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Groundsel leads a new weed challenge

**Technical
Weed control**

Changing field conditions and grower practices may have shifted the spring weed spectrum. *CPM* gathers in-field advice and hosts a webinar to highlight best practice.

*By Tom Allen-Stevens
and Rob Jones*

Unprecedented wet weather and changing cropping practices are presenting growers with different weed challenges in the spring, according to experts.

Conservation agriculture is bringing a more diverse range of weed species into cereal crops, while one of the wettest Februaries on record in 2020 led groundsel to become the focus of herbicide control for many growers across the UK.

James Rimmer, independent agronomist at CCC, explains that adverse weather confounded efforts by growers to control the weed during the 2019/20 growing season.

“The wet weather across the country led to delayed drilling and as a result, some residual herbicides were not applied which allowed groundsel to dominate. It established in every system, till or no-till,

and reproduced very quickly before it could be dealt with using chemistry in the spring,” he explains.

Groundsel affects healthy crop growth by competing for space and nutrients, especially in uncompetitive crops. “It can grow happily in the base of cover crops and has an incredibly high seed return, with seed surviving for up to seven years in the soil profile. If it’s harvested with the grain and goes into stores, it can also cause an unpleasant smell.”

Good conditions

A “frustrating” weed to tackle, germination is hard to prevent if conditions are optimal for its establishment. But with most crops being drilled in reasonable time last autumn, and where residual herbicides were applied in good conditions, broadleaf weeds such as groundsel are at a normal level this year, reports James.

“Crops are developing well this spring, and while many may feel concerned about this weed due to their experience last year, I’d encourage growers to be confident this season as they’re generally in a good position to tackle it with the help of well-timed herbicides.

“A normal flush of groundsel will always occur, but if this flush is reduced by residuals and growers are able to travel to apply spring herbicides, control will be much easier and more manageable compared to last year. Monitor crops for

any weed growth, particularly groundsel, as control is difficult once the plant reaches the flowering stage.”

James advises that sulfonylurea herbicides, such as Ally Max SX (metsulfuron-methyl+ tribenuron-methyl) and Jubilee SX (metsulfuron-methyl) will be the best options to knock down the weeds. The contact-acting ALS inhibitor herbicides are most effective if applied when the weeds are small and actively growing.

“SU herbicides are effective at treating all kinds of BLWs but have great activity on groundsel. Resistance of the weed to these herbicides is also currently low. ▶



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The webinar highlighted the need to maintain a diversity of herbicides to control weeds, but also a diversity of non-chemical approaches.

Narrow window for OSR spring clean

Now's the time to clear up "red-faced" weeds in oilseed rape, according to Corteva's John Sellars. "Our new spring-applied herbicide Korvetto (clopyralid+ halauxifen-methyl) does a really good job on cleavers as well as poppies and cranesbill," he notes.

"But there's a relatively narrow application window from 1 March to flower buds visible (BBCH50). Experience from last season shows it won't replace an autumn herbicide programme, but an application is effective on quite large weeds, especially late-germinating autumn weeds as well as those emerging in early spring."

At the recommended 1 l/ha rate, Korvetto delivers the full rate of Arylex (5g/ha), giving a boost on cleavers, fumitory, cranesbill, dead nettle, poppy, sow thistles and creeping thistle, he says. "An application puts down 20g more clopyralid than the average rate of Dow Shield — it's Galera (clopyralid+ picloram) on steroids,

delivering about 26g more of the active."

This means it tackles key weeds that will pop up above a crop and cause difficulty at harvest, notably cleavers, mayweed and thistle, and it's effective against poppies, saving the embarrassment, as well as the yield penalty, of an early-summer sea of red, John points out.

In a normal rotation there are no following crop restrictions. However, should crops fail due to pigeon or flea beetle damage after Korvetto has been applied, the land can be re drilled with following crops including spring OSR, barley, oats, linseed and maize but not legumes, he advises. "Straw should not be used for composting."

Korvetto is active at temperatures of 7-8°C upwards and should be applied at a water rate of 150-300 l/ha with a medium spray quality. Kind to the crop, it has a 14m buffer zone where appropriate and is priced similar to Galera at around £30-33/ha.

Clopyralid herbicides compared



Source: Corteva Agriscience



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Research confirms fertiliser inhibitor value

Three seasons of UK trials have shown that using a combination of urease and nitrification inhibitors can not only improve efficiencies and reduce environmental impact but can boost soil fungal activity.

