

# To till or not to till?

“The most profitable farming and wheat yields still comes from ploughing.”

## Technical Weed control

In the battle against difficult grassweeds, some farmers are turning back to the plough to seize control, while others are cutting out cultivation altogether. *CPM* spoke to two farmers using opposing systems to understand how they are controlling blackgrass.

By Lucy de la Pasture  
and Rob Jones

Five years ago, Matthew Denby was losing large areas of crop due to the high levels of blackgrass. But with the use of continuous ploughing, he says weed levels are fast diminishing. Matthew farms 720ha of winter cereals and oilseed rape near Alford, Lincs alongside his brother, father and grandfather.

“We’ve trialled different methods of control on the farm including min-till, cover crops and spring cropping but they led to very poor blackgrass control. One particular area of spring barley had to be entirely sprayed off because the grassweed levels were far

worse than the rest of the field which was ploughed.

“After ploughing for cereals two in every three years and using our Simba SL with low disturbance legs for drilling OSR, we have since seen a significant reduction in blackgrass. We get very good levels of control using OSR as a cleaning crop by using glyphosate pre-drilling, followed by clethodim and propyzamide.”

Within five years, the farm has gone from red-mapped fields having thousands of blackgrass heads/m<sup>2</sup>, to now being in a position to hand rogue any remaining heads.

### Ploughing early

“Blackgrass is now at low levels with no need to spray anything off. The key for us has been ploughing early because it enables us to get a really good seedbed. Ploughing in late July/early August following OSR enables our soils to withstand plenty of rain and produces an excellent seedbed. The soil is mellowed and conditioned by the wetting and drying process from rainfall in late summer.

“There seems to be a couple of key reasons why drilling later has benefited the farm. It’s a fact that less blackgrass germinates the later a crop is sown and there is more time to create a stale seedbed using glyphosate. Added to that, the soil is more likely to be moist, producing better

efficacy from the residual herbicides.”

Cereal drilling commences on 1 Oct on the farm’s historically cleaner land and after 10 Oct on dirtier land with a blackgrass history. All winter cereals receive tri-allate granules applied pre-emergence as well as a liquid stack of residuals split across pre-em and early post-emergence.

With a mix of medium marsh land and heavy clay soils, Matthew says their options ▶



Matthew Denby is getting a reduction in blackgrass by ploughing for cereals, two in every three years, and using a Simba SL with low disturbance legs for drilling OSR.

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; especially in a low black-grass dormancy year.

### 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.

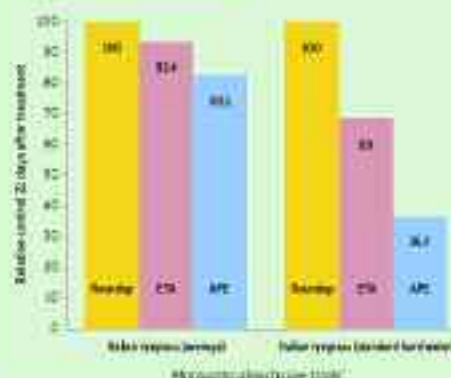
### Consider Pre-Emergence Glyphosate

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](http://www.monsanto-ag.co.uk/grassweed-action)

### PERFORMANCE ALERT

Expect lower levels of performance from the most popular ARE replacements for traditional fallow and/or (ETA) glyphosate formulations withdrawn from UK use this 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.

**Roundup**

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# Weed control

▶ are limited and contending with the weather and late drilling on a min-till system poses too much risk.

"Spring crops tend to be unreliable too on the heavier land and we end up with wet soils after spring barley because it doesn't draw up as much moisture as a winter crop.

"On clay soils like ours you need as many tools in your shed as possible and the plough is very valuable. We're very open to ideas and different systems, but we've tried various methods and the best results for blackgrass control and most importantly, the most profitable farming and wheat yields still

comes from ploughing. Our soil health is as good as any comparable soil type and with the government thinking about going in the direction of no-till, they need to be made aware that sadly this isn't a system that works for everyone."

But for Kent farmer Tom Sewell, who grows 450ha of cereals, OSR and beans near Maidstone, repeatedly reworking the soil seemed a counterproductive approach.

