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Maximising modes of action

Forward-thinking farmers

A recent survey suggests that understanding modes of action and resistance management is already important to many farmers when it comes to weed control strategies, however, there's room for improvement. CPM finds out more.

By Janine Adamson

Weed control — as with fungicides, simply choosing products which contain different active ingredients isn't a fail-safe way to ensure alternative modes of action. But equally, few may be able to recite every nuance of the latest HRAC Mode of Action Classification Map.

With herbicide-resistant weeds continuing to creep in and reports being made of declining chemistry performance, are farmers making the most of the spectrum of products available? A recent survey conducted by Bayer suggests indeed they are.

“The results show that by and large, farmers are taking positive steps and doing a good job of understanding how herbicides work and the importance of diversifying the mode of action (MoA),” says Bayer's Tom Chilcott.

“This is important as we look to the future with potential regulatory changes on the horizon — we expect some actives could be restricted in use with their dosage reduced. This means we'll have to utilise even more MoAs to achieve the same result,” he says.

Resistance risk

It's well understood that one of the main benefits of diversifying the MoA is to reduce the risk of resistance, and the survey suggests this remains a concern — more than 55% of respondents reported some level of resistance, predominately to post-emergence chemistry.

However, only 30% of participants said they're fully aware of the HRAC Mode of Action Groups and 21% said they weren't aware at all. North Lincolnshire farmer Colin Chappell says he always aims to exercise best practice for weed control but admits he isn't as knowledgeable as he is about the fungicide groups. And most importantly, there's a lot more to consider than simply selecting from a grid.

“The intention to alternate and mix the MoAs is always there, but I worry about the stacking effect on the crop and compromising its safety. Knocking it back in this way can create gaps which allows the sunlight in and gives weeds a chance,” he explains.

“We also have high clay and organic matter content in our soils so experience a lot of lock-up and adsorption. It's difficult to achieve optimum control with challenging soil conditions, which is why growers such

as myself require support.”

Although BASIS-qualified, Colin says he seeks agronomic advice particularly for maximising the outcomes of his spray programmes. “It's easy to become absorbed in day-to-day crop management and forget about broader strategic planning, which does include creating diversity across MoAs. But really, I believe chemistry should be the last resort.”

Despite the nature of Bayer's business, Tom says he wholly agrees with this ethos. “Giving a crop the best possible start helps to alleviate pressure on herbicides later in the season. Much of this is centred around understanding which specific weeds are in abundance and then tailoring cultural control tactics accordingly,” he says. ▶



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► For Agrovista agronomist Ian Johnson, prevention is always better than cure, mainly to avoid expensive in-crop treatments. “The last thing you want to do is rely on post-emergence control if you can help it, so it’s always best to apply the principles of IPM and go from there,” he says.

“This includes at least one application of glyphosate between crops, because it’s certainly the most reliable weed control product out there and

Autumn pointers

Tailoring herbicide choices depending on the weeds present, soil conditions and overall cropping rotation is the key to getting the most out of pre- and peri-emergence applications, says Tom Chilcott. Moving into the autumn, he suggests considering the following:

- Check the crop rotation provides enough diversity in chemistry by default, and if not, consider rotating active ingredients
- Understand whether the programme contains the best actives for the weed spectrum present
- Ask whether simple, cost-neutral adjustments can be made to the programme that could also increase mode of action diversity
- Understand how the chemistry will interact with specific conditions this coming autumn

ensures there’s no carry over of weeds from one crop to the next. Most of my growers in North Yorkshire then apply one robust pre-emergence spray with between four and six actives in the tank, depending on the weed problem and pressure, with a follow up spring herbicide if necessary.”

This is a slight contrast to the survey results, where most participants (59%) said they use 3-4 different MoAs during the entire weed control programme, excluding glyphosate. Tom says he found this surprising.

“I’d have expected more people to be using upwards of five MoAs in the programme, taking into account that farmers may be doing a pre-em, a peri-em and a post-em. One of the reasons for this could be that HRAC Group 15 (flufenacet, tri-allate, prosulfocarb and ethofumesate) is often used in the same programme which reduces MoA diversity.