The trials were carried out on Agrii's nitrogen-stabilising product Liqui-Safe, with Verdesian Life Sciences and build on research at the John Innes Centre, NIAB TAG, Wessex Water and Campden BRI as well as Agrii Technology Centres and iFarms. This has highlighted marked increases in Nutrient Use Efficiency (NUE) from the stabiliser's combination of urease and nitrification inhibitors. These have led to improvements in crop yield, quality, labour and machinery use, claims Agrii, as well as environmental benefits.

The aim of the research has been to understand the science behind key elements of crop management and apply it in the most effective ways, says Agrii nutrition technical manager, Tom Land.

"We've been working with the technology behind Liqui-Safe for more than 10 years now through a sister product, Enhance. Replicated trials across a wide range of crops highlighted how it increases NUE of urea fertilisation — measured in higher yields and milling wheat N contents — and in enabling the number of passes to be manipulated."

Tom explains that Liqui-Safe's urease inhibitor slows down the rate at which urea is converted to ammonia in the soil, which reduces ammonia losses to the atmosphere from standard urea ammonia nitrogen (UAN) liquid fertilisers by as much as 25%.

In parallel, its nitrification inhibitor delays the

bacterial conversion of ammonium to nitrate to more closely match crop uptake. This has led to a halving of atmospheric nitrous oxide (N₂O) emissions in some cases, together with reductions of between 14% and 54% in soil nitrate leaching, depending on conditions.

More recent trials have also shown a 10% increase in mycorrhizal fungi colonisation in the soil, compared with standard UAN applications. No adverse effects have been found on earthworms nor aquatic organisms even at 10 times the recommended dose rates. Tom points out that Liqui-Safe degrades to carbon, hydrogen and oxygen in the soil.

"Liqui-Safe brings both key components of improved liquid urea NUE together," he explains. "It's based on natural organic acids, giving it a better environmental profile than traditional inhibitors."

"What's more, we believe it offers liquid fertiliser users the ability to avoid tying up sprayers during critical fungicide and PGR timings, and reduces the need for fertiliser applications during the window where scorch is more prevalent. So, our most recent trial work has explored the extent to which Liqui-Safe could allow the number of passes to be reduced."

Conventional three-split application trials undertaken by NIAB TAG at Morley in 2019 showed a wheat yield improvement of 7.4% from including Liqui-Safe, together with an uplift of 0.6% in grain protein. Alongside this, iFarm strip trials found no difference between wheat performance from standard three-application farm regimes and those applying all the N with Liqui-Safe in a single early season pass in either



Tom Land says trials highlight how Liqui-Safe increases NUE of urea fertilisation and allows the number of passes to be reduced.

2018 or 2019.

These results were confirmed in replicated Agrii field trials with Skyfall during last season's very dry spring and early summer. Here, the standard treatment without Liqui-Safe was 200kg/ha of nitrogen balanced with sulphur applied in late-March, early April and mid-May. There was no discernible yield difference where the same total balance was applied with Liqui-Safe at just the first and third timings. However, applying all the nitrogen with the stabiliser at the first timing alone raised yields by over 9% from an average of 10.8 t/ha to 11.8 t/ha — a margin over input costs of more than £110/ha.

"Applied at a standard 0.5% by volume, it improves the efficiency of UAN utilisation and means an average 4% cereal yield increase can be expected from current nitrogen application strategies, with similar gains in other field crops. Alternatively, you can maintain yield with lower overall levels of N use," notes Tom.

▶ A combination with different modes of action should be used as part of an anti-resistance strategy," he adds.

Groundsel was also a weed highlighted by NIAB's John Cussans during a recent webinar hosted by CPM and supported by

Nufarm. Along with SUs, mecoprop and dicamba products or Isomec Ultra (dichlorprop-P+ MCPA+ mecoprop-P) will achieve good control, he said.

"In all broadleaf weed management it's never the case that one size fits all.

But we're now seeing a much more diverse set of challenges. Weeds like bur chervil and wild carrot are on the increase probably as a result of moves towards more conservation agriculture approaches. These can be really difficult to control in

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A BASF technical webinar presented in association with *CPM*

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Hundreds of decisions are made on farm every day. Some of these decisions are a given, some are risky and some, hopefully, are profitable. This webinar looks at getting a better understanding of agronomic risks to reap the rewards.