After dedicating three years to researching no-till, completing a Nuffield Scholarship along the way, Tom took the plunge and went 100% no-till in one season.

Since then, he maintains that the benefits have been endless.

"The true motivation for us in adopting no-till has always been soil health. We have very abrasive soils here and are used to wearing metal out very fast. When we used to plough we'd be replacing plough points every lunchtime."

Although grassweeds are still an issue on parts of the farm, Tom is unconvinced that ploughing could solve this, with the most vital tool in his box being glyphosate.

"Because we're not cultivating, when the seed hits the floor it stays there covered in ▶

## Balancing autumn grassweed and volunteer OSR control

Where blackgrass is a problem on the farm most management decisions revolve around the grassweed as other potential problems pale into insignificance. But this doesn't need to be the case, believes weed management specialist Barrie Hunt, who runs the Roundup technical support service.

He has no doubt that autumn is the best time to deal with both grassweeds and OSR volunteers. And he has a proven way of overcoming their conflicting management needs based on the best understanding of OSR and grassweed biology.

Cultivation immediately after harvesting has become standard practice for growers wanting the best control of problem grassweeds ahead of winter cereal drilling. But it's about the worst thing they can do after oilseed rape if they also want to deal with the volunteers that can be so problematic in arable rotations, he says.

"Volunteers are an inevitable consequence of OSR growing. A small amount of seed loss is unavoidable even with the best pod shatter resistant varieties, combining technologies and harvesting practice.

"This wouldn't be a problem but for two things. First, every 10kg/ha lost is typically more



*As well as competing with the wheat crop and providing an ideal environment for slugs, OSR volunteers can seriously interfere with the management and productivity of future OSR crops.*

than one and a half million seeds (or around 170 seeds/m<sup>2</sup>). And second, a proportion of these can remain viable in the soil for a good 10 years," he says.

"So, as well as getting in the way of your first wheat and providing an ideal environment for slugs, volunteers can seriously interfere with the management and productivity of your future OSR crops. They're also a prime culprit in the erucic acid contamination of 'double lows' on land once used for HEAR growing," comments Barrie.

"On the plus side, we're dealing with seeds specifically bred to germinate readily and reliably when at or very near the soil surface. Often — as autocasters will testify — a combination of chaff and dew are sufficient. This means we can stimulate the vast majority of shed OSR seed to grow by not burying it to anything more than a couple of centimetres. Cultivating it down any deeper will only encourage dormancy and future trouble," he says.

Not cultivating stubbles immediately following OSR harvesting appears to fly in the face of the best grassweed management practice. But Barrie stresses that it needn't do so if growers follow a simple 'twin-track' approach.

Having left OSR stubbles uncultivated for up to four weeks then spraying-off the volunteers and any very low dormancy blackgrass, he recommends light tillage and consolidation to minimise moisture loss and set up a stale seedbed. This will bring on the bulk of the grassweeds for spraying off just ahead of drilling.

"If you have bad blackgrass, ryegrass or brome you shouldn't be drilling wheat until mid-Oct at the earliest. So with OSR coming off before the end of July, you have plenty of time for this approach. The beauty of this is it enables you to deal with both volunteers and grassweeds in the best possible way, without compromise," he explains.

"On the one hand, you leave any shed seed



*Barrie Hunt has a proven way of overcoming the conflicting management needs of grassweeds and volunteer OSR in the autumn before drilling.*

open to predation by birds and mammals and get the maximum flush of small, poorly rooted volunteers which are especially vulnerable to glyphosate. And on the other hand, you achieve the surface cover needed for the maximum flush of blackgrass, ryegrass and sterile brome for control ahead of your wheat drilling.

"This twin track approach also helps you get rid of any soft, meadow and rye brome seed which needs surface after-ripening before burial to stimulate germination, together with perennial weeds which are best left to grow out of the stubble before spraying.

Cultivation between glyphosate sprays is important to minimise the risk of resistance development, adds Barrie, along with using sufficient rates of the most active glyphosate formulations and the best application practice.

"With such unreliable post-emergence herbicide performance these days, the most effective autumn treatment is critical in managing difficult grassweeds. This makes it vital your pre-planting sprays work as hard as they can in every way."

