

Black-grass dormancy sets seasonal decisions

Agronomy Issues
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A better understanding of black-grass dormancy could allow adjustments in grass weed agronomy this season, to maximise control.

Results of four year's trials at the Syngenta Barton Black-grass Innovation Centre, in Cambridgeshire, have begun to unravel the interactions between establishment techniques, cropping options and herbicide strategy, to better tackle the timing of black-grass emergence.

Research has well established the implications of weather conditions during [black-grass seed development](#) on its potential germination timing, advised Syngenta Technical Manager and grass weed specialist, Georgina Wood (below). Trials at Barton have shown how that can be used to tailor the most appropriate strategies.



She highlighted that in seasons with high black-grass seed dormancy, burying seed with the plough has consistently given the highest levels of control. Conversely, in a low dormancy season, the direct drill established plots achieved the best results for black-grass control.

“If high dormancy black-grass seed is not going to germinate until late in the season, it makes sense to bury that down below the germination zone by ploughing,” she advocated.

“In a low dormancy year, however, keeping the seed at the surface can enable really effective stubble control and a good chance to clean up with herbicides.

“For most situations, the worst scenario for black-grass were cultivations that mixed the seed through the soil profile – resulting in protracted emergence over the autumn and early winter.”



A matrix of establishment trials, under intense black-grass pressure and resistance issues at Barton, demonstrated that an initial season's direct drill; followed by plough in the high dormancy autumn 2017 (<30% germination) and return to direct drill in very low dormancy 2018 (99% germination) - along with a tailored herbicide programme - achieved 100% black-grass control.

Other establishment combinations did also achieve up to 99.8%, whilst three years continuous min-till, for example, left as many as 80 plants per m².

[Watch this video to find out more about blackgrass dormancy](#)

Herbicide strategy

The combination of seasonal dormancy, cultivations and weather conditions will all impact the speed and duration of black-grass emergence - and influence the best herbicide strategy to counter the threat.

Trials over recent seasons at Barton have demonstrated that in a low dormancy season, where emergence is concentrated over a shorter period, focussing on a larger Defy-based stack with a single pre-emergence application can deliver the highest levels of control, reported Georgina Wood.

“Whereas, in a high dormancy season, where emergence may be more protracted, sequencing the same herbicide treatment over two applications could be more beneficial.”

2020 dormancy vision

This season the Barton Black-grass Innovation Centre R&D team could have the perfect opportunity to test herbicide strategies against different black-grass dormancy populations.

“We have been [assessing the viability of developing black-grass seed heads](#), along with the weather conditions that dictate levels of dormancy,” outlined Georgina Wood.

“Through early June, black-grass seed matured early in winter sown crops during incredibly hot dry conditions, which would indicate low dormancy would be expected.

“But as the season progressed, it was dull and wet for later maturing black-grass in the spring crops, which could result in high dormancy of seed.”



That could give us the opportunity to directly compare performance of the same herbicide mixtures, orientated towards stacks and sequences, under the same environmental conditions against the different populations – and give growers clear advice on how future decisions can be best tailored to specific seasonal situations.

Marginal gain

Alongside assessing levels of weed control, the Barton site trials are fully costed to evaluate margin returns for growers.

Whilst the combination of plough, followed by two seasons of direct drilling did achieve 99.8% black-grass control, challenges with establishment and yields resulted in the lowest comparable margin of £2829.

However, the sequence of direct drill; min till; direct drill did still achieve 99.2% blackgrass control and, by taking advantage of moisture retention in undisturbed soils on the heavy site, returned a 20% higher margin of £3382.

“High levels of black-grass control are clearly attainable and crucial for long-term sustainable yields, providing it can be achieved profitably in the process,” reported Georgina.

“The research at Barton is providing the evidence of what can be achieved, and giving growers the

knowledge to help pick the most appropriate options that can work best in their own situations.”

Barton black-grass focus

The Barton Black-grass Innovation Centre covers 16 hectares of trials to generate insights into the short- and long-term impact of cultural, chemical and application methods on grass weed control and yield.

Now going into its fifth year of trials, it offers a vast matrix of results and combinations to tease out grass weed solutions that work in practice.

[Click here for more black-grass agronomy and trials results, with the dedicated Barton Black-grass Innovation Centre webpage](#)

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