Fieldwise
AGRONOMY NEWS FROM HUTCHINSONS
Crop Production Specialists
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Getting to grips with grassweeds this autumn

*Grassweed control posed some real headaches in the rain-affected 2023/24 season, so as a new cropping year gets underway, Hutchinsons technical manager **Dick Neale** offers some timely advice to help stay ahead.*

The 2023/24 season was one of contrasting fortunes when it comes to weed control, and there are some important lessons we can take from it.

On the positive side, where growers managed to drill crops on time, and crucially, applied a pre-emergence herbicide soon after, weed control was generally very good, helped by moist soils that maximised the efficacy of residual chemistry.

At the other extreme are those later-sown crops, where wet conditions prevented any pre-, peri-, or early post-em applications. For many, it was impossible to get back on the land until well into spring, by which time weeds were often too large for contact chemistry to offer much control.

This is perhaps the biggest 'take-home' message from last season, in that if you are going to put a crop in the ground, whether it is drilled early or late, you must be able to apply the pre-em in conditions that give it the best chance of working.

Soil moisture is key to this, as residual chemistry is much less effective in dry seedbeds.

This is well worth remembering for anyone planning to drill 7-10 days earlier this autumn to avoid a repeat of last year. Soils are (usually) drier at this time, so be sensible and wait for optimum conditions to give residuals the best chance.

Sequencing trumps big stacks

Another important observation from recent seasons is the protracted germination period many grassweeds exhibit, which has big implications for herbicide programmes and cultural controls.

Ryegrass in particular has the ability to germinate almost year-round, while we are seeing similar patterns for black-grass at our Cambourne trials site near Cambridge, and elsewhere. Wild oats and brome also have different germination periods depending on the species present, reinforcing the importance of identifying exactly what you are dealing with at the outset. Recognise too that there may often be a mixture of species in any one field, each emerging at different times.

***Dick Neale** (Hutchinsons Technical Manager)*

From a herbicide perspective, the focus must therefore be on using sequences of well-timed treatments to cover protracted germination, rather than expecting a big stack of chemistry to do the job in one hit. Even the best new products cannot provide control over a germination period extending to several months. All the evidence from Hutchinsons trials over the past five years shows that sequencing out-trumps a single application by almost 10:1.

The exact sequence and product choices used must be tailored to individual situations, but generally it is likely to feature more limited pre-em applications if drilling earlier, with the most robust chemistry applied from mid-October.
A pre-Christmas top-up should also be considered, and possibly again in the spring, to catch later-emerging populations.

Product choice depends on the target weed spectrum in individual situations and the relative strengths of different chemistry. Cinmethylin for example is a go-to option for ryegrass and black-grass, but will need supporting if brome or wild oats are also an issue.

As ever, timing is key, especially for contact chemistry. Pinoxaden, for example, still offers good activity on most ryegrass, but only if it is applied before weeds get too big. This may require using it earlier than many are used to (i.e. 2-3 leaf stage) to avoid 'firefighting' large weeds, which is less effective and increases resistance risks.

Improve the ability to travel

As 2023/24 showed, getting on the land to apply a sequence of herbicides can be challenging, if not impossible in exceptionally wet periods. We cannot control the weather, but we can try to improve the resilience of soils to increase the chances of being able to get machinery onto land later in autumn, and earlier in spring, allowing more timely weed control.

There are many options for improving soil resilience, from cover and catch cropping, to changes in cultivation practices.

Indeed, one option may be to avoid subsoiling tramlines in situations where they will be reinstated with GPS in the same places for the following crop. Loosening the structure in this way simply increases the risk of a loaded sprayer sinking in.

A common theme among many growers that achieved good weed control in 2023/24 was the fact soils were in good condition to start with, well drained, and more resilient to weather extremes, allowing crops to be drilled and sprayed on time. Admittedly, some also just got lucky.

Cultivation planning

Protracted germination has implications for cultural controls, such as stale seedbeds ahead of autumn drilling. These have been very effective at reducing flushes of September/October germinating black-grass in recent years, but as that population declines and we see more black-grass emerging later into autumn and through to spring, so their effectiveness diminishes.

Cultivations can still help in some situations though, especially where there is good moisture.

Earlier-germinating black-grass, and wild oats will readily grow if conditions are right, while meadow/soft brome must be left on the surface to ripen after harvest, and will then germinate when there is adequate moisture. Conversely, a shallow cultivation soon after harvest will encourage sterile (barren) and great brome to germinate.

