

Real Results Pioneers

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Blackgrass battle starts with the soil

Kent grower Tom Sewell uses the rotation, cover crops and direct drilling in his quest to quell blackgrass. CPM visits to gather the lessons he's learned.

By Tom Allen-Stevens

As you walk towards the patch of blackgrass in Tom Sewell's field of Skyfall winter wheat, there are two things that strike you.

The first is the crop itself — it may have a fair amount of blackgrass in it, currently shedding its seed, but it looks marvellous. "There's probably 50-100m² here I should have sprayed off with glyphosate. But this is an 11-12t/ha crop — it's not one that's easy to give up on," he says.

The second is the soil surface. You're walking up the tramline that's probably taken a dozen passes of the sprayer and spreader this season, yet there's not even the impression of a tyre tread pushed into this medium to heavy soil over Ragstone rock.

But that's not to say the ground's hard —

you'd describe it more as reassuringly firm. Indeed, Tom has no difficulty plucking a clump of blackgrass from the surface, complete with its root ball, to demonstrate how the worm channels and plant roots, like an intricate pattern of veins, form an integral part of this soil's crumb structure.

Direct drilling

"Soil health drives everything on this farm," he says. "We haven't ploughed in over 20 years and have moved progressively towards direct drilling. The aim is to get the soil life, the rotation and the crops you grow to all work together to build a healthy soil."

For the past six seasons, the characteristic coulters of a 4.8m Cross Slot drill are the only bits of steel to have penetrated the soil's surface. All the straw has been returned, along with compost and paper waste, but it hasn't needed any bagged P&K fertiliser to maintain soil indices in over 18 years.

"Why would you want to cultivate?" questions Tom. "All you'd do is disturb the soil surface, damage the worm holes and mycorrhizae and create an environment where water puddles." He farms with his father, a first-generation farmer, based at West Farleigh in Kent. With 420ha that slope down to the River Medway, the soil type varies from a Grade 1 silt near the river itself, through Grade 2 and 3 medium to heavy

free-draining but abrasive soils, to some heavy Weald clay.

Winter oilseed rape and spring or winter beans provide the entry into winter wheat, that makes up 40% of the cropping, while winter barley sits in front of the OSR. Slotted in between the cash crops, however, are catch and cover crops, and these form an essential part of the system. "The aim is to have green cover all year round. The roots and their exudates help prevent the soil going rock hard in summer and waterlogged during winter months.

"We try to establish the crops as soon as possible after the previous one. So catch and cover crops will be drilled no more than a day after harvest, to take advantage of the structure and moisture left by the previous ▶



The worm channels and plant roots, like an intricate pattern of veins, form an integral part of the soil's crumb structure.



IT'S TIME TO
REGAIN
CONTROL
OF GRASSWEEDS

PUTTING THE PRIORITY ON THE BEST AUTUMN MANAGEMENT

Increasingly disappointing post-emergence herbicide performance makes first class autumn black-grass, brome and ryegrass control critical. Alongside other cultural controls, the most effective glyphosate treatment ahead of cereal crop emergence is essential regardless of apparent black-grass dormancy levels.

Match Cultivation to Weed Population

Ploughing every 4-5 years can be valuable for all species, with the timing of intervening cultivations geared to the particular weed population. Early shallow tillage is the best approach in most cases.

Plan Drilling to Weed Risk

Wheat should be drilled late on badly-infested ground to give time for the best pre-planting weed kill. Moving the least soil at drilling, high seed rates and competitive varieties are also advisable.

Use the Most Effective Stubble Treatment

Time and weather constraints make it important to use glyphosate formulations that work best under hot, dry conditions, are least affected by rainfall and have the shortest cultivation interval.

Employ the Best Spraying Practice

Attention to detail in glyphosate rates, water volumes, nozzle types, spray pressures and forward speeds will all pay dividends in ensuring pre-planting applications work first time and as hard as they can.

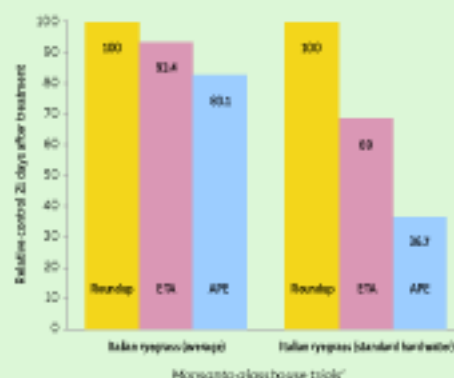
Consider Pre-Emergence Glyphosate

Where drilling is delayed more than a few days after pre-planting treatment, an approved glyphosate included in the pre-em mix can be invaluable in dealing with rapid weed growth.

