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Pushing Performance

Saving soils this autumn

With many soils looking in a sorry state following a difficult year, taking action is vital to minimise the risk of suboptimal herbicide performance. CPM finds out more.

By Charlotte Cunningham

As a difficult season comes to a close and focus turns to the 2024 autumn drilling campaign, giving careful consideration to the impact soil conditions may have on herbicide performance will be imperative to get crops up and away and weed-free.

This is according to Ian Rudge, sustainability trials manager at Agrii, who says off the back of a challenging year due to the amount of rainfall the UK has had, soil structure could be an issue for both crop establishment and early weed control. “As we head into autumn, it’s gone from being as wet as old boots right the way through the growing season to now looking slightly drier. While there’s still plenty of moisture about, a lot of it is in the cultivation zone and soils are looking very sad and blocky at the moment.

“There are still a few weeks before we get into the main drilling window, but the reality is that we’re going to have a lot of less-than-ideal seedbeds in many situations.”

Aside from suboptimal crop performance and growth, poor soils can have a major impact on herbicide performance, he continues. “When we think about poorly structured soils, we’re talking about the presence of clods, compacted layers and lack of porosity. Where these features are present in soils, it can significantly affect both herbicide efficacy and adsorption/desorption,” explains Ian. “Inconsistencies in the soil profile can result in areas where the herbicide concentration is either too high or too low which reduces overall efficacy.”

What’s more, poorly structured soils especially sandy soils with low organic matter, are prone to leaching, he adds. “Herbicides can move more quickly through the soil profile, reducing the time they remain in the root zone where they are required to control weeds.”

Lower organic matter

With regard to adsorption and desorption, suboptimal structure often correlates with lower organic matter and clay content, both of which are vital for adsorbing and holding herbicides. “Low adsorption can lead to more herbicide being available in the soil solution, potentially increasing

herbicide movement out of the weed germination zone – especially after heavy rainfall in lighter soils – which in turn reduces residual control,” he adds. “There’s also a crop safety issue here, as many noted last autumn.”

Adding to this pressure is the fact that many growers are likely to drill earlier, through fear of getting caught out like last autumn, meaning there’ll be additional pressure on herbicides



Ian Rudge says in his book, *Backrow Max* is an essential part of a considered approach to herbicide programmes and grassweed control.



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Challenging soils in the Cotswolds

Sean Perry farms 485ha in partnership with his father and brother on the edge of the Cotswolds in the Vale of Evesham, a landscape which is dominated predominantly by heavy clay soils which can make weed control a challenge.

Cropping typically consists of winter wheat, spring linseed, winter beans and 61ha of land dedicated to SFI to replace oilseed rape, which has recently been dropped from the rotation. In terms of establishment, Sean operates a stripped back approach where possible using a Cousins V-Form subsoiler followed by a Horsch Joker and then drilled with either a Horsch Sprinter or Horsch Avatar.

Looking to the challenges on farm, weed



While Sean Perry utilises methods for improving soil structure to improve herbicide performance – such as applying muck via an agreement with a local dairy farmer – control of grassweeds is reliant on the use of good chemistry.

control is a considerable one, with blackgrass being a key burden, notes Sean. While he utilises methods for improving soil structure to improve herbicide performance – such as applying muck via an agreement with a local dairy farmer – control of grassweeds is reliant on the use of good chemistry.

“We used Luximo (cinmethylin) for the first time this year on farm but we didn’t have the best conditions as the weather beat us slightly. However, where we did manage to get in a bit earlier, we saw some really good results.”

To get the best from the chemistry, Sean paired it with Backrow Max – a decision made alongside his Agrii agronomist Peter Carr in order to push the performance of the active.

“Last year was a difficult season so we made the decision to use Backrow Max in the tank mix for two key reasons,” explains Peter.

“Firstly, because of its drift-reducing abilities – it changes the droplet spectrum upon exiting the nozzle which reduces drift, and by taking those small droplets out you’re essentially increasing spray coverage. Especially in challenging soil conditions, having less drifty small droplets reduces the chances of poor targeting of herbicides.”

The second element that Peter felt would be useful is Backrow Max’s ability to bind to clay particles, he explains. “This basically means we’re able to manipulate the adhesion of the herbicide to the clay to again improve coverage and also reduce leaching.

“By holding the herbicide, in this case Luximo, in the top 5cm of the soil, we were able to reduce both crop damage and increase persistency due to the higher concentration



Using Backrow Max with Luximo at the Perry’s farm meant they achieved 95% control of blackgrass last season despite difficult soils and a particularly challenging weed picture.

of the chemical in that active zone. It might be the case that some soils are more prone to leaching and run off this year, depending on how they cultivate up, so anything you can do to avoid this has to be a good thing.”

Thinking specifically about blackgrass control, Peter says Backrow Max has a proven, consistent track record of aiding an uplift in control in their own trials. “For something that’s as cheap as it is, to get an uplift of about 9% in blackgrass control, is a no brainer.”

This enhanced performance has also been noticed when used alongside Luximo at the Perry’s farm, with the farm still achieving 95% control last season despite difficult soils and a particularly challenging weed picture, adds Peter.

