

Little wins for weed control

“Herbicide effectiveness improves the later crops are drilled.”

JOHN CUSSANS

Both short- and long-term wins are on the horizon for growers with grassweed problems, providing the fundamentals of resistance management are adhered to. **CPM** shares the news.

By Janine Adamson

After the past two seasons of immense challenge, any agronomic win, no matter how small, should be worthy of celebration.

And while some might struggle to get excited over a simple change in rate or dose split, with drilling continuing to err on the earlier side of proceedings for some, news from Bayer could help to mitigate risk when it comes to grassweed management.

Albeit it is a simple update for aclonifen (as in Proclus and Bandur) – whereas previously its total dose of 1.4 l/ha had to be applied in one

hit in winter wheat, it can now be split – 1 l/ha at pre-emergence timing followed by 0.4 l/ha at early post-emergence. There's also been an update for winter barley, with growers able to utilise a full 1.4 l/ha total dose compared with the previous 1 l/ha.

EXTENDED TIMINGS

Bayer CropScience's Darren Adkins says it's a minor change but incurs advantages. “Splitting the dose means you can extend the timing of autumn-applied herbicides to protect against later germinating



Better risk management

Splitting the dose of aclonifen means the timing of autumn-applied herbicides can be extended to protect against later germinating weeds, says Bayer's Darren Adkins.

A new approach to tramline trials

How the Taguchi method is helping to progress on-farm research

While on-farm research can often start with a simple aim, the treatment combinations required to answer that question can quickly multiply, resulting in a trial that's too large to manage in a commercial field.

However, the Taguchi method – a concept widely used in engineering and manufacturing to optimise processes – allows researchers to trial selected treatment combinations and use the results to predict how untested options might perform. And now, researchers are exploring whether the same principle could be applied to on-farm tramline trials.

The method's route into agronomy first began when ADAS plant pathologist, Dr Faye Ritchie, discussed the limitations of an existing fungicide prediction method with her father James, a mechanical engineer.

"The method I was using at the time wasn't working properly and I was complaining about it. Dad said, 'What you've done there sounds really like the Taguchi method.' He gave me a book and I started investigating it."

As a result, Dr Laura Sapelli, then a PhD student on placement with ADAS, applied Taguchi to existing data where the performance of different treatment combinations was already known, to see whether comparable results could be produced from fewer combinations.

"It showed it was a transferable method," comments Laura. "So it has the potential to save time, money and resources while achieving the same, or at least comparable, outputs."

That potential is now being tested through the oilseed rape-focussed LLS-ERASED – the £2.5M Defra-funded project led by the British On-Farm Innovation Network (BOFIN). Its aim is to develop new approaches to managing light leaf spot in OSR.

This autumn, eight farmers will



Sharing challenges

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host LLS-ERASED tramline trials investigating the influence of OSR variety and fungicide timing on light leaf spot and yield. The trial combines two OSR varieties with contrasting resistance to light leaf spot with autumn and spring fungicide treatments. Together, those factors create eight possible combinations.

But, rather than testing all eight, just four will be tested and replicated, and Taguchi used to predict the remaining four.

For ADAS principal research consultant Susie Roques who specialises in large-scale on-farm trials, the method could be particularly valuable at tramline scale, where work is generally limited to around four treatments compared with the 20 commonly accommodated in small-plot trials, she explains.

"Having this method to look at a

greater number of treatments is really valuable. In a small-plot trial, you're just saving money. In a tramline trial, you're moving from impossible to possible by cutting down the number of treatment combinations you review."

But predicting rather than physically testing some combinations does come with a trade-off. Susie stresses that researchers can't have the same confidence in a predicted result versus one physically tested, so promising findings will require further testing.

Hence rather than being a shortcut to definitive answers, Taguchi's potential lies in allowing farmers and researchers to ask more questions, identify those worth pursuing and make better use of the field space available to test them, notes Susie. "People always want trials to answer more questions than they're able to," she concludes.

► weeds, which is useful in early drilling situations," he explains.

According to Darren, this is even more useful because of aclonifen's longevity and mode of action. "As an active ingredient, it's less reliant on soil moisture and sits on soil surface to be taken up by emerging weed shoots only. This is certainly

an advantage if drilling has taken place in September and it's dry.

"With the split dose, it gives the flexibility to factor in different modes of action into early post-em sprays, and create greater diversity in the partner programme."

