

When opportunity knocks

Sugar beet

With grassweed pressures rumbling on, one way to achieve sufficient control is by taking advantage of sugar beet in the rotation, even if there's a limited armoury of effective herbicides. CPM finds out more.

**By Janine Adamson
and Rob Jones**

With many factors at play, optimising rotations and identifying suitable break crops can prove a conundrum, even more so when grassweed pressure is at an all-time high. However, advocates of sugar beet are urging others to give the crop a go, and while they're at it, take advantage of the weed control opportunity.

According to NIAB's John Cussans, blackgrass, for example, emerges in significantly lower numbers in spring crops, especially those drilled later. And if they do emerge, tend to be inherently less fit the later they germinate in the spring.

Additionally, late harvested sugar beet crops also mean the following cereal crop is drilled later in the autumn, again offering an opportunity to manage grassweeds

outside the of cash crop, he says. "That's an easier rotation for controlling blackgrass," states John.

Conversely, Italian ryegrass could be more of a threat to sugar beet growers as the rotation doesn't insulate from the problem quite as much, he warns.

Competitive ryegrass

"While the number of plants emerging in later drilled crops is similarly reduced, those ryegrass plants that do appear in the crop are more competitive and produce much more seed than blackgrass plants.

"If you have Italian ryegrass on the farm somewhere in a patch, it'll be a significant problem in a sugar beet crop in that field, so take measures to manage it and don't just ignore it, which sometimes happens with ryegrass patches."

Deploying stale seedbeds ahead of drilling offers an excellent opportunity to reduce populations, but especially for Italian ryegrass, John advises keeping glyphosate rates up. "There are some populations where 540g a.s/ha is marginal in practice."

He admits that in sugar beet crops, the herbicide armoury is limited, with the main effective active ingredients being ethofumesate and post-emergence herbicide, clethodim. John advises to start with a 'good' ethofumesate formulation

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and then follow up with clethodim.

Furthermore, pre-emergence ethofumesate can provide the perfect starting point for a ▶



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GROWING TOGETHER

Slow and steady

The spring workload looks a little daunting at Thurlow Estate Farms in Suffolk — farm manager Jonathan Drury says there's plenty of spring cropping left to plant as well as his usual sugar beet.

Most of the farm's 4500ha is Hanslope clay with around 1000ha being Swaffham Prior loam over chalk. It's on this lighter ground that the farm grows 130ha of sugar beet on a seven-year rotation.

Jonathan says in a normal season, sugar beet drilling is unlikely to start before the first half of March. "We wouldn't dream of going any earlier than that, we want the soil to be warm so the crop gets up and away quickly."

Farm soil temperature probes help with decision making, he says, which read 10.9°C at the time of writing (mid-March). Last year, the farm's sugar beet wasn't planted until mid-April, so Jonathan isn't worried about a possible late start again this spring.

"The lighter land can dry out quite quickly, but we won't drill until conditions are right. It's more important that we put the crop in well and get it out of the ground so it can keep growing from the off."

But now, he has the added conundrum of virus yellows — with levels forecast to be 83% in crops where no control measures have been taken after the mild and wet winter. Anticipating this may be the case, Jonathan took up the Cruiser SB-treated (thiamethoxam) option on 60% of his seed at the time of ordering — reflecting the 60:40 split seen across the national sugar beet area.

With some open, well-drained fields that could dry out relatively quickly, Jonathan says he didn't want to go 'all' in and be waiting for Cruiser-treated seed to arrive should conditions come right.

The likely timing of aphid arrival into beet crops adds yet another complicating factor for growers this spring. Speaking at BBRO's BeetChat growers meeting in March, Professor Mark Stevens warned that aphids are predicted to fly into crops as early as 10 April.

"Given how wet it's been throughout the winter, some growers won't be able to get onto the land quickly this spring. As Cruiser seed won't arrive on farms before 8 April, aphids may be flying into crops as they emerge. This would put us in a similar position to 2020, when aphids arrived a fortnight earlier in a season where drilling wasn't delayed as much as it will be this year," he says.