Grassweed control tips

- Take time to identify the weed species present in individual fields and the germination profile
- Beware of protracted germination of many weed species, notably ryegrass, and black-grass
- Recognise traditional approaches, such as stale seedbeds, may not be as effective when weeds germinate over a longer period
- Rectify any issues contributing to increased weed pressure, such as poor drainage
- Plan cultivations and cropping strategy carefully, considering the weed profile, seed return post-harvest, planned drilling date, etc.
- Consider how cultivations and soil management can be optimised to improve the ability to travel and apply herbicide sequences throughout the season, e.g. avoid subsoiling tramlines
- Multi-species cover or catch crops offer effective competition against black-grass and ryegrass
- Residual chemistry is an essential starting point for programmes - need moist soils to work, so be prepared to delay drilling if conditions are too dry
- Well-timed herbicide sequences are more effective than complex 'stacks'

One characteristic most grassweeds share is the preference to grow from a shallow depth, typically no more than 5 cm deep, so light surface cultivations can be useful for stimulating weed flushes, depending on the timing of cultivations and germination profile of weeds present.

Where there has been high seed return, ploughing can be a useful "reset" to bury seeds beyond germination depth and gradually deplete the seedbank. Consider how deep you need to plough though as in many cases 15-18 cm (6-7") may be sufficient. Ploughing could also help alleviate any surface compaction or slumping caused by heavy rain last season, but as always, get the spade out to identify the issues and where they are in the soil profile.

Rectifying any drainage issues should be another priority, as we know black-grass can thrive in wetter, poorly drained soils. This takes time, so changes to cropping plans may be required. At Cambourne for example, some fields with known drainage problems will go into spring barley rather than winter wheat for 24/25, to allow time for mole ploughing after harvest.

Cover crop competition

Multi-species cover/catch crops can provide useful suppression of some grassweeds, particularly black-grass, as we have seen in early trials at Cambourne and elsewhere.

The exception is brome, which is generally better at competing alongside other species, albeit at lower numbers.

Growers that avoided catch cropping in the past in favour of using stale seedbeds may wish to reconsider this option, as it also gives an opportunity to create a shallow seedbed, which is stabilised with the catch crop ahead of drilling the following crop later in autumn. There are other benefits to soil moisture management, nutrient capture, organic matter addition, soil structure, as well as potential payments via the Sustainable Farming Incentive (SFI), where it would be regarded as a summer cover.

Some may worry about plant residues inhibiting residual herbicide performance, but generally this is not an issue as summer cover crops are rarely in the ground long enough to generate high levels of biomass.

The low carbon:nitrogen ratio also means the soft, green material, breaks down quickly. Indeed, this may increase surface moisture, which could benefit residual performance.

Be ruthless

Finally, tackling issues early is vital to stop weeds spreading, especially for vigorous grassweeds like ryegrass and black-grass.

Populations of ryegrass often start building around headlands or in certain patches, where weed seeds have been introduced on combines, balers, cultivation equipment, or manures. In such cases, consider managing affected areas separately from the rest of the field. That could mean using different cultivations or herbicide sequences, or even putting parts of the field into a herbal ley for three or six years.

Whatever route is taken, be ruthless to prevent weeds setting seed and increasing populations. Doing so will ultimately deplete the seedbank and help get on top of problems.

Questions about grassweed control? Please contact us: information@hutchinsons.co.uk

***Andrew Pitts**, host of Helix National*

Tailor-made SFI helps Northants farm reduce risk

A Northamptonshire farm is demonstrating how careful integration of Sustainable Farming Incentive (SFI) measures can help to improve environmental and financial resilience.

Like all farmers, Andrew Pitts of Moat Farm, Whiston, recognises the need to improve resilience and reduce risk on the 809 ha (2,000-acre) arable farm.

It is a challenge farmers have faced for years, but the removal of direct support (BPS) and increasing frequency of extreme weather events, both wet and dry, has brought even greater urgency to change.

The launch of the Sustainable Farming Incentive (SFI), increasing popularity of regen-type systems, and multitude of new technologies available all promise potential solutions, however Mr Pitts is keen to avoid knee-jerk reactions, insisting any changes must be well planned, based on solid evidence, and be right for the business.

"We all need to embrace change, but understand it won't happen fast," he told a meeting of growers at the farm, which also hosts the Helix National Technology Farm.

Assessing performance

Evaluating field performance and production costs using the Omnia platform is a vital tool in Mr Pitts's decision-making process.

This helps identify fields or areas of fields that struggle to turn a profit, and may therefore be better put to other uses, such as the SFI.

