

“Herbicide-resistant ryegrass is much more challenging than blackgrass.”

Ryegrass threat looms

Technical
Weed control

Ryegrass may take over from blackgrass as Britain's toughest grassweed to control. CPM gathers worldwide experience.

By Tom Allen-Stevens

If you've drilled up your wheat, and especially those fields with known or suspected grassweed issues, have you also done at least one of the following (and preferably all)?

- Delayed drilling until mid October
- Prevented any grassweed seed from shedding into the previous crop
- Ploughed down any shed seed (preferably having not ploughed for several years previously)
- Sown a competitive crop, at a high seed rate or in narrow rows

If the answer's no, skip this article, and probably the next one, too — the only option left to control your weeds is an in-crop herbicide, and if that's the only option you're employing, you're probably wasting your money and driving resistance.

“We really need to learn the lessons from blackgrass,” urges NIAB's John Cussans. “If we over-rely on herbicides, we're going to see new resistance problems.”

John was speaking at a recent webinar highlighting the rise in resistant ryegrass and other grassweeds. “I want to put the fear of God into growers about Italian ryegrass (IRG),” he says. “Herbicide-resistant ryegrass is much more challenging than blackgrass.”

Problem ryegrass

He points to an analysis of some recent NIAB testing of 'problem' IRG samples, supported by BASF alongside Syngenta and Bayer. More than 50% of these were resistant to Axial (pinoxaden) and Atlantis (iodosulfuron+ mesosulfuron). According to John, an equivalent figure for a more representative, unselected blackgrass survey would be around 85%.

But it's a different picture on the pre-emergence herbicides. “We're beginning to see a trend towards increased tolerance to the pre-em's in blackgrass. The situation with flufenacet in ryegrass is much more worrying than in blackgrass, though, with some populations incredibly tolerant.”

But John insists the problem is not with the herbicides. “Blackgrass only became a problem weed because we adopted an agronomy blueprint that drove it to spread. Then we got over-reliant on herbicide to keep it in check and that led to resistance.”

A NIAB study of cultural control approaches in ryegrass, part of a larger, EU-funded project driving integrated weed

management in practice (IWM PRAISE), paints a similar picture to blackgrass. Establishment in early autumn and direct drilling are found to drive the heaviest infestations (see chart on p12).

“Cultural practices make a massive difference to populations of all grassweeds, although some don't respond in the same way as blackgrass — there can be more spring-emerging plants, which in turn are much more competitive, and they're not as effectively controlled by residual chemistry,” he notes.

This chimes with the experience of Tom Reynolds, farming 200ha near Folkestone in Kent. Much of the land lies on gault clay, and problems with blackgrass prompted him to change the crop rotation, bringing in ▶



John Cussans wants to put the fear of God into growers about Italian ryegrass.

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Weeds lurk beneath large OSR canopies

Oilseed rape growers have been advised to check crops for weeds and monitor soil conditions as the main window for Kerb (propyzamide) applications approaches.

"There are a lot of very large OSR canopies that didn't receive a pre-emergence herbicide," notes John Sellars, Corteva's OSR product manager.

"Some growers will have applied a 0.25 l/ha dose of Belkar (halauxifen-methyl+ picloram) but another flush of weeds may now be coming through. Then there'll be those who haven't applied anything with quite large weeds to manage."

Where weeds have received no treatment, he recommends the higher, 0.5 l/ha rate of Belkar, which can be mixed with a Kerb application, while a top-up lower rate can be applied for second flushes right up until the end of Dec. "Large charlock can

recover from a lower rate, although the higher rate should knock it down. Those with heavy infestations should consider a Clearfield variety, however.

"An alternative to Belkar where blackgrass is the priority and broadleaf weeds not too large is Astrokerb (aminopyralid+ propyzamide). Some growers worry about large canopies, but these will soon be breaking open as conditions get colder. Our experience, following hundreds of trials across Europe, is that a well applied herbicide at this time of year will get into the canopy and reach the weeds beneath it," he notes.

Corteva's Kerb Weather Data service is now incorporated within its new Arable app, available free for iPhone and Android smartphones. This gives a simple traffic-light indication of when conditions are suitable to apply the herbicide.



The 0.25 l/ha dose of Belkar is effective on cranesbill but another flush of weeds may now be coming through.

"Growers should use it as a guide and check weather and soil conditions before applying propyzamide. For best efficacy, soil temperature should be below 10°C, but it must not be applied in water-logged conditions or when heavy rainfall is expected," says John.



Practices such as establishment in early autumn and direct drilling drive the heaviest infestations of ryegrass.

► a two-year grass ley as the main break, backed up with winter beans.

"It's a good rotation for cleaning fields and our blackgrass is under control. Ryegrass is now our main grassweed

focus, and in north Kent it's a serious issue. The last thing we want is for resistance to become a problem — if you think it's bad in blackgrass, in ryegrass it's far worse."

He times silage cuts of the leys to minimise seed shed, undersows an oat crop as an entry while the leys are followed by beans before the first wheat.

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In parts of Australia, ryegrass has become the number one weed.

