo use isn’t advised, especially when targeting key grassweeds such as blackgrass and ryegrass, and should always be used

as part of a herbicide programme utilising other modes of action,” says Geoff. “Where we’ve trialled Isoflex active in typical mixes/programmes with other available actives, significant control – over 95% – can be achieved. “Alternating modes of action is vital for both herbicide efficacy and resistance management. There’s no silver bullet.” During the coming 12 months ahead

of its official launch on the market, Geoff says FMC will be continuing to trial Isoflex active to fineness how and where it’s best used, with demo sites across the country to showcase the product to growers. “If we use this active correctly, I’m confident that we’ll be able to keep it on the market for a long time – which is absolutely vital for long-term, sustainable weed control.” ■

Risks and rewards

Following last autumn, the idea of delaying drilling could seem little short of lunacy to some farmers, but sowing in September comes with its own drawbacks in terms of weed control, warns Bayer’s Darren Adkins.

“I think everyone is aware of how it works – you wait for the first significant flush of grassweeds in early October, spray them off and drill after that meaning the residuals have an easier job.

“However, we know the effects of a wet autumn and if, like many farmers, there are hopes for bigger wheat yields next harvest, the crop will likely go in relatively early,” he says.

Drilling strategy can give farmers the opportunity to see the benefit of herbicides, continues Darren. “That starts with Roundup (glyphosate), which is the most effective way to kill difficult grassweeds so having at least one stale seedbed before drilling is a must. The key thing is to keep soil disturbance at drilling lower than for creating the stale seedbed, to minimise weed germination in the crop.”

Then, focus turns to the residual programme which requires moisture to perform well. “Soil-mobile actives like flufenacet require moisture in the germination zone to control weeds.

Dry seedbeds, which are much more likely in September, will result in less germination and lower herbicide performance,” explains Darren.

Longevity is another aspect to consider as crops are in the ground for longer. As such, Darren recommends that the first residual application should contain actives with a long half-life and in earlier-drilled crops, a second spray will almost certainly be necessary.

“The first residual has to have some staying power because it’s possible the second spray will be delayed or not go on at all. Liberator (diflufenican+ flufenacet) plus Proclus (aclonifen) is an option at this stage. Then there are more options for the follow-up spray to bring in different actives and think about broadleaf weed activity too,” he suggests.

As the season progresses, Darren believes flexibility is key. “Delayed drilling isn’t all or nothing, even one week can reduce germination in the crop.”

Agrovista agronomist Peter Waltham is sticking with this strategy this autumn. Advising farmers across Dorset, Somerset and Wiltshire, he’s keen to point out that contrary to received wisdom, blackgrass is a serious problem in the West of England.

“The idea that blackgrass mainly affects the East is a myth, it’s pretty bad here and the biggest increases are in this part of the country. There’s been a noticeable hit on yield where there’s bad blackgrass and that’s in a season where the harvest has been generally poor with one or two exceptions,” he says.

Peter adds that there have been two years of difficult weed control – many crops have gone without residuals last autumn and the generally wet weather has made it tough all round. “It’s going to be make or break for many this time because of the build-up in the weed population.

“One or two might delay, whereas most won’t want to leave it too late and take too much risk. This is a wetter part of the country so delaying drilling is inherently a riskier tactic. I think the main thing is to not go too early – waiting until at least 20 September – and avoid using pre-emulsions on very dry seedbeds.”



Sowing in September comes with its own drawbacks in terms of weed control, warns Darren Adkins.



Peter Waltham expects some ‘fairly hefty’ herbicide programmes this autumn to cope with the increased weed burden.

Furthermore, Peter expects some ‘fairly hefty’ herbicide programmes this autumn to cope with the increased weed burden. “Against blackgrass, Liberator plus Proclus with Avadex (tri-alleate) is the starting point. For brome, I’ll use pendimethalin instead of Avadex to avoid a second pass. Follow-up will be cinmethylin plus picolinafen, or Octavian Met (flufenacet+ diflufenican+ metribuzin).”

He suggests two weeks is a sensible starting point for the gap between the two applications, but a lot depends on the season. “If you see a good opportunity with the right weather and crops are up and looking okay, then get in there with a follow-up. You could also use a spring Atlantis (mesosulfuron+ iodosulfuron) application instead if you have a susceptible population.”

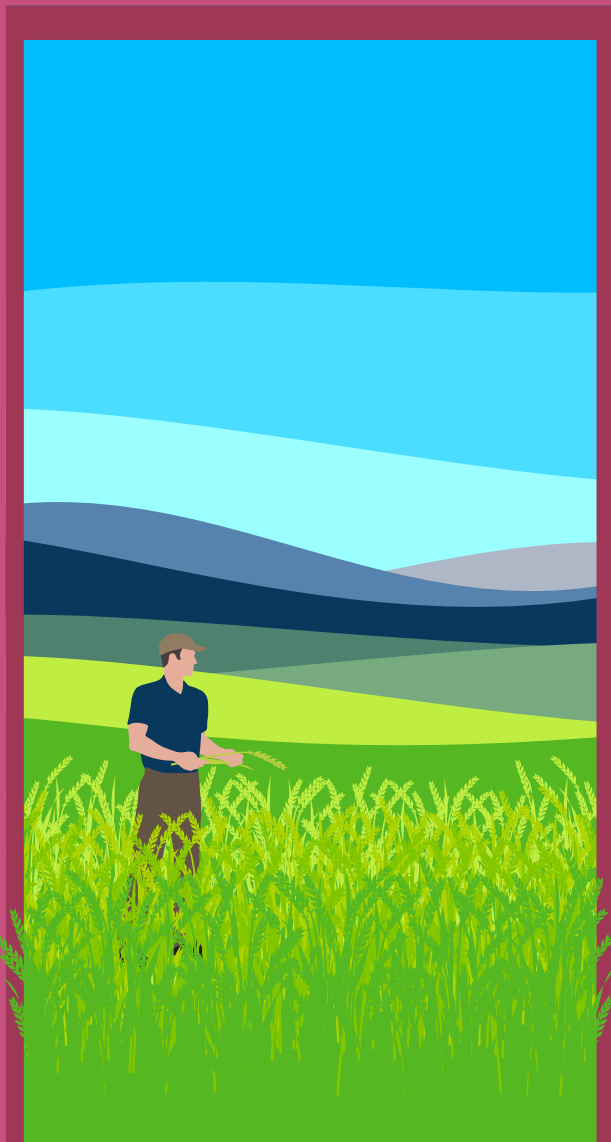
But importantly, Peter anticipates a lot of work will be required ahead of drilling this year. “Soils have taken a hammering; in many places the top layer has no structure and is lacking microbial activity.

“It’s simple advice, but get a spade and check where there the problems are and what implement you should use. Mineralising some nitrogen with cultivation will help things to get up and running which is what everyone will want to see this autumn,” he concludes.



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