Crucially, the system allows him to evaluate performance over multiple seasons and crop types to highlight any areas consistently underperforming, not just in one season. Omnia cost of production mapping in two adjacent fields from harvest 2023 neatly illustrates this process. Both fields grew KWS Extase second wheat, with one yielding 10.7 t/ha and the other 9.07 t/ha. The higher yielding area had a cost of production of £179/t, while the lower-yielding area was nearer £211/t.

"At a wheat price of £200/t, we'd have lost money on the lower-yielding area in 2023, but for this harvest, cost of production is around £40/t lower, largely due to the reduction in fertiliser prices, so the situation could be different depending on how crops perform. We need to avoid knee-jerk reactions based on one season. If we're going to take fields or parts of fields out of production, it has to be the right thing to do long-term."

This is particularly relevant to implementation of the SFI, the latest 2024 version of which contains 100 different options, with varying payment rates available.

Tailor-made solutions

Mr Pitts has worked with his Hutchinsons agronomist Michael Shemilt, and Georgina Wallis, head of the environmental services team, to tailor SFI options to what works best for the farm, rather than chasing the highest-paying options available.

"We started by looking at how the SFI could fit with things we're already doing," says Mr Pitts. That included "no-brainer" options, such as soil, nutrient, and integrated pest management plans, alongside other options similar to those already in place within an old Higher Level Stewardship agreement that ended last Christmas.

Spring cropping and overwinter cover crops have been integral to the rotation for many years, so were also obvious choices, although Mr Pitts has been keen to maximise their value further within the SFI.

SFI options at Moat Farm:

- Low input cereal crop (AHW10), £354/ha
- Grassy field corners or blocks (CAHL3), £590/ha
- Winter bird food (CAHL2), £853/ha
- Companion crops (CIPM3), £55/ha
- No insecticide use (CIPM4), £45/ha
- Multi-species winter cover crop (CSAM2), £129/ha
- No-till farming (SOH1), £73/ha
- Variable rate nutrient applications (PRF1), £27/ha
- Soil Management Plan (CSAM1), £6/ha plus £97 per agreement
- Nutrient Management Plan (CNUM1), £652
- IPM plan (CIPM1), £1,129
- SFI Management payment, £40/ha up to first 50 ha in year one (£20/ha in subsequent years)

JW Pitts & Sons

- 809 ha (2,000 acres) of combinable cropping
- Rotation includes: winter wheat (1st & 2nd wheats), winter barley, beans, peas, spring oats, cover crops
- Started direct drilling in 2015 after a nine year transition from a plough-based system
- Strong focus on improving soil health and resilience
- One of nine Helix demonstration farms - see www.hutchinsons.co.uk /about-us/helix

The farm has around 200 ha of spring cropping, all of which is preceded by multi-species winter cover crops established by autocasting after harvest. White clover (5-6 kg/ha) is included in each mix, and the farm is trialling ways of retaining the clover as a nitrogen-fixing understory companion crop in the following spring cereal. This avoids the need for an additional pass to establish the companion crop separately, and means land can qualify for both the multi-species winter cover (CSAM2) and companion crop (CIPM3) SFI options, bringing in valuable extra income.

There should also be a nutritional benefit to the following first wheat through higher levels of residual nitrogen in the soil, he adds. "First wheat is still the highest gross margin crop on the farm, so we want to find ways of maximising its profitability."

Lower input options

Spring oats are an important spring crop for the farm and provide a good break from wheat or barley. By utilising the nutritional benefits of companion and cover cropping, Mr Pitts says oats can be grown with relatively few inputs, so will qualify for the low-input cereal option (AHW10).

"We don't need to apply any more than 30 kg/ha of additional nitrogen to spring oats, and this year we've spent £16,500 less on fertiliser. They don't need an insecticide either, so qualify for that option too (CIPM4).

"We'll also take up the direct drilling and variable rate fertiliser options within SFI 2024, as these are both things we're doing already."

In total, the SFI options on low input spring oats could be worth £600/ha, with a predicted gross margin of £1300/ha, which is only just shy of first wheats at £1400/ha.

There are other benefits too, including reduced risk compared with other break crops, soil health and carbon sequestration benefits from the cover crops, reduced workloads at peak times, and improved cashflow/reduced borrowing costs given the quarterly receipt of SFI payments.

Looking at all SFI options across the farm, crucially Mr Pitts says no more land has been taken out of production than was already in environmental schemes under the old HLS; equivalent to around 15% of the total farm area.

"Farming has become very risky over the last five years in particular, so we've got to find ways to reduce that risk. We're very happy to embrace the SFI to help do that, because it supports a direction the farm is already moving in."

Measuring cover/companion crop benefits

Several years of cover crop research at Moat Farm has shown consistent benefits to soil structure, organic matter, and nutrient availability. On average, cover crops deliver an additional 25-30 kg N/ha to following crops, says Mr Shemilt.