“We’re trying to learn from organic systems to reduce the risk. If we use the chemistry sparingly, there’s scope to keep grassweeds under control,” says Tom.

In parts of Australia, ryegrass has become the number one weed, according to BASF specialist Lauren Marchant. “More recently we’ve seen it becoming resistant to pre-em herbicides and glyphosate,” she says.

“We have a saying — if you find a product that works, stop using it.”

New herbicide

BASF’s new herbicide Luximax (cinmethylin) is now available to growers in Australia and has been used on close to 250,000ha, she reports. Although there’s no known cases of resistance to the herbicide, growers are encouraged to rotate modes of action (MoA) between years — Luximax is in a different HRAC group to other residual chemistry.

Clint Neville crops around 750ha in the central west of New South Wales and uses a wide range of approaches to keep on top of ryegrass. This includes windrow burning and pulverising seed at harvest with a Harrington Seed Destructor.

“You have to be proactive and treat ryegrass as if it’s already resistant. Hopefully, by switching its use with



Stuart Kevis sees Luximo being used in stacks and sequences with the current chemistry set.

existing herbicides with different modes of action, Luximax will remain effective for a long time,” he says.

But would that work in the UK? “The challenge for growers here is how to manage the enormous weed-seed burden we have,” notes John. “The reality is that we need our autumn stacks of chemistry just to stay where we are. Dropping a product such as flufenacet for a year may slow selection for resistance, but the downside of considerably more weeds would be too onerous.

“The first priority has always got to be effective, sustainable weed control. Although the principles of IWM are universal, translating the Australian approach directly to the UK isn’t a given and we’re assessing some aspects as part



The last thing Tom Reynolds wants is for resistant ryegrass to become a problem.

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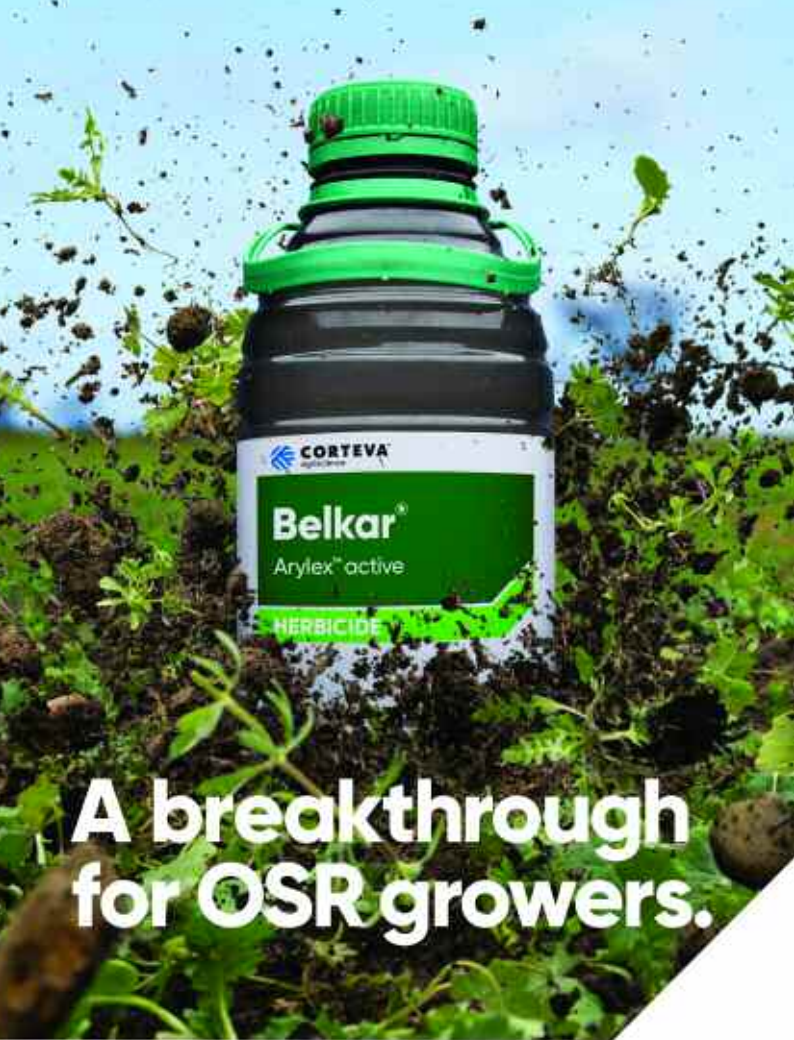
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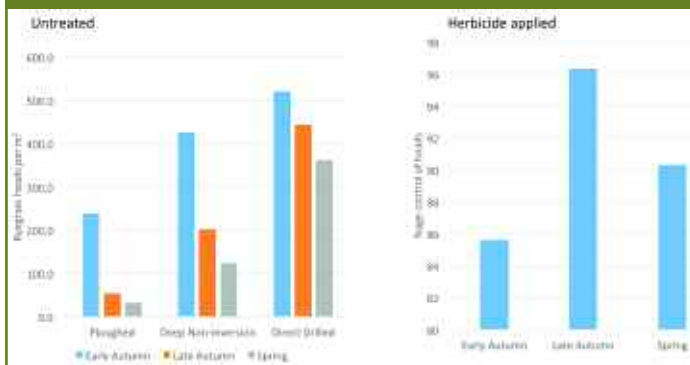


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Cultural control approaches for ryegrass



Source: NIAB (IWM PRAISE), 2020; herbicides applied were Liberator (flufenacet+ diflufenican) plus Defy (proflumicarb) followed by Atlantis plus pendimethalin.

