Keeping up the good weed work

Do a little, or do a lot – when it comes to weed control and cultivation choices, it all depends on the individual scenario at hand. *CPM* takes a look at what to consider when the preference is to reduce tillage intensity.

By Rob Jones and Janine Adamson

Without cultivation, crop competition is crucial for weed control in low disturbance systems, which can often depend on soil conditions – also the basis for good establishment and herbicide efficacy.

"A high-yielding crop without doubt has a good rooting system to support it, so I don't agree with the idea that zero till means accepting significantly lower yields," says independent soils and cultivations adviser, Philip Wright.

He believes the long-term aim is a resilient soil that allows unrestricted movement of roots, along with water and air for aerobic conditions that support biological activity and crop growth. Good drainage is also must.

However, moving to less intensive cultivation isn't a simple process. "It requires more time in the field with the spade assessing the situation, anyone going down this route should take that detailed approach."

According to Phillip, low disturbance and zero tillage keep weeds in a certain stratum, which should make them easier to manage. "But we still see problems because a small number of weeds make a lot of seed. As a principle, I don't see a problem with using the plough to reset weed seed numbers because it doesn't undo the work improving soil, but use it sparingly.

"More generally, whenever a farming system is in operation for consecutive years, nature adapts and can instigate problems. Strategic tillage is shown to work – if you have to do it, fix the problem, and the soil will recover."

A trial at Agrovista's Lamport AgX site further demonstrates the interaction between cultivation approach and weed control, but this time from a pre-emergence herbicide efficacy perspective.

Technical agronomist, Chris Dickinson, says the overall picture is that like many, blackgrass control has been better this season. "The chemistry has worked well, even on rough seedbeds, and the dry spring suppressed blackgrass which thrives in wetter conditions.

"In both seasons, the pre-em programme based on Proclus (aclonifen) performed better than the Luximo (cinmethylin) programme on shallower tilled plots. However, on deeper cultivated plots, the cinmethylin has the edge." ▶

Optimising depth

Following trials at Lamport AgX, Agrovista's Chris Dickinson says cultivations around 40mm deep are a good balance between creating tilth but not moving too much soil.

Across 88 BASF field trials, over 5 years Luximo® achieved an average black-grass control of 86%, compared to 73% from Liberator®+Proclus® (Label rates applied). Liberator contains flufenacet and diflufenican. Proclus contains aclonifen. According to Kynetec data, Luximo® was applied on 40% of the UK winter wheat area which received a herbicide in autumn 2024. Use plant protection products safely. Always read the label and product information before use. For further product information including warning phrases and symbols refer to www.agricentre.basf.co.uk. Luximo® is the brand name for the active ingredient cinmethylin.

► In year one of the trial (drilled 15 October 2023) there were six cultivation depths ranging from direct drilled to a Sumo Trio. This season (drilled 1 November 2024), there were two cultivations: two sequential passes with a straw rake to tickle the surface versus an X-Press disc cultivator at 90mm.

On farm, Chris suggests cultivations around 40mm deep are a good

Lessons to be learned

How Australian farmers manage glyphosate-resistant ryegrass

A history steeped in sheep farming and wool production saw Australia become focused on developing the best and most resilient annual ryegrass, in order to feed its livestock. Fast forward to today, and much of the country's cropped land originates from these ryegrass fields – meaning the seed was quite literally sown for the ryegrass pressure which Australian arable farmers have dealt with since.

Martin Dargan, who supports Gowan in Australia and New Zealand, explains that for many years, paraquat and glyphosate, followed by contact herbicides, effectively managed the problem. However, increasing herbicide resistance has made this system fallible.

In fact, research from the Australian government's Grains Research and Development Corporation reveals that 40% of ryegrass samples taken from fields in 2024 had low (6-19% of plants survive) or high (>20% of plants survive) resistance to glyphosate.

"Our post-emergence options have a minimal effect so we have to control ryegrass at pre-emergence. Used standalone, even the most effective products only provide 90% control," says Martin.

Worldwide insight
Australian growers are advised to use tri-allate as a partner to base herbicide treatments, to take ryegrass control from 85% to 100%, says Martin Dargan.

"We used to advise farmers to rotate the chemistry, but we now say that's not good enough. You have to combine and rotate chemistry. If you have 500 ryegrass plants/m2 and kill 90, you'll have 50 plants/m2 that'll go to seed, returning 500–1000 seeds each. It's a numbers game."

Martin adds that tactics now involve adding different chemistry groups together at pre-emergence. "That's where Avadex (tri-allate) has been exceptional. We're using it as a partner to the base treatment to take control from 85% to 100%.

"Our experience shows you have to mix multiple chemistries up-front to get on top of resistant ryegrass," he concludes.

balance between creating tilth but not moving too much soil. “In year one, the 40mm cultivation was where both herbicide programmes delivered equal levels of control.

“The more soil we move, the more blackgrass we mix into the profile leading to increased germination. We could see that effect in the untreated plots in 2023-24 – we harvested 4t/ha in the no-till but only 2t/ha from the most intensively cultivated plots in the untreated part of the trial.”

With it being dry this season, Chris advises leaving soil undisturbed until there’s enough moisture to cultivate. “With an early harvest, the weed seed will be on the surface that much longer providing more time for predation and degradation of the seed.

“The biggest danger is complacency. We’ve had a good season for control but there’s still blackgrass in the seed-bank. If a field has a long-standing problem, we could still see significant autumn germination after one year of good control.”

Bayer technical manager, Ben Giles, points out that while keeping grassweed seed on the soil surface is effective, care is required in terms of herbicide use, particularly in reduced tillage situations. “Your aim is to decrease the grassweed population before using in-crop herbicides. Without cultivation, a lot rests on how you use Roundup (glyphosate).”