For fully comprehensive advice on pre-planting and other elements of cultural grassweed control go to www.monsanto-ag.co.uk/grassweed-action

PERFORMANCE ALERT

Expect lower levels of performance from the most popular APE replacements for traditional tallow amine (ETA) glyphosate formulations withdrawn from UK use last summer.



STEWARDSHIP

To minimise the risk of resistance development it is important to integrate pre-planting treatment carefully with stubble cultivations and to appreciate that no amount of adjuvant will make up for insufficient glyphosate.



For further information on Roundup® contact the Technical Helpline on 01954 717575. Email: technical.helpline.uk@monsanto.com
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Battling blackgrass



The farm has moved progressively towards direct drilling, going completely no-till with the purchase of a Cross Slot drill.

► cash crop. Then I favour drilling cash crops in the green — putting them in before the green cover has died back. This goes for autumn-drilled wheat following OSR — I've drilled into a catch crop that's waist high in the past."

Tom's part of a local group of seven or eight farmers that calls itself the Cover Crop Nutters. They meet two or three times a year to discuss cover crop practice and mixtures. "The one I'm going for this year is a King's mix, with vetch, berseem clover, spring

triticale, sorghum, adagio radish, Jupiter turnip rape, niger, sunflower, quinoa, phacelia, linseed and buckwheat."

And this is the mix he has in mind for this field, and this part of the field, where the blackgrass strategy hasn't worked as well as it should. "It stems back to 2017, when the field was last in wheat following beans. I could see there was a patch of blackgrass that had developed. I should have sprayed it out with glyphosate, but thought I'd leave it and then control it with the propyzamide in the following OSR crop.

"But that was a mistake. We didn't get adequate control, and then didn't establish a catch crop after the OSR, as the dry conditions last year meant the volunteers had the best chance of producing the required cover. As a result, we've had to throw the kitchen sink at it in terms of herbicide chemistry, which has given us a good result, but there's still too much that has escaped control."

His primary tools going forward will be the cover crops, to provide competition, and

rotation. "I think we're going to put two spring crops back to back," says Tom.

Cultivations, or lack of them, form another part of his strategy. "I'm convinced that leaving seed undisturbed on the surface is the best way to deal with it. As soon as you bury it, even if that's with a shallow cultivation, you don't know when it's going to reappear."

He recognises that this puts pressure on glyphosate — as a no-till farmer he relies



For the past six seasons, the characteristic Cross Slot coulters are the only bits of steel to have penetrated the soil's surface.

Battle bus brings the message on blackgrass

The BASF Blackgrass battle bus has been touring the UK, from Canterbury in Kent to Goole in Yorks, visiting demo days with a range of experts on board to offer growers advice on how to keep blackgrass under control.

"What's been encouraging is the number of growers we've met at the various stops who are really getting to grips with their blackgrass, and taking a strategic approach to controlling grassweeds," notes BASF technical lead for cereal herbicides Stuart Kevis.

Use of stale seedbeds, delayed drilling and spring cropping were the three top aspects highlighted by growers who visited the battle bus, and these dominated discussions.

"Perhaps one of the hardest aspects to get right is delayed drilling, but it has the most benefit," notes Stuart. "The second half of Oct is

the ideal time to establish a crop as most blackgrass will have germinated by then. But there's real anxiety about what happens if the weather turns. We've had some nice, open autumns in recent years, but the terrible conditions of 2012 are always in the back of growers' minds."

Drilling date trials conducted by NIAB at Hardwick, Cambs — one of the battle-bus stops — showed huge differences in emerged blackgrass, with the third week of Oct being the best time to drill, reports Stuart. "We've had similar results in BASF trials at Scarning in Norfolk."

As well as allowing more blackgrass to be taken out before the crop is established, delayed drilling helps the pre-em herbicide, he explains. "The advantage of Crystal is that it works well across a range of conditions, sitting nicely in the soil layer with good persistence. But like all residuals, it works best when there's soil moisture."

Leave it too late and conditions can weaken crop competitiveness. "It's about finding the sweet spot after the main blackgrass window before conditions close in." There's a cut-off date of 31 Dec for Crystal, he notes, while only spring barley has an EAMU for spring use.

He encourages growers to mix and match active ingredients. "Apply your strongest stack first, with pre-em of the crop and blackgrass being the best timing. That's where I'd recommend



For best results from delayed drilling, Stuart Kevis looks for the sweet spot after the main blackgrass window before conditions close in.

Crystal, topping up with extra DFF. Avadex 15G sequences well with Crystal, pre-em on wheat. But on barley it's best to put the Avadex first, following with the Crystal at early post emergence to avoid knocking the crop if the seedbed isn't ideal." Avadex Factor can be tank-mixed with Crystal, he adds.