The nutritional benefits of companion crops are still being examined though. Trials have found spring beans as a companion can deliver anything from 20 to 70 kg/ha of additional nitrogen, while amounts from clover appear to be lower at nearer 20 kg N/ha.

"As an annual crop, beans grow and fix nitrogen at a faster rate than clover, which tends to trickle nitrogen out more slowly. Work so far suggests establishing around 4 beans/m^2 as a companion will more than pay for the cost of the seed through the additional nitrogen available to the crop. We're looking for a companion, not competition with the crop."

However, with many practical considerations around the best way to establish, harvest, separate, and market crops grown with a companion species, research is still ongoing to see if it is right for the farm. This includes a trial field of beans and oats sown this spring.

"The field did get hammered by rooks after drilling as we had to drill the oats first and then the beans a few days later, which disturbed the seed. Despite that, it's done well and looks surprisingly clean, considering it's hardly received anything in terms of inputs, but I'm still really not sure what to expect. The proof of whether it works will come this harvest," notes Mr Pitts.

If you would like advice on integrating SFI on your farm, please contact our specialists: enviro@hlhltd.co.uk

Helix Technology Farms

Trials focus on nutrition

***Jennie Watson** (Hutchinsons Development Manager) describes the innovative nutrition and technology trials carried out at many of our Helix farms around the country.*

***Jennie Watson** (Hutchinsons Development Manager)*

Our nutrition development work crosses over into many areas of our trials work. We have nutrition work at the **Cambourne black-grass management farm**, looking at how placement fertiliser can improve the rooting and vigour of crops to improve black-grass competition. We are running disease assessments on nitrogen response trials to demonstrate the impact of 'luxury' nitrogen on disease pressure. Large scale trials are looking at legumes as both a companion and bicrop, aiming to quantify the amount and timing of nutrient delivery to the partner crop. Alongside this we continue to work with our specialist soils team using soil analysis and TerraMap to position trials and give context to the results.

Driving efficiency

Improving the efficiency of nutrient use continues to be a key focus in our trials work. Not only are growers understandably keen to optimise all inputs, government funding either through recent SFI actions, Farming Futures R&D support, all points towards an increased focus on the clean air strategy, the environment improvement plan and the road to net zero.

We continue to evaluate placement fertilisers and nitrogen alternatives in trials to improve nutrient use efficency, with more consistent results last year when we scaled our work from small plots to tramline trials. This season we have included more root crops in our trials work to look at the performance of **Vixeran, Utrisha, R leaf** and **methylated urea** in potatoes and sugar beet, alongside work in maize and spring barley.

Our trials work with stepped nitrogen rates highlights that these nitrogen alternatives are unable to replace soil applied nitrogen to build biomass, equally we do not see consistent benefits when crops receive their full nitrogen programme and are fully nitrogen satisfied. This has led us to look at various technology to optimise the value of these nitrogen alternatives, in this narrow corridor between crops having enough biomass to build upon, and capacity to benefit from more nitrogen.

Helix Farm trials

Helix farms in Cornwall, Yorkshire, East Anglia and Northamptonshire are currently evaluating:

- **Paul Tech soil probes**, which monitor electrical conductivity, providing a measure of how much nitrogen is available in the soil solution throughout the season.
- **PES Technologies sensor**, an in-field soil analysis tool, interpreting soil volatiles to provide a result in just five minutes. Measuring soil pH, P, K, Mg, extractable nitrate, microbial biomass and organic matter.
- **Messium**, who utilise hyperspectral satellite imagery to provide an alternative to tissue analysis. The data, alongside nitrogen dilution curves, can be utilised to support both nitrogen application, timings and dose.

The Helix farms are in their third year of evaluating nitrogen alternatives and they have been doing so alongside farm objectives, including low input cereals, maintaining high feed yield and even protein for milling.

At Helix National, Andrew Pitts and Michael Shemilt continue to utilise the protein prediction test, this year on RGT Goldfinch grown for seed. We have taken the opportunity to place one of our collaborative Yara trials on the farm to look at nitrogen alternatives at main and delayed timings, to see if we can maintain protein for a lower input loaf of bread. This is running alongside other work with Heygates Millers, supporting end market objectives to optimise inputs. The Yara NUE trial is repeated at Helix Yorkshire and Helix East Anglia.

As with all technologies we integrate into our development work, we continue to challenge the data generated and to ask the important question - **'So What?'**

For more information about our Helix farms, please visit our website: www.hutchinsons.co.uk/about-us/helix/