



“ There’s been a big swing to stale seedbeds, delayed autumn drilling and spring cropping for cultural control. ”

# Tactics shift in blackgrass battle

## Technical Grassweeds

The National Grassweed Control Study, conducted by Monsanto and CPM, has revealed blackgrass is not the only challenge facing arable farmers. But increasing use of cultural control techniques shows growers are determined to vanquish their grassweed foes.

*By Rob Jones*

**Blackgrass may be the country’s number one grassweed problem, but the winter cereals area affected by both brome and Italian ryegrass has grown to a markedly greater extent over the past 16 years. Wild oats are only slightly less problematic than they were at the turn of the century. And couch remains an issue across a surprisingly wide area.**

These are the findings of a state-of-the-nation

study of grassweed problems undertaken this season by Monsanto as part of a new UK-wide Grassweed Action initiative. Almost 400 growers from 50 counties of Great Britain, together responsible for over 150,000 ha of arable cropping, took part in the study with CPM, paralleling similar work in 2000.

No one will be surprised to learn that blackgrass problems have grown substantially in this time, to affect just under half the winter cereals area compared with around a third in 2000.

### Grown substantially

Brome and Italian ryegrass continue to affect relatively smaller proportions of the national winter cereals area — an average 19% and 14%, respectively. However, both these problems have grown more substantially than blackgrass over the years — the areas affected increasing by 72% and 55% respectively against 35% for the biggest national weed threat (see chart on p53).

While wild oats are less widespread than they were in 2000, they still present a particular threat for many growers. At the same time, couch problems certainly haven’t disappeared.

The fact that nearly three quarters of

growers report increasing problems with blackgrass, almost 40% with bromes, just under 20% with Italian ryegrass and wild oats and 4% with couch in recent years underlines the threat posed by grassweeds. Worryingly, nearly a quarter of growers are seeing an increase in both blackgrass and brome, just over 10% an increase in both blackgrass and Italian ryegrass and around 5% an increase in problems with all three weeds.

Blackgrass continues to be noticeably more problematic in eastern and central England than in the west, north and south of the country. Even so, it’s now a problem on an average of between 23% and 41% of the winter cereals area in these less affected regions, with well over half of the growers in each reporting increased problems in recent years.

By contrast, brome is clearly most problematic in southern England and least so in the east, where ryegrass is also less concerning. The scale of both wild oat and couch problems is remarkably consistent across the country.

As expected, blackgrass and brome problems are markedly more widespread where winter cereals are established with reduced tillage than plough-based ▶



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*The primary emphasis of chemical control has swung emphatically to stubble pre-planting and pre-em treatment, notes Barrie Hunt.*

► systems. Interestingly, though, this doesn't appear to be the case with Italianryegrass.

Herbicide resistance is seen as the most important factor behind increasing grassweed problems, with cultivation regime also identified by more than two in every 10 growers.

In total, over 80% of growers are experiencing blackgrass resistance problems, with nearly two thirds rating these as serious or very serious (see chart on p53). By contrast, only around a third reported more than slight problems with resistance back in 2000.

At the same time, more than 40% of growers are now reporting herbicide resistance problems with ryegrass, over a third of these being rated as serious or very serious.

Resistance has yet to be scientifically confirmed in bromes in the UK. However,

the fact that a similar proportion of growers consider it to be causing them a problem and nearly a quarter of these more than a slight problem sounds a clear warning bell in this context.

Problematic on more than 90% of farms in central and eastern England, blackgrass resistance remains noticeably less widespread in other parts of the country. However, even in the least affected northern area, two thirds of growers are encountering some resistance problems with nearly 40% of these rating them as serious or very serious.

Although it may, in part, reflect a regional bias, resistant blackgrass problems are both less widespread and less severe where winter cereals are established with plough-based systems than under minimum tillage or no till regimes.

## Resistance problems

Understandably perhaps, reported herbicide resistance problems with both ryegrass and brome are relatively more widespread in the west and north of the country than they are in other regions. There's also a suggestion they may be more associated with reduced tillage than plough-based winter cereals establishment.

"The increasing difficulties being caused by grassweeds are clearly reflected in the changes our studies have recorded in both chemical and cultural control practices over the years," notes Monsanto crop protection technical manager, Barrie Hunt.

"Back in 2000, for instance, autumn post-emergence spraying was the overwhelming chemical control priority, with only minorities of growers using spring post-em, autumn pre-em or stubble pre-planting sprays. Today, though, the primary emphasis of chemical control has

swung emphatically to stubble pre-planting and pre-em treatment (see chart on p53).

"In parallel to this, alongside the workload-driven decline in ploughing, there's been an equally big swing to stale seedbeds, delayed autumn drilling and spring cropping for cultural control.

"On average, our latest study shows growers are employing 2.4 sprays per year to control blackgrass," Barrie Hunt points out. "This rises to 3.0 per year where resistance problems are serious or very serious, with greater emphasis put on all spray timings, particularly stubble pre-planting and autumn post-emergence.

"The average winter wheat herbicide spend is currently £89/ha, with a third of growers spending over £100/ha and more than one in every 10 over £125/ha.