Going forward, Sean says Backrow Max will now remain part of the programme and will be used alongside an IPM approach to keep weed levels as low as possible as they venture into what could be another high-pressure year.

- ▶ to remain active in the soil for a longer period of time, warns Ian. “There will be a lot of growers banking on a really robust pre-emergence stack. But there are lessons to be learnt from last year, too.

“With excessive rainfall last autumn washing herbicides out of the weed zone, we saw crop damage and reduced plant counts as a result of big stacks, especially where growers had rolled for slug control. So it’s a tricky situation to be in which has to be managed carefully through various actions.”

So what can growers do to mitigate the risk? “Taking remedial action to physically correct any structural issues and get soils in better condition should be the immediate priority,” says Ian. “For example, I’ve been ploughing after barley recently where there was a lot of ground compaction.

The ground is very tight and definitely not as friable as last autumn. If growers even move just that top 5-10cm – to take out any surface compaction – it will definitely help.

“Carrying out some drainage work – using a mole drain – will also likely be beneficial. It’s vital to get soil structure in a good state to help get crops off to the best start and maximise stale seedbed opportunities as they’re likely to be limited in some scenarios this year.”

Traffic light ranking

Ian recommends using a traffic light system to rank the weed risk level of individual fields and guide the best course of action when it comes to rectifying soil issues. “If you have a red field – ones which have had excessive levels of weeds this year, for example – it might



Backrow Max helps increase herbicide retention in the weed germination zone better than any other adjuvant tested – enhancing residual herbicide activity, claims Stuart Sutherland.

be worth doing something completely different. This could include ploughing the soil or even just switching to spring cropping. In the current conditions, ploughing might be really beneficial, though it does pose its own challenges and isn't suitable for all soils and farms."

As it's unknown how the coming weeks and months will play out in terms of the weather and conditions going into the autumn, having a proactive plan – where possible – is key, believes Ian. It's his view that part of this plan should include incorporating an adjuvant into the tank mix to keep herbicides working to the best of their ability in what could be another challenging season.

Economic insurance

"Having an adjuvant as part of the herbicide programme is very economic and is an insurance giving an added benefit of better movement of actives to compensate for any poor establishment conditions."

In terms of products, he advocates the use of Interagro's Backrow Max which he says has proven itself across a variety of crops both winter and spring.

So how exactly does Backrow Max work and how can it help to mitigate the negative impacts of poor soil structure on herbicide performance? "Backrow Max is a specialist activator adjuvant, which is designed to aid application efficiency," explains Stuart Sutherland, technical manager at Interagro. "It does this in a number of ways, firstly by the reduction of drift which ensures more of the herbicide reaches the target area.

"It also helps to create a more optimal droplet size for pre-emergence herbicide application, leading to improved coverage on the soil."

Critically, in terms of absorption and retention, Backrow Max helps increase herbicide retention in the weed germination zone better than any other adjuvant tested – enhancing residual herbicide activity, claims Stuart. "Although we've not been short of rain this year, it's important to know that Backrow Max can also be beneficial when we do inevitably find ourselves in a dry situation again as it slows drying on the soil surface – helping to maintain soil moisture levels – aiding the consistent release and uptake of herbicides."

It's for these reasons that Ian says most of the farms he works with now use Backrow Max across the board. "It's just an inherent part of the pre-em programme now."

Although the inclusion of the adjuvant can be hugely beneficial, it's important



Agrii trials have shown an uplift of about 9% in blackgrass control when chemistry is paired with Backrow Max.

to be realistic and Ian warns that it's not a 'get out of jail free' card in severely compromised situations. "In suboptimal situations you'll definitely improve herbicide performance with Backrow Max, but it won't mitigate a poor, compacted seedbed, so it's important to carry out other actions to correct this as much as possible prior to drilling."

With so many scarred from the previous season, Ian says it's understandable that justifying an added cost like Backrow Max can be a difficult decision – particularly when many are already spending around £100-140/ha on their early weed control programme.

"But growers ought to think about how much of that investment they could be losing in extreme conditions. With the amount of money spent on the herbicide stack – both pre- and post-em – these products should be given the best opportunity to work to their potential.

"For the sake of a few pounds per hectare with the inclusion of Backrow Max – i.e. an additional 3% spend – the efficacy and safety advantages of the product makes for a cheap insurance. There are those who are sceptical about how it works, but in my book it's an essential part of a considered approach to herbicide programmes and grassweed control." ■

Pushing Performance

At the heart of good crop production lies careful use of chemistry to protect the plant and maintain performance, right through the season.

But optimising the efficacy of plant protection products can be challenging, while increasingly restrictive regulations limit just how far you can go.

This series of articles explores the science behind the use of adjuvant and biostimulant tools to help power both chemistry and crop performance, as well as increase understanding of why they're needed and what they do.

We're setting out to empower growers

and drive crops to reach their full potential. Backrow Max is a specialist activator adjuvant designed to power residual herbicide performance in the toughest of weather and application conditions, helping to take down yield-robbing weeds once and for all.

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