According to WRAG guidelines, only one application of glyphosate is recommended before drilling if there’s no cultivation, to reduce the risk of repeat applications to the same weeds. “The first UK case of glyphosate resistance in Italian ryegrass was announced earlier this year, so it’s a real threat.

“Be patient, wait for sufficient moisture in the seedbed to get a good chit before spraying off and then drilling. Ensure that you use a dose of glyphosate that’s effective for the size and species of the targets present in the field,” adds Ben.

Where there’s high blackgrass or Italian ryegrass pressure, a two-spray herbicide programme is the best option to maximise control, he suggests. “Create a programme which allows you to include a diverse range of actives. You could start with a metribuzin co-form such as Alternator Met, Cadou Met or Octavian Met (all metribuzin+ flufenacet+ diflufenican), plus Proclus, to give four modes of action at pre-em timing.

“The ideal situation would be to follow up around two weeks later. However, using a strong pre-em with good longevity is sensible insurance in case the second application is delayed or not possible because of the weather.”

As seen during recent years, with reduced tillage comes the potential risk of brome. And as this becomes a more significant weed, more knowledge is required, says ADAS’ John Cussans. “The species mix, germination patterns and responses to cultivation are all things that we don’t understand as well as we thought,” he adds.

The relative abundance of different brome species is shifting over time. In the Bromus group (soft, rye and meadow brome), rye brome is now the main problem, whereas in the Anisantha group, there’s a significant shift to great brome from sterile brome.

John believes the shift is likely to have been caused by weed management – selecting for the harder species to control.

“Great and sterile brome are winter ▶

A clean start

Bayer’s Ben Giles reminds that the aim should be to decrease the grassweed population before using in-crop herbicides.

annuals – most of their germination is in autumn, so focus control around the pre-em timing, much as you would do with blackgrass. Just make sure the chemistry you use has activity on brome.

"Rye, soft and meadow brome germinate 50/50 between autumn and spring. They have high potential seed return in spring crops so any herbicide programme requires activity in both autumn and spring," explains John.

He adds that cultivation is an area which is starting to be approached differently. "There was an understanding that species had different responses to light so you could control sterile and great brome by cultivating after harvest, and delayed cultivation for the other species.

"But, recent work following a brome survey and a re-evaluation is calling this into question. There are populations where we see a light response, but the vast majority don't have this."

Regardless, he believes focusing on conditions post-harvest should be the priority. "If it's dry after harvest, leave the weed seed on the surface to increase mortality and predation. Once there's some moisture in the seedbed and soil surface, the optimum approach is a very superficial cultivation to increase seed-to-soil contact and weed germination, which can be controlled before drilling," he concludes. ●

Stubble management

Why baling leaves a nutrition shortfall

In many cases, a dry season has limited the height of cereal crops across the country, raising concerns of a straw shortfall.

While growers baling straw – rather than chopping it back into the stubble – should benefit from an additional income stream, there could be ramifications from a soil nutrient retention perspective in following crops, points out Origin Soil Nutrition's Tom Wells.

In fact, the problem could be greater based on previous input use. "Growers will know that baling straw removes valuable nutrients from the field and this situation could be exacerbated if potash (K) holidays were previously taken. These nutrient reserves could already be in decline and straw removal could amplify this further," he says.

If growers are indeed baling, they should consider if there's a straw-for-muck deal available, suggests Tom. "Although this will help to boost field reserves and organic matter in the long-term, the immediate establishment requirement of the following crop should still be addressed."

While potash levels in the crop reduce as it senesces, there's still a significant impact on soil nutrient reserves by baling, he raises. This is because potash is the main nutrient lost through straw removal – for example, a 10t/ha crop will have a straw offtake of 50kg/ha K2O, which is about half of the total offtake.

Knock-on effect
While growers baling straw benefit from an additional income, there could be ramifications from a soil nutrient retention perspective in following crops, highlights Origin Soil Nutrition's Tom Wells.

Tom says one way to offset this is to apply a PKS starter fertiliser consisting of naturally-mined minerals. "Compared with a standard P,K product, the inclusion of phosphate, calcium and sulphur along with the humic and fulvic acids, show that Natural PKS can provide more to the soil in one pass.

"Furthermore, fertilisers with BioPHOS, such as Natural PKS, stimulate the release of phosphate, preventing nutrient lock-up in the soil, and helping to counteract the total nutrient offtake at harvest," he concludes.

Glyphosate stewardship online hub launched

A new glyphosate stewardship resource aims to address one of the most overlooked barriers to herbicide efficacy – hard water in the spray tank

Launched under the banner 'Clean Water. Clean Kill.', the online hub from De Sangosse offers technical videos, a stewardship guide and an interactive FAQ section – all aimed at improving glyphosate performance through better water management.

It's been developed in direct response to increasing concerns regarding inconsistent weed control, sub-lethal doses and growing resistance pressure – particularly ahead of key pre-drilling and stubble applications this autumn.

Technical manager Rob Suckling says water quality is often ignored when assessing glyphosate performance. "Hard water can significantly reduce uptake. If you're not conditioning water correctly, you could be compromising control before your glyphosate even leaves the boom."

He adds that with pre-drilling applications approaching, the risks of poor performance are heightened, especially where surface trash, dry soils or high-water volumes increase the challenge.

"A poor glyphosate pass now can compromise the whole season," warns Rob. "Getting water quality right is a small but powerful way to reduce variability and protect against resistance."

Visit the hub at: desangosse.co.uk/solutions/clean-water-clean-kill/