# CLETHODIM CONTINUES TO PERFORM DESPITE PERSISTANT BLACKGRASS PRESSURE

## Centurion® MAX

**Continued monitoring of clethodim performance has shown that it remains highly efficacious, maintaining its position as a leading graminicide for the control of ALS-resistant blackgrass.**

Trials, which investigated the application of clethodim to a blackgrass population with ALS herbicide target site resistance mutation Ile-1781 - the most prevalent resistance mutation found in UK blackgrass, showed excellent efficacy when the weed was at three leaf stage up to 5 tillers.

Arysta LifeScience Product Development & Technical Manager for UK & Ireland, Don Pendergrast said: "We conducted new studies to fine-tune the application of clethodim, to help to support growers to achieve optimum blackgrass control.

"It's reassuring that the product performs consistently whether the blackgrass is at an early three leaf stage, or a more advanced five tiller stage. These studies have proven that when applied correctly, clethodim can effectively control resistant blackgrass."

One of the studies, conducted by Silsoe Spray Applications Unit, also investigated the influence of nozzle choice on spray quality.

Dr Clare Butler Ellis, Research Manager of Silsoe Spray Applications Unit, said: "While air induction nozzles are unlikely to be optimum for control of small grass weeds, in the situation where plants are susceptible to the applied dose, this study showed that applying clethodim with drift-reducing nozzles can achieve high levels of control as well as reducing spray drift."

To further support the work, speaking of in-field experience, Mr Pendergrast explains that: "Efficacy is optimised with the addition of water conditioners to a 1L/ha rate

"It's also reassuring that the product performs consistently whether the blackgrass is at an early three leaf stage, or a more advanced five tiller stage."

**DON PENDERGRAST**  
Arysta LifeScience Product Development  
& Technical Manager for UK & Ireland.

of clethodim, applied in 200L of water. Although selected water conditioners should not contain a built-in adjuvant, as an adjuvant is already part of the clethodim formulation."

Clethodim has an established stewardship scheme created to minimise the risk of phytotoxicity,

which has historically included two application cut-off dates - one being for early drilled crops and earlier flowering varieties.

With current trends moving towards early drilling and earlier flowering varieties, Arysta LifeScience has now moved to one cut-off date for all clethodim



When applied correctly, clethodim can effectively control resistant blackgrass in oilseed rape.

applications - October 15.

The stewardship applies to all clethodim-based products, including Centurion Max®. Mr Pendergrast said: "Following the recent trials, moving to one date for all scenarios will ensure that applications are made onto actively growing blackgrass, which will help to boost overall efficacy.

"This will also minimise any risk of phytotoxicity and help to simplify the stewardship guidelines. Above all, our recommendation is to always exercise best practice and to adhere to the stewardship."



Arysta LifeScience has moved to one cut-off date for all clethodim applications - October 15.



*Rotational ploughing is still one of the key elements in integrated blackgrass control but is only effective if good inversion is achieved.*

► straw and germinates consistently at the same time.”

This means any emerging blackgrass plants can be sprayed prior to drilling, targeting the majority of the problem before it can become established.

“As a result of our low soil disturbance,

blackgrass is very shallow rooted and we're also finding our Liberator (flufenacet+ diflufenican) and Atlantis (mesosulfuron+ iodosulfuron) are working better than ever before. The improved soil structure and shallow rooting means we're targeting much smaller plants.

### Deeper rooted

“During cultivation blackgrass seeds can be spread 7-10cm deep and spread throughout the soil profile and you can't tell when they'll germinate. They also become much deeper rooted and established. Our blackgrass control is not 100% but I don't think ploughing or cultivation would solve the problem. Blackgrass typically grows in unhealthy, poorly drained soils so I hope over time populations will naturally diminish.”

Independent weed scientist Dr Stephen Moss explains why although rotational ploughing is valuable, no-till conditions also have potential to implement some blackgrass control.

“Historical research shows quite conclusively that blackgrass is encouraged by reduced tillage because you're keeping seeds near to the soil surface from where seedlings can readily emerge. But there's no



*Stephen Moss says there's no simple 'ideal' cultivation strategy for blackgrass because the best approach depends on the individual farm, soil types and crops grown.*

denying that low disturbance techniques can be effective in getting on top of blackgrass, and this may be down to the increased





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