“It’s worth saying that even diversifying actives within the same group is better than increasing the load of one herbicide.”

Ian says product price will likely have an influence particularly for new releases such as cinmethylin, which is viewed as very expensive to use, and as a result could narrow options down. He says whereas many of his customers rely on his knowledge regarding HRAC groups, he relies on them when it comes to application stewardship.

“This plays a vital role in preserving the available chemistry. From selecting the correct nozzle technology to only spraying on appropriate days, application is really important particularly for the residual chemistry,” he comments.

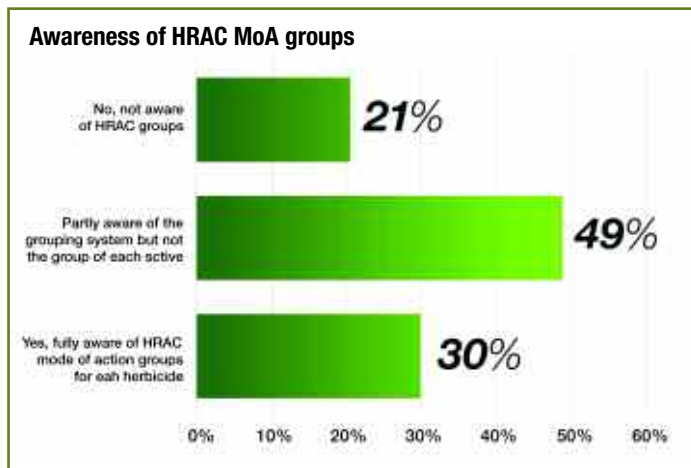
Colin agrees that implementation is key. “Aspects such as seedbed preparation and minimising clods all add percentage control to herbicide programmes without necessarily realising. During a tough year when inputs are pricey,

maximising what’s in the tank is even more important,” he says.

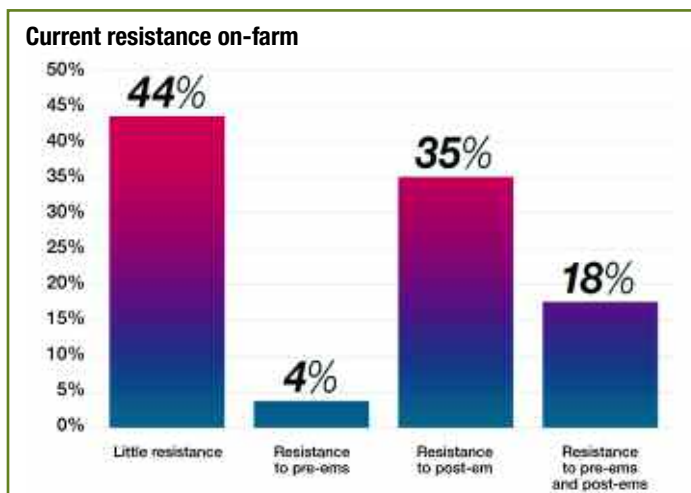
In terms of specific active choices, the survey results indicate that the following are most popular, with participants saying they’d used them during the past three seasons — glyphosate, flufenacet,

pendimethalin, diflufenican and mesosulfuron+ iodosulfuron.

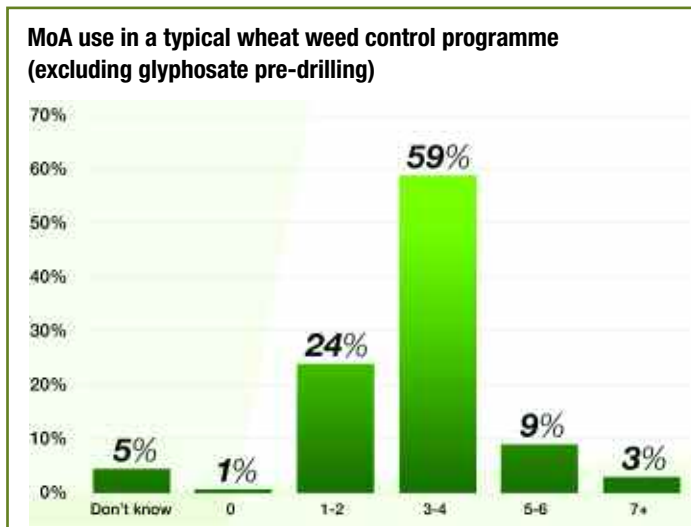
More than half of participants said they’d used mesosulfuron+ iodosulfuron-type chemistry, and nearly a third pinoxaden, even though spring post-emergence timing is considered to have declined in importance as