So from Darren's perspective, what could an autumn weed control

programme look like with this in mind? He says the fundamentals of herbicide planning won't really change. "That's thinking about what grassweeds or broadleaf weeds are being expected based on the farm's history, and the resistance status of those weeds.

"Then it's considering the timing of drilling and understanding how the



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Exercising discernment

Agrovista's Mark Hemmant believes there may be a misconception of what a successful stale seedbed actually means and the impact on subsequent herbicide use.

different modes of action behave in the soil and their persistency. Those are the variables that really inform programme choice," he comments.

When drilling earlier, it's likely two if not three autumn applied sprays will be required, whereas planting later will increase the chance of having to apply all products in one go, notes Darren.

LAYER OF CONTROL

Thinking again about aclonifen, because the product doesn't enter the soil profile, it forms a layer on the soil surface, he says. "This is useful because if conditions are dry but with enough moisture for weed seed to germinate, then there'll be activity from aclonifen before more soluble actives get down to the roots.

"It's pretty much insoluble in water – it doesn't go into soil and sticks to surface incredibly well. Once bound, it won't move."

A bonus is that it isn't broken down by UV activity either, adds Darren. "A lot of chemistry will break down in sunlight, but aclonifen has been used widely in tropical regions purely because it's so good at remaining stable in dry conditions. It also has a useful half-life of around 80 days for long-lasting activity."

Considering all of the benefits of aclonifen, he doesn't shy away from the need to protect it. "If we look at the cereal herbicide modes of action available to play with, we have a good range. In fact, there are 10 if you include glyphosate and the post-emergence options.

"We don't struggle, but products should be chosen wisely to ensure diversity in programmes and longevity of the chemistry," he urges.

As for this year specifically, in high pressure situations, Darren raises that Bayer is supporting the use of

Drought, resilience and the search for harmony

Introducing the theme for Oxford Farming Conference 2027

As another prolonged dry spell has gripped much of the UK, farmers across the country are once again facing the realities of a changing climate, highlights Ben Makowiecki, agriculture sustainability director at Lloyds Banking Group, and Oxford Farming Conference director.

Brown grasslands, stunted crops, depleted water supplies and growing concerns over livestock feed have become familiar sights, he adds. "While drought has always been part of farming, the frequency, intensity and unpredictability of these events are becoming harder to ignore.

"For many businesses, this year's drought means more than lower yields, squeezed margins, difficult management decisions, and increasing weather volatility that places pressure on farming businesses across the country.

"Whether it's cereal growers watching crops shut down under heat stress, or livestock farmers trying to stretch grazing for another week, resilience is being tested across every sector and prompting renewed questions about how farming systems can better withstand increasingly difficult conditions."

He believes that while it's not the sole solution, regenerative approaches

can help to reduce vulnerability by improving the health and function of soils. "Farmers who have invested in soil health often report crops holding on for longer during drought, showing better root development and maintaining productivity when neighbouring fields begin to struggle.

"Regenerative farming shouldn't be presented as a silver bullet, but it does offer a practical pathway towards greater resilience in an increasingly uncertain climate, particularly where improvements in soil health can help businesses make better use of the water available to them," suggests Ben.

Taking this to a higher level is Oxford Farming Conference's 2027 theme – 'harmony'. According to Ben, this isn't about the absence of challenge. "Farming has never been free from risk. Rather, it's about finding balance between food production and the environment, short-term pressures and long-term resilience, innovation and tradition.

"Drought reminds us that farming operates within natural systems, not separate from them. The businesses best placed to thrive in the future are likely to be those that work with those systems, building healthier soils, more diverse landscapes and stronger economic foundations that can



Harmony theme

Perhaps the challenge isn't how to respond to drought, but how to create harmony between farming and nature, suggests Ben Makowiecki.

withstand periods of greater volatility.

"As the sector reflects on another difficult season, perhaps the challenge isn't simply how we respond to drought, but how we create harmony between farming and nature so that both can prosper in the decades ahead," he concludes.

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AGRONOMY Cereal crop management



A task for a lifetime

ADAS' John Cussans warns that there's much more to weed management than 'getting away with it' for a year or two.

cinmethylin plus aclonifen at 1.0 l/ha.

With so much talk about drilling date, ADAS' John Cussans agrees that it doesn't just have an impact on the success of stale seedbeds and weed seed germination. "In the past, we perhaps hadn't appreciated what an effect drilling date has on herbicide performance.

"Bigger picture data suggests that later drilled crops have a lower requirement for herbicides and follow-up contact sprays. Simply, herbicide effectiveness improves the later crops are drilled," he raises.