► resistance management, however.”

Luximo is currently passing through product approval in the UK, says BASF's Stuart Kevis. He notes that Crystal (flufenacet+ pendimethalin) continues to perform well in trials against IRG, although

these have shown control is improved with Luximo.

“When Luximo is on the market it will become the new backbone active, but it still needs partners, and the more effective and complimentary the partner is, the better. So for the foreseeable future we see

Helix East puts innovation to the test

Hutchinsons has launched one of three new demonstration farms for its Helix project, that aims to put new technology through its paces in a farm setting to assess the value for growers. GD Jewers and Son, near Bury St Edmunds, Suffolk, is to host Helix East.

“The aim of Helix is to evaluate new technologies claimed to add value to growers at a farm scale, rather than small-plot or tramline work,” explains Hutchinsons head of technology and innovation Stuart Hill.

He points to the “huge” amount of funding currently going into Agtech — up from \$1.58bn in 2013 to an estimated \$5.5bn in just the first half of 2020, according to AgFunder. This is coming from all sorts of sources, he notes, with the likes of Microsoft, Google and Bosch getting involved alongside existing industry concerns. New government-funded AgTech centres and innovation schemes are also driving in new start-ups.

“On top of that, the pace of technology development is ten times faster than traditional input development. Within Hutchinsons we have the tools and expertise to develop these innovations and deliver the advice and interpretation required. But Helix

is a collaboration, that brings the innovators together with the farmer.”

The aims of Helix fit neatly with the journey taken by the 385ha farm based at Woodhall, Rattlesden, says Tom Jewers, who farms mainly combinable crops in partnership with his parents.

“We set out on a new direction in farming when we went into direct drilling in 2014. That brought with it a host of other questions — making better use of nutrients, the principles of soil, carbon, and balancing food production with care for the environment. It opened the door for us on regenerative agriculture. But there's a lot of muck and mystery within this. I want to know is there a margin over inputs?”

A keen advocate of innovation and use of new technology in agriculture, Tom sees better use of data as a route to unlocking the true value behind some of the principles he's exploring, and that's where he hopes Helix can help. An Omnia user, this has already helped identify parts of the farm that were underperforming and now placed in Countryside Stewardship.

“I can see the value in connecting data to management practices, such

New contact option for BLWs in cereals

FMC has launched a new carfentrazone product, Aurora, to support the suppression of broadleaf weeds (BLW), particularly ivy leaf speedwell, groundsel and bur chervil.

The move follows requests from growers after last season's extremely wet weather says Adam Espir, commercial technical manager at FMC. "What became apparent in autumn 2019 was that when growers couldn't get pre-emergence residuals on, weeds were appearing that would normally be controlled."

Approved for use in most winter and spring-sown cereals, Aurora can be applied in autumn or

spring from the two-leaf stage of crop until third node detectable. It has activity on a range of BLWs, notably red deadnettle, and others such as cranesbill up to four leaves.

"It's a contact acting herbicide that can be used with residual herbicides where BLW are present. It can also be tank mixed with a wide range of products, including insecticides.

"Aurora works very well against small weeds, but good coverage is important. Water volume is crucial so I would recommend at least 200 l/ha, while ensuring weeds are still at the two-leaf stage, will deliver the best results," says Adam.

Luximo being used in stacks and sequences with the current chemistry set, so mixed or

sequenced with flufenacet, pendimethalin, prosulfocarb, triallate, etc.," he says. ■

as allowing you to look in more detail at soil moisture in relation to N applications, and linking tiller counts to models that predict nutrient requirements," says Tom.

Working closely with Hutchinsons agronomist Mike Greener and Helix East manager Rob Jewers, there are number of key areas that will be explored across the farm, bringing in new technologies and tools to assess their value:

- Management of winter wheat — assessing conventional varieties alongside hybrids, blends and bio-solutions; comparing the farm standard approach with a managed use of new tech and integrated crop management.
 - Improving soils – looking at the role of cover crops and innovative soil tests; specifically to explore carbon capture and exchange.
 - Nitrogen-use efficiency — use of inhibitors and effect on soil microbes; timings in relation to soil moisture; more efficient sources, such as foliar.
 - Phosphate-use efficiency — grain analysis; the effect of placement; use of biologicals and companion crops to access P reserves.
- Rob also has some key questions he



The aims of Helix fit neatly with the journey into regenerative agriculture taken by Tom Jewers.

hopes the project will address: "Firstly, do we actually need these technologies? They'll only deliver a value where they take out the guesswork. Also I believe soil carbon will be at the forefront of thinking over the next few years — we need to be able to measure a change reliably and pull it together into tangible evidence."

Two further Helix demonstration farms, in central England and in the North, will be launched later this year or early in 2021.

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