Although not yet approved for use, BASF's new herbicide Luximo is set to offer a step-up in control at the pre-em timing. "It's simply more effective than flufenacet, with a new mode of action from residual chemistry. But it's no silver bullet, and it's essential that growers keep up good cultural control of their blackgrass with herbicides being the final part of the programme," notes Stuart.

A range of experts on board the battle bus have offered growers advice on how to keep blackgrass under control.



Battling blackgrass together

Battling blackgrass is a journey. There's no silver bullet, but a series of decisions and practices carried out throughout the season. BASF is on a mission to bring scientific experts, growers and agronomists together to take down blackgrass.

Sharing the latest scientific advice, and hearing from farmers on the front line, BASF has created the ultimate guide to blackgrass control. It keeps you up to date with the latest



breakthrough information and updates on existing and new, ground-breaking chemistry.

Sign up to be part of the community taking on blackgrass, together:

<https://basfrealresults.co.uk/awc/>



Tom Sewell grows cover and catch crops with the aim to have green cover all year round.

completely on the herbicide to take out any blackgrass between cash crops, rather than alternating applications with a light cultivation that would take out any survivors. As a Nuffield scholar, Tom travelled to the US and saw for himself how repeated use of glyphosate, especially in no-till situations with Roundup-Ready GM crops, can quickly lead to problems with resistance.

"We have a policy to make only one application of glyphosate per year to our fields as far as possible. So we don't use it pre-harvest, unless it's absolutely necessary to get the crop combined. Likewise, a cover crop is sprayed off just once shortly before drilling, although when the cover is thick, and the glyphosate is unlikely to reach



Glyphosate is completely relied on to take out any blackgrass between cash crops.

seedlings close to the surface, we'll add glyphosate to the pre-emergence herbicide."

Drilling date

When it comes to establishment, Tom prefers to get winter crops drilled up before his birthday on 9 Oct. "I know that's not ideal for blackgrass control, but as we're not disturbing the soil, you don't get the mineralisation in the autumn that helps germination. So it's a balance between drilling early enough for good crop competition and leaving it late to catch as much blackgrass as we can pre-drilling. We'll always leave our worst fields until last, though."

Herbicide choice itself is a case of mix and match, according to Tom's agronomist James Rimmer of CCC Agronomy. "No one approach will bring the best control, so we look to try different applications and timings and keep it flexible."

Last autumn, the main residual stack was applied as a peri-emergence across much of the wheat. "The aim was to let the catch crop die back sufficiently after drilling the wheat in the first week of Oct. So 4 l/ha of Crystal (flufenacet+ pendimethalin) with 0.2 l/ha Hurricane (diflufenican) was applied two weeks after drilling. This was followed up with straight flufenacet in mid Nov.

"We're conscious not to rely too much on any one active ingredient. The blackgrass has been tested and there are pockets of ALS resistance that we don't want to encourage, so Atlantis (mesosulfuron+ iodosulfuron) is used as little as possible. But while we try to use as many modes of action as we can, Avadex (triallate) doesn't work well in a no-till situation."

Tom reckons he's in control of the blackgrass, although he recognises it doesn't always go to plan and is keen to learn from any mistakes made. "We should have sprayed out those patches two years ago. There's another field on the farm that always lies wet and gets blackgrass year after year, that may be best put into fallow or taken out of production altogether."

"But generally I can see what's working and apply this through every aspect of the arable system. Using the rotation, and especially cover crops, and no-till to build soil health probably contribute the most. It's also attention to detail — backing the sprayer into awkward corners, choosing the right nozzle, spotting and clocking where every patch of blackgrass lies. Get the management right and it puts less pressure on the chemistry," he concludes. ■

The 10 aspects of an effective blackgrass battle strategy

- **Measurement and roguing** – good reconnaissance gauges whether your efforts are making a difference.
- **Resistance management** – getting a seed sample tested is an important first step in assessing the level of resistance you're up against.
- **Reducing spread** – blackgrass multiplies quickly, so a focus on activities that can cause it to spread ensures this is minimised.
- **Soil health** – blackgrass thrives in cold, wet soil conditions, so improving the long term health of your soil will work against it.
- **Rotation** – the aim is to deplete as much of the seedbank as possible — it's the battle behind enemy lines.
- **Cultivations** – the real key is to know when you need to bury it, and when you need to just leave it alone.
- **Establishment** – the general principle is to try to avoid disturbing weed seeds when drilling.
- **Spray Application** – the most uniform application will be achieved on smooth seedbeds, at low windspeeds, and low forward speeds.
- **Chemical control** – while over-reliance on herbicides has led to resistance, the right herbicide choices can make a huge difference to success.
- **R&D** – Brand new modes of action in partnership with what we've learnt about cultural control give us all a fighting chance of finally being able to regain control over problem weeds.