SEED-BANK CONTROL

He also highlights that there's much more to weed management than 'getting away with it' for a year or two. "You must proactively manage the weed seed-bank in the background all of the time.

"Okay, in some situations in some years, drilling later doesn't give you the results you want due to less competitive plants undermining what you're trying to achieve. And then, cultural strategies stop working well if weed numbers are really

high. But in the long-term, usually, delayed drilling will yield results."

For Agrovista's Mark Hemmant, it's been another difficult year to hold off. "With the spring droughts we've been experiencing, we know early drilled crops are more resilient to arid conditions. Consequently, this will mean advising the use of more herbicides, but if cultural controls really fail, it'll be applying glyphosate and starting again."

John highlights the reasons behind why stale seedbeds may not be effective. "The true benefit of a stale seedbed with shallow cultivation isn't seen for 3-4 weeks after that initial cultivation; you have to allow time and for glyphosate to work, and two weeks isn't enough. Time is our most valuable currency.

"Equally, what's required is different between dry and wet conditions. In wet conditions you want to get the blackgrass seedlings to chit and reduce return in the following crop. But in dry situations it's far better to leave the freshly shed seeds on the surface so they're vulnerable to predation."

Mark raises that there may be a



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misconception of what a successful stale seedbed actually means. “Growers achieve a good weed flush and could assume there’s the potential to then reduce spend on a herbicide programme, particularly when evidence shows there’s no benefit beyond two stale seedbeds – a third or fourth doesn’t increase control.”

In agreement, John says it’s easy to over-estimate what can be achieved with a stale seedbed. “Remember, the flush is only 5% of the seed-bank that’s waiting dormant below the soil surface.”

Returning to the conundrum of how to devise an effective herbicide programme, John proposes that the order of application is variable depending on conditions. “If you’re sequencing it’s best to do that with a 10-14 day gap, apply the best herbicide actives first followed by the less effective ones. Always prioritise controlling the early

germinating weeds as these are the ones that produce the most seeds, certainly don’t let those individuals come up in the crop.

“Then in drier conditions or where there’s a possible crop safety risk, always apply the safer material first (aclonifen, bixlozone, tri-allate etc) and the less safe options later. However, whatever you do, do not skip the pre-emergence stage.”

Hutchinsons’ Dick Neal agrees that a sequence of actives rather than a single, large pre-em stack should offer the best blackgrass control.

“The aim of the sequence is to overlap herbicide active dose with blackgrass emergence.

“We have to make sure we have herbicide active in the soil from

1 October through to the middle of November,” he urges.

With blackgrass emergence increasingly protracted, he suggests

the focus should also shift towards building a competitive crop from the outset. “This could include placing phosphate where roots can access it, using variety blends to strengthen crop competition and sequencing herbicides to match the weed’s emergence pattern, with the aim of leaving as little opportunity as possible for survivors to replenish the seed-bank.”

Casting much further ahead, Bayer’s Richard Phillips says there’s another new herbicide mode of action due on the horizon. “Icafolin-methyl will arrive next – a new mode of action from HRAC Group 23 for post-emergence control of grassweeds and broadleaf weeds, including blackgrass and oats.

“How it works is treated weeds stop competing but keep their structure, forming a mulch layer. Its EU launch is due at end of the decade for potatoes, pulses and veg, and we’re currently looking at how authorisation can be achieved for the UK following EU alignment next year. For use in cereal crops, we’re aiming for authorisation in the early 2030s,” he comments. ●

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Pioneering product innovation in the fight against weeds

The fight against arable weeds is constantly evolving. Resistance and changing farming practices mean that new herbicides are essential to protect crops and secure yields.

With a global research team and UK trials and technical expertise Bayer Crop Science UK continues to develop innovative herbicides that help farmers stay one step ahead.

Subject to registration, two new Bayer co-formulations are planned for 2027 and 2028. In 2027 a co-formulation of aclonifen + diflufenican, in 2028 a co-formulation containing bixlozone +

diflufenican + mefenpyr, is anticipated. Both offer a versatile component for robust and reliable weed control programmes.

Further ahead, Bayer’s AI driven CropKey programme is accelerating the discovery of new modes of action. Icafolin-methyl is the first herbicide breakthrough from the programme, it belongs to a new chemical class with an excellent efficacy and safety profile. Due to launch in Brazil in 2028. Development work is already underway to create formulations suited to weed problems in the UK.



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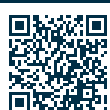
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