"Herbicide spend is closely related both to the proportion of winter cereals area on which blackgrass is a problem and the extent and severity of blackgrass resistance.

"Growers with the most widespread blackgrass problems are spending an average of £109/ha compared to £63/ha for those with few, if any, problems. In the same way, growers experiencing serious or very serious resistance problems are spending around £101/ha on herbicides against £72/ha for those with slight or no resistance problems," he adds.

In blackgrass control, in particular, the study shows that growers establishing their winter cereals with some form of reduced tillage are relying to a much greater extent on chemistry than those with plough-based systems. This is especially the case with pre-planting, autumn pre-emergence and autumn post-emergence treatment.

On average, they're employing 2.7 sprays at a cost of £91/ha compared to 1.9 and £74/ha for those using the plough. Over four ►

## Taking determined grassweed action

A new on-line resource has been launched this summer to provide arable managers across the country with a structured approach to regaining control over their most damaging grassweeds using the best available intelligence.

Developed by Monsanto specialists with Dr Stephen Moss, Grassweed Action (<https://www.monsanto-ag.co.uk/grassweed-action>) provides well researched, practical frameworks for regaining control over blackgrass, Italian ryegrass, bromes, wild oats and couch that can be implemented by growers and their advisers in ways which best suit their own farm conditions and circumstances.

The free-to-use resource is built around three keys to success in modern grassweed management — understanding, commitment and flexibility. It includes a knowledge hub providing the best current understanding of each weed, a newsroom offering the latest control intelligence and advice, and a growing network of industry links for extra information, guidance and support.

Building on the CPM study, a special Grassweed Tracker allows growers to benchmark their grassweed position with other farms in their area while, together, producing an increasingly accurate picture of the way problems and solutions are developing across the country.



*The new on-line resource provides arable managers with a structured approach to regaining control over grassweeds.*



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*Growers are using an increasing number of cultural control techniques, including stubble weed control, to get a grip on grassweeds.*

► in every 10 growers relying on minimum tillage, indeed, is spending £100/ha or more on winter cereal herbicides. This compares

with less than two in every 10 of those with plough-based establishment.

In addition to rotational ploughing, stale seedbeds, delayed drilling and spring cropping, a large number of cultural practices are now being widely used to control grassweeds. These include increased seed rates, more competitive varieties and longer rotations as well as spraying-off infested crop areas and hand-roguing (see chart on p53).

On average, growers are using 6.25 of these techniques, with 45% taking seven or more measures and 12% nine or more. Those with the most widespread blackgrass and the most serious resistance problems are, not surprisingly, making the greatest use of cultural controls — particularly stale

seedbeds, delayed autumn drilling, spring cropping, increased seed rates and more competitive varieties.

“Unsurprisingly too, growing more spring crops, improving stubble weed control, drilling more winter wheat later and improving weed control in winter OSR are the most popular management changes being considered to address grassweed problems,” notes Barrie Hunt.

“Using higher wheat seed rates, increasing break cropping, reducing second wheat growing and greater use of rotational ploughing are also on the agenda for a quarter or more of managers, underlining the extent to which problem grassweeds are now becoming the key management driver for so many farms.” ■

## Five ways needed for five years to control grassweeds

Weed control authority, Dr Stephen Moss sees the latest study as a timely warning for growers across the country, urging them to assess the grassweed status of their fields each summer to review and adapt their management accordingly every season.

“Blackgrass is clearly becoming an issue for growers wherever they are in the country,” he insists. “What’s more, you can virtually guarantee a degree of resistance in all populations.”

Italian ryegrass is even more problematic than blackgrass in some parts of the UK, he says. Brome is an increasing threat, wild oats should never be ignored and couch remains widespread.

“Both increasing herbicide resistance and a decreasing chemical armoury are adding to the grassweed challenge. Gone are the days when you could reliably control these threats with herbicides alone. Instead, you need to take advantage of every cultural and chemical control opportunity you have in a thoroughly integrated, systematic way, field by field.

“We know that the key to annual grassweeds is to prevent seed return. Numerous on-farm studies show the blackgrass seedbank can be reduced by 74% per year by doing this. If blackgrass has one weakness, it’s the relatively short persistence of its seeds in the soil. We need to capitalise on this

vulnerability. Theoretically, we should be able to decrease weed levels by as much as 99.9% over a five-year period.

“Preventing seed return is easier said than done, though. It requires an understanding of the weeds involved, the discipline to keep up the pressure on them over several years and sufficient management flexibility to make the most of the full range of control tools available.”

With his primary focus on blackgrass, Stephen Moss groups these tools into five main strategic areas — cultivations, sowing date, crop competition, herbicides and seeding prevention.

He has long been an advocate of rotational ploughing to bury blackgrass seeds below the zone from which they’ll germinate. Following this, he recommends several seasons of minimum tillage, strip tillage or direct drilling to deal with weed seeds near the surface and avoid bringing those ploughed-down back up while still viable.

The most appropriate cultivation strategies need to be integrated with delayed autumn drilling, spring cropping, grass ley breaks, fallowing or other rotational devices, variously designed to restrict the emergence of grassweeds by delaying the sowing date of the main wheat crop — for several years in extreme cases.

