

“ All the evidence points to sowing before mid-October being a recipe for disaster. ”

# Don't step back in blackgrass battle

## Technical Weed control

Fears are growing that the rush to get the drill out this autumn will festoon the UK's fields in grassweeds. CPM rounds up the latest advice.

By Tom Allen-Stevens and Rob Jones

**Growers are set to sacrifice grassweed control for early establishment of wheat crops this autumn, a nationwide survey has revealed. Even in fields infested with blackgrass, a significant proportion will be drilling in September.**

The data has come from the latest in a 20-year series of Roundup national grassweed management studies run independently for Bayer this spring and early summer. Fears are now growing that, raw from the experience of the past season, too many farmers are abandoning one of the most important cultural grassweed control fundamentals to make sure they get their wheat drilled this autumn.

“Delayed drilling stands out as one of the most widely valued cultural grassweed control techniques on farm,” notes Bayer specialist, Tom Scanlon. “Our latest study shows it being actively employed by more than 60% of growers overall and over 90% of those with the most extensive grassweed problems.

“Despite this, however, almost half the growers in our study are looking to sow winter wheat on high weed-risk fields before mid-Oct this season, with more than one in 10 planning to do so in Sept. What's more,

this rises to 80% and 26% respectively on medium weed risk fields (see chart on p32).

The 2020 study involved a total of 187 growers spread across England, Scotland and Wales with an average arable area of around 250ha. As with parallel studies conducted with CPM in 2000 and 2016, it spanned a range of tillage regimes and intensities of challenge from all the main grassweeds.

“After last autumn it isn't surprising to find people anxious not to leave their drilling too late this time around,” continues Tom. “But, on high grassweed risk fields, in particular, all the evidence points to sowing before mid-October being a recipe for disaster.

### Disastrous level

“If the coming winter proves as unrelenting as the last one, it's true you're more likely to get your crop established. However, regardless of the weather, you are also far more likely to have a crop that's full of blackgrass, brome or ryegrass — a crop that will probably yield less than most later-drilled ones, even with a more costly herbicide programme; and one which may need complete or partial spraying-off in the early summer to avoid a disastrous level of weed seed return.”

Drilling medium risk fields too early is equally inadvisable in most cases for the extra weed pressure it puts on the rotation Tom points out. “The experience of many growers shows it's a seriously false economy to let problem grassweeds off the hook at any time, and it's all too easily done. It not only results in lower future yields, it increases costs and restricts cropping options, not to mention encouraging resistance development.”

Tom advocates an approach starting with

two glyphosate applications ahead of drilling. A 2016 ADAS study for AHDB, for instance, shows overall control rising from just over 70% with one application to almost 95% with two.

Adding to the voices urging growers to delay drilling until mid-Oct, NIAB's John Cussans notes that every week drilling is delayed in autumn there's a 15% decrease in blackgrass. “We've not yet had a year when delaying drilling from Sept to Oct hasn't reduced blackgrass plants. Even in those years with low rainfall,” he observes.

Speaking at BASF's first live event on its new virtual farm, he presented recent NIAB field trials data that show on average a two thirds reduction in blackgrass where drilling was delayed for a month. A further reduction in blackgrass can be obtained from delaying until spring. The number of plants reduce from nearly 700/m<sup>2</sup> with a Sept/Oct drilled crop to less than 100/m<sup>2</sup> with a crop drilled in Feb. ▶



Delayed drilling stands out as one of the most widely valued cultural grassweed control techniques on farm, says Tom Scanlon.



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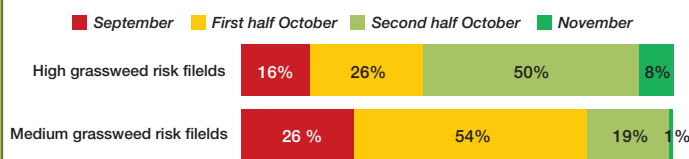
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## Autumn 2020 winter wheat sowing intentions

Balancing weather, grassweed and pwst risks, when would you want to sow your winter wheat this autumn?



Source: Roundup National Grassweed Management Study, Bayer, 2020.

## Reduce cultivations to lower seedling recruitment

Seed-bank analysis from Bayer's Blackgrass Task Force in Action Project shows cultivation strategy has a marked effect on how blackgrass germinates. Carried out by NIAB, the research compared two farms as well as NIAB's trial site at Hardwick.

"The farm site in Cambs has been using non-inversion tillage — deep repeated cultivation down to a significant depth but not ploughing. Most of weed seeds are actually stored at depth in a persistent seed-bank which can be brought up again with cultivation," says NIAB's John Cussans who led the research. "At the other farm in Shrops, blackgrass is less abundant. The system is much shallower and more superficial with a focus on improving soil health and reducing disturbance. We can see from the distribution of seeds in the vertical profile that they're very much towards the surface."