Source: Bayer Mode of Action Survey 2023



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Bayer Mode of Action Survey 2023

The Bayer Mode of Action Survey 2023 gathered responses in June and July of this year. It was commissioned to learn more about understanding and usage of different modes of action for weed control in cereal crops.

It's hoped the results will help to inform the whole industry and support providing better guidance to farmers about using herbicides.

In terms of response, 243 farmers, agronomists and farm workers completed the survey from across the UK. Results indicate there's a good cross-section of

farms included, which are experiencing different weed problems and different levels of resistance.

The survey also shows that modes of action and resistance management are already part of many farmers' thinking around weed control. But, there's still potential to improve herbicide use mainly by refining what's already being done, rather than by making radical changes.

More information on the key knowledge gaps identified by the survey will be released in the coming months.

farmers move weed control programmes to the autumn.

According to Tom, smart use of older chemistry can still deliver excellent control, although incorporating it may require a more diverse overall stack, and will greater rely on suitable conditions to achieve results.

"In terms of resistance issues, some may have discounted certain options for the foreseeable, but unless testing has confirmed this, something else could be at play such as seasonality. The advice is to apply best practice and understanding to the weeds present in each field," he says.

A tool which Tom, Ian and Colin all agree is vital, is resistance testing, particularly for Italian ryegrass. "Testing weeds for herbicide resistance should be the first action towards understanding the problem," says Ian. "Remembering that weeds can vary in susceptibility between fields on the same farm."

Then, Tom says it's a case of correctly interpreting the results as it's not a simple black or white. "It's important to understand exactly what the resistance test is and what it's saying. Resistance is graded, so you may have it present but still have the ability to achieve a certain percentage of control

when that active is used within the stack," he says.

"But it's worth noting that resistance tests are usually based on the survivors post herbicide application — meaning this could exaggerate the level of resistance in the weed seed-bank to some extent."

Expert advice

Colin champions testing, having learnt that blackgrass in part of his cropping area has RRR resistance to pendimethalin, meaning resistance is confirmed and is highly likely to reduce herbicide performance. Again, he says he seeks expert advice and will do so even more this year, following an especially difficult season.

He agrees with the survey findings where 36% of participants said they'd appreciate more information about mode of action diversity, and 27% said better labelling of active ingredients and modes of action groups on product containers would be beneficial.

"Although the herbicide group information is available on labels, I think it should be clearer and more obvious so you're aware of if you're using the same classification or not. Ultimately, it can be very difficult to achieve



Whereas many of Ian Johnson's customers rely on his knowledge regarding HRAC groups, he says he relies on them when it comes to application stewardship.

optimum grassweed control, I believe farmers require support especially for this coming season," comments Colin.

Ian recommends attending a regional Bayer Weed Screen trial tour for knowledge transfer, particularly if trying to overcome other difficult weeds such as brome and rat's tail fescue. Bayer Weed Screen is a planted matrix of different grassweeds, overlaid by various residual and contact product options. "It's a very simple and visual display of how difficult it can be to control these grassweeds by using plant protection products alone," concludes Ian.

The global Herbicide Resistance Action Committee (HRAC) is an organisation overseen by CropLife International with support from the agrochemical industry. To access the Mode of Action Classification Map and wider guidance on fighting herbicide-resistant weeds, visit www.hracglobal.com ■



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Forward-thinking farmers

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