"The smaller the plant, the more attractive it is to aphids, but we've seen in BBRO trials that Cruiser gives crops 10 weeks of protection at

the rate used [a 25% reduction from when Cruiser was fully approved]. This should protect crops to the 8-10 leaf stage before switching to one of the two approved foliar insecticides, if aphid numbers warrant a treatment."

For growers using Cruiser-treated seed, flonicamid has to be the first foliar insecticide used once Cruiser protection has run out and the number of wingless green aphids reaches threshold levels (one wingless aphid per four plants up to the 12-leaf stage, or one wingless aphid per plant once at more than 12-leaves). A follow up spray of acetamiprid can then be used if the aphid threshold is exceeded again.

For seed that's not Cruiser treated, there's more flexibility, adds Mark. "The same foliar insecticides can be used in any order and we're working on an emergency authorisation for a third insecticide product as a further option."

Which product to use first depends on aphid pressure, he says. "If there are a large number of aphids early, I'd suggest using acetamiprid first as flonicamid is slower acting. Alternatively, if numbers aren't too high when the threshold is first reached then it may be better to use flonicamid as a first spray," suggests Mark.

Ensuring a sugar beet crop is up and away is a key strategy for combatting the threat of virus yellows, the aim being to have plants at the growth stage when adult plant resistance kicks in. Jonathan agrees with this approach, but also places emphasis on waiting until ground conditions are correct.

With warming soils and good seed-to-soil contact, crops have every chance of growing away quickly to be ahead of aphid build up, he says. "We soil test and apply a base fertiliser pre-drilling and then tissue test throughout the season, applying any top-ups according to plant requirements," explains Jonathan.

Avoiding setbacks from herbicide application is also important as not only is growth checked, pale or yellowed plants are more attractive to aphids, so the farm adopts a low-dose herbicide approach, he adds.

Furthermore, Limagrain's Ron Granger reminds of last year, when a cold May slowed the explosion of aphid populations in East Anglia, resulting in less virus pressure than anticipated.

"However, it's a very high forecast this year and Jonathan has it right, patience and attention to detail are always important in sugar beet but will be even more so this year. Many soils have slumped over the winter and will take time to dry out; you can't hurry sugar beet in.

"Primed seed is also a huge advantage. Betaseed's UltiPro seed treatment has been



Last year, sugar beet wasn't planted on his farm until mid-April, so Jonathan Drury isn't worried about a potential late start again this spring.

developed to facilitate fast and even field emergence to help plants to get through the critical early stages more easily than untreated seed," says Ron.

With disease ratings similar across varieties, high yield and sugar percentage are attributes Jonathan also looks out for. "If you're sending loads of sugar beet away, you may as well have as much sugar in the lorry as possible," he says.

Jonathan explains it was the high sugar percentage associated with Limagrain's Betaseed varieties that first caught his attention in 2017. "We look at sugar percentage in the BBRO Recommended List and then remove varieties that have a high risk of bolting. We're not overcomplicating things and aim to grow just two varieties across our hectareage, split into early October and November lifting timings."

This year, Jonathan has opted for BTS 3610. First added to the BBRO RL in 2022, the variety offers a high sugar content (17.4%) combined with zero bolters in the normal drilling window, which minimises weed beet risk.



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► blackgrass control strategy, suggests Antonia Walker, sugar beet technical specialist for UPL.

She recommends opting for products such as Efeckt or Oblix 500 at a rate of 1.0-1.5 l/ha, mixed with a rate of Bettix Flo (metamitron) to reflect the expected weeds. “If you opt for this strategy, ensure you have sufficient ethofumesate remaining for any post-emergence applications, and of course follow the stewardship guidelines,” she reminds.

The guidelines state that no more than 1000g/ha of the active substance should be applied in a three-year period in the same field. Another watch-out is that the follow-up timing for Centurion Max (clethodim) is a little later than some growers might expect, says John.

“The old adage of hitting the grassweed as soon as possible after emergence isn’t the same for clethodim. For a lot of contact herbicides, we advise spraying as soon as the grassweeds have 1-2 leaves, but with clethodim, you should wait until you have a decent amount of leaf — so three leaves to two tillers — to get the active into the tissue.”