The results verified that the visible blackgrass population represents only about 5–10% of what's present in the seed-bank, the remainder staying dormant in the soil. However, John saw clear differences in germination between the sites.

At the Cambs site, 13% of the total seed-bank germinated resulting in over 150 blackgrass plants/m<sup>2</sup> without any herbicides. While in Shrops, only 5% of the seed-bank germinated giving a population of around 10 plants/m<sup>2</sup>. "This suggests that a lower disturbance system is better overall for blackgrass control, but it's important to look in detail at what happens in the surface layer," he notes.



*John Cussans has found 2–3 times more blackgrass seeds germinate from the seed-bank in a higher disturbance system compared with no-till.*

In Cambs, the higher disturbance system caused 24% of the surface seeds to germinate. In Shrops, after the lower disturbance drill, 13% of the surface layer seeds germinated. "There's a significant difference in seedling recruitment — the proportion of seeds that germinate from the seed-bank during one germination cycle," says John.

"The work we've done at Hardwick indicates a similar trend of 2–3 times more recruitment in a higher disturbance system compared with no-till. But this doesn't necessarily mean less blackgrass in the crop when using a low disturbance system because more blackgrass seed stays on the surface rather than being mixed down to depth with cultivation."

Irrespective of cultivation approach, reducing disturbance at drilling, thereby reducing recruitment of blackgrass seeds is an important step for blackgrass control.

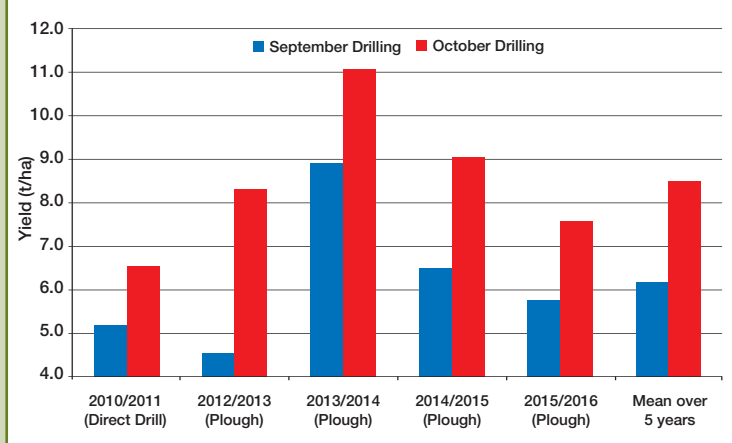
"Reducing the overall seed-bank, and critically the quantity of seeds in the surface layer, is a long-term project but essential to prevent blackgrass dictating so many on-farm decisions," concludes John.

## Long-term trials reinforce delayed drilling message

Experience from Agrii's long term cultivations trials at Stow Longa in Cambs bear out the benefits of Oct against Sept drilling in high blackgrass situations. In 2013/14, the year after the last wet winter, the highest performing plot was drilled on 31 Oct with a cultivation history over four years of strip-till, plough, deep one-pass, plough. The Crusoe winter wheat yielded 12.77t/ha with a blackgrass seed return of 1.6 ears/m<sup>2</sup>. By contrast, the worst plot yielded just 4.54t/ha, with a seed return

of 40.8 ears/m<sup>2</sup>, drilled on 26 Sept following a four-year regime of shallow pass with discs, followed by three years of strip-tilling.

Agrii's Colin Lloyd notes much of the difference comes down to soil structure. "If you planted a spring crop, this will have given you an indication of the state your soils are in. Get the spade out to decide your cultivation and drilling policy. If you must drill early, hybrid winter barley delivers the best results," he advises.



Source: Agrii five-year cultivations trial at Stow Longa, 2016



The number of blackgrass plants reduce from nearly 700/m<sup>2</sup> with a Sept/Oct drilled crop to less than 100/m<sup>2</sup> with a crop drilled in Feb.

► The cost of drilling early can also be prohibitive. A joint BASF and NIAB trial at Hardwick showed the same level of blackgrass control was achieved by drilling in mid-Sept and applying Crystal (flufenacet+ pendimethalin), Hurricane (diflufenican), Lexus (flupyrsulfuron) and Avadex (tri-alleate), compared with waiting until mid-Oct and just applying Crystal.

"70% control is relatively cost-effective to achieve with herbicides. It's getting that 97-98% control, where you're sustaining or reducing populations, that becomes disproportionality expensive with herbicides alone," John notes. To achieve 97% can require a programme costing £300/ha, relying predominantly on pre-em's with an autumn applied contact herbicide.

"Keep your eye on other grassweed populations too," he warns. In a study conducted jointly with BASF, Bayer and Syngenta, a sample of "problematic" Italian ryegrass showed variable sensitivity to flufenacet and pendimethalin. 50% of the sample had resistance to Axial (pinoxaden) and Atlantis (mesosulfuron+ iodosulfuron). ALS resistance cases are starting to appear in meadow and rye bromes too, he notes. ■

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