Graham Redman – agricultural economist, Andersons Centre
Graham will outline how and why well planned investments are key to maintaining a profitable farm business.



Steve Dennis – BASF
Steve explains the benefits of calculating the risks and evaluating the reward of agronomic strategies this spring.



Andrew Williamson – Upper Overton Farm
Robin Aird – Charlton Park Estate
Andrew and Robin discuss their two quite different approaches to how risk is calculated and considered.



Chaired by: Tom Allen-Stevens, CPM editor
Tom will outline key results from a recent *CPM/BASF* grower survey, host the discussion and invite the speakers to address questions submitted by webinar attendees.

Throughout the season, BASF will be bringing farmers and experts together on their virtual farm for a series of webinars. The next webinar with *CPM* on

What's next for OSR? will take place on Thursday **1 April 2021**.

Scan the QR code to go to the *CPM* webinar page, or visit cpm-magazine.co.uk/webinar



winter cereals and they're also building in oilseed rape. We're seeing more willow herb as a result of reduced cultivations,

and it's important here to clear up populations before you drill, then follow up with an SU or fluroxypyr in the spring."

John noted the three pillars of conservation agriculture: minimal soil disturbance, a varied crop rotation and year-round ground cover, pointing out that each have an impact on weeds.

"Overall, we'll see a reduction of autumn-germinating weeds, but a greater diversity of species emerging. Some of these smaller-seeded weeds will be encouraged as growers work just the top 5cm of soil. Also weeds with a shorter lifespan, that can complete their life cycle within the window of a cover crop, may become prevalent. That means it's important to maintain a diversity of herbicides to control weeds, but also a diversity of non-chemical approaches."

Drawing on around 40 years' experience with phenoxy herbicides, independent agronomist Jim Orson noted conditions a few days before, during and after application are critical for good control. "Auxin herbicides are hormones. They are water soluble, so travel fast in the xylem to the growing point, but you need warm conditions for them to act best at that site. Being water soluble, they also have a job getting through the leaf cuticle. The best conditions for control are when you have warm, moist soils and good humidity. 90% of the activity comes from the spray deposited on to the two youngest expanded leaves," he added.

To see the technical webinar in full, Broadleaf weed control for challenging times, go to cpm-magazine.co.uk/webinar ■

Take care with bentazone

Growers introducing pulses into the rotation have been warned to steward bentazone applications carefully. One of the few post-emergence herbicides for beans and the only post-em available for some especially challenging weeds in the pea crop, such as black nightshade, bentazone is under threat after four decades of use, notes BASF's Paul Goddard, who champions the Better Bentazone Together Campaign.

Highly soluble in water and mobile in soil, the foliar-acting bentazone is due its review for re-approval in 2025, but has been detected in both ground and surface water for many years. Despite a stewardship programme in place since 2014, records show no serious decline in the levels detected, and the Environment Agency has made it clear these must reduce for re-approval to be considered, says Paul.

"Last year, we commissioned some work focusing predominantly on groundwater and the likely sources at a number of the most challenged extraction points. At three of the five locations, a

point-source is the likely cause. For the other two, point-source cannot be eliminated and therefore is a factor."

Steps to reduce the risk can be as simple as how and where growers fill their sprayer, he continues. "Most farms now have a dedicated area of concrete that can easily be cleaned when using the granular formulation. For those using liquid, there is the new EasyConnect closed transfer system which will be available to the market shortly. During 2022/23 a broad range of containers (IS 63 Industry Standard) will be equipped with the standardised pre-mounted screw cap, compatible with the system."

Paul recommends five top tips:

1. Ensure the field is suitable before planting the crops. Shallow, stony soils on chalk, limestone, or sandstone allow water to move more readily taking the chemistry with it.
2. Avoid high risk areas. You can download Magic Maps from Natural England or Check Zones from UK Gov which provide geographic information



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about including the Safeguard and Source Protection Zones for bentazone.

3. Keep chemistry on the surface. Bentazone will breakdown quickly where there is good light and oxygen.
4. Consider the weather. Avoid spraying if heavy rain is forecast in the following two days or when there is significant water sat in the field (fields with a shallow water table should be avoided).
5. Keep a 6m buffer zone or 5m no-spray zone around the edges of the field where there are high risk areas, such as water courses.