Antonia explains that clethodim can only be used as a single application in the crop at a rate of 1.0 l/ha, with UPL advising a five-day no-spray period for any herbicide before application, and 14 days post.

Adding a water conditioner to the spray tank has been found to improve efficacy in most situations, she adds. “Apply in optimum conditions and don’t apply in cold weather or when frost is expected.”

On the plus side, clethodim isn’t affected by resistance to the same degree as other fop and dim herbicides with the same ACCase inhibiting mode of action,

explains John, although there are some warning signs with Italian ryegrass.

He says NIAB has tested clethodim in around 50 samples each of blackgrass and Italian ryegrass sent in for routine resistance testing over the past two years. “We haven’t found a single clethodim-resistant blackgrass sample in routine testing, which tells you it isn’t a significant emerging problem.

“Whereas with Italian ryegrass, 28% of the samples submitted for routine herbicide resistance testing had some level of survivorship following clethodim treatment. And in half of those, so 14%, the performance of clethodim in a pot test is reduced enough for it to be classified, albeit at a low level, as resistant, so there’s a significantly higher risk with Italian ryegrass than in blackgrass currently.”

Resistance mutations

The difference can be explained by the resistance mutations found in each of the grassweeds, says Antonia. The primary mutation affecting fop and dim chemistry in blackgrass is I-1781-L, with plants carrying that mutation highly resistant to most herbicides with that mode of action.

However, she stresses that Centurion Max is different – providing good control of plants carrying I-1781-L, whereas another mutation, A-2078-G, has been found to impact field performance.

“Fortunately, that mutation is currently uncommon in UK blackgrass populations but has been found in some Italian ryegrass populations,” says Antonia.

Agrii agronomist Adam Mann advises on sugar beet crops across Norfolk and Suffolk. He agrees that sugar beet is a good crop to help tackle grassweeds in the rotation but stresses that cultural controls are vital.

“In a normal season, stale seedbeds and ploughing in good time in the autumn are all effective practices. Attention to detail in preparing the best seedbed and establishing the sugar beet also helps with grassweed pressure,” says Adam.

With most grassweed problems occurring on the heavier beet-growing land, in these situations, Adam encourages early primary cultivations. “This promotes maximum blackgrass germination in the autumn which can be sprayed with glyphosate in the spring ahead of drilling.”

Where cover crops are used over winter and then sprayed off ahead of spring drilling, he always conducts an inspection after the cover crop has died off. He says



Adam Mann stresses that for overcoming grassweeds in sugar beet, cultural controls are vital.

this is because the cover crop may shield grassweeds from the glyphosate so an additional application may be required.

For Adam, the main grassweeds of concern in sugar beet are blackgrass and ryegrass, with the latter becoming more prevalent. “Ryegrass will be a more significant issue in the future — it’s becoming more common and we’re finding quite a lot of herbicide resistance.

“It’s mostly coming into fields from straw and organic manure; I’m also paying close attention to where SFI and stewardship mixes contain ryegrass,” he adds.

Also up for debate is Conviso herbicide-tolerant sugar beet varieties. With the area expected to increase beyond the 20,000ha planted last season, Antonia urges growers to consider supporting the Conviso One (foramsulfuron+ thien carbazone-methyl) herbicide with conventional chemistry.

“I expect Conviso One to provide reasonable blackgrass control,” says Antonia. “However, it’s very similar sulfonylurea (SU) chemistry to what’s used elsewhere in the rotation in products like Atlantis (mesosulfuron-methyl+ iodosulfuron-methyl).

“If growers expect high blackgrass pressure and are worried about the resistance status of their populations, using a pre-emergence spray containing ethofumesate and metamitron will boost control. It’ll also help to control problem broadleaf weeds like black bindweed which Conviso One struggles with,” she adds.

“Following with Centurion Max will also help with blackgrass control and provide an alternative mode of action post-emergence,” concludes Antonia. ■