Everything possible should be done to maximise the competitive pressures placed on those weeds that do emerge, using techniques like the most competitive crops and varieties, higher seed rates and narrower rows, improved drainage and cover cropping.

In parallel to these strategies, glyphosate should be employed to eliminate weed seedlings ahead of planting; pre-em and post-em cereal herbicide programmes should be used with care and in ways which minimise resistance development; and effective use should be made



*Stephen Moss advocates following at least five strategies over five years, which could decrease weed levels by as much as 99.9%.*

of alternative herbicide modes of action in non-cereal crops.

Finally, Stephen Moss advises hand-roguing, patch spraying or complete crop destruction (or silaging for livestock or AD) as necessary before mid-June to stop any weeds that have escaped shedding seed; together with effective crop seed, equipment, straw and manure management to restrict weed seed spread.

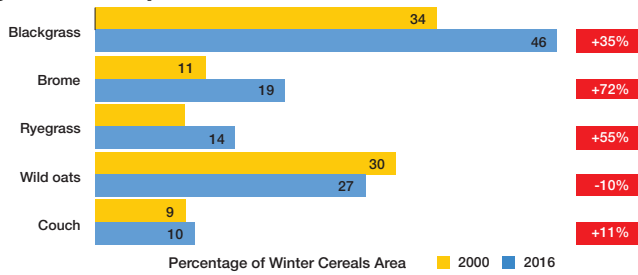
“Just like dieting, it’s discipline that really counts,” he concludes. “At the end of the day, losing weight is all about consuming fewer calories and taking more exercise. The best approach depends on the individual. But persistence and commitment will always pay dividends.

“We know that even the most intractable and costly grassweed problems can be overcome with the right management, the necessary determination and sufficient time. However, one size most definitely doesn’t fit all in grassweed control either. Individual growers and their advisers need to choose and use the tools that best suit their individual field and farm conditions. And, above all, they need the discipline to keep at it.”



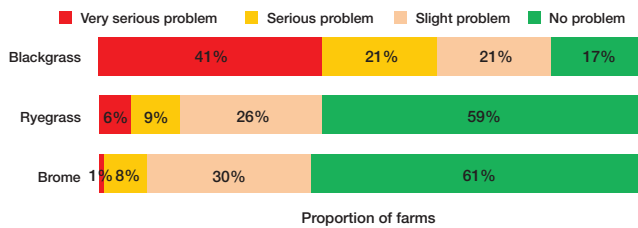
## The current picture

### On what proportion of your winter cereals area are grassweeds a problem?



Source: National Grassweed Control Studies (Monsanto 2000 and 2016)

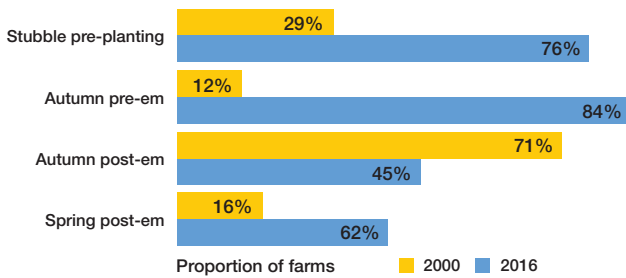
### How much of a problem does herbicide resistance cause you?



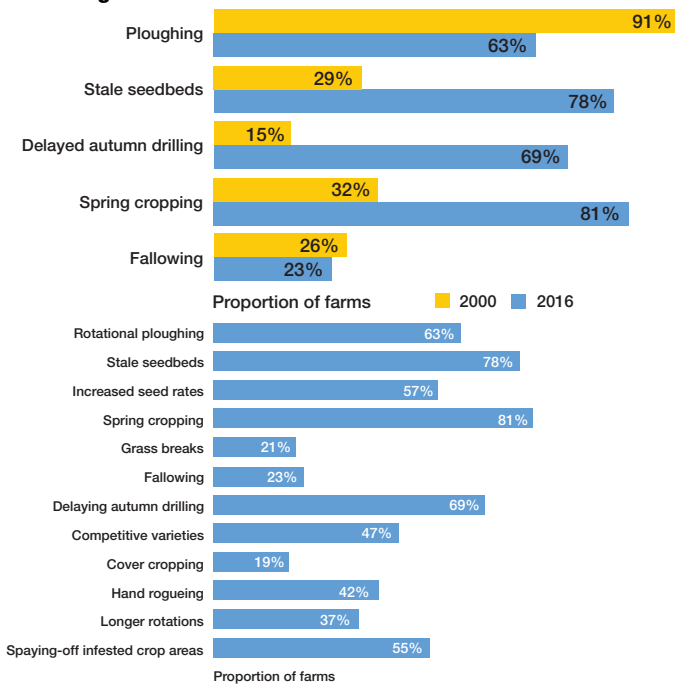
Source: National Grassweed Control Studies (Monsanto 2016)

## Control techniques

### At what timings do you normally control blackgrass in your winter cereals?



### What main cultural control techniques do you use to control grassweeds?



Source: National Grassweed Control Studies (Monsanto 2000 and 2016)

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