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Leadership isn't about demographics

POINT OF VIEW

Often, when a young woman steps into leadership, the conversation turns to gender. "How does it feel to be a woman in this role?" "What barriers have you faced?" What I'd rather discuss is let's stop making my gender the story.

When I joined Yara without an agricultural background, the focus was on my international trading experience and my fit with the company's values. The ability to lead is what matters, not gender, age, or anything else.

I've been fortunate, I haven't had bad experiences. On joining Yara as the 'new person', I learned from customers and colleagues through targeted questions, listening, and building trust.

Leadership isn't about demographics, it's how you show up. Leadership means continuous learning – it never ends, it's understanding that humility opens doors to growth, and that leaders who listen inspire trust, lifting others. Staying open to learning keeps leaders adaptable, effective, and curious.

As an avid former handball player and coach, I'd guide people and pass on what I'd learned. Nobody questioned my ability to lead based on gender – they cared whether I could guide the team, read the game, and make tough calls. The same applies in my day job.

Yet we're still having conversations about 'women in leadership' as something noteworthy. We celebrate female leaders as remarkable, and while I understand the intention, this can reinforce the assumptions we're trying to change.

What matters is can you do the job? Can you inspire teams? Can you adapt in a challenging industry? Can you connect with customers and deliver solutions?

At Yara, we have various targeted programmes to develop people, giving everyone space to proactively shape their own path through multiple options, both online and with trained staff and coaches. People are hired based on their skills and overall fit, all employees are supported to develop their potential, and gender isn't the headline when someone succeeds.

To young women considering leadership, ask what motivates you. For me, it's people and the drive to keep learning, passing it on, and applying it together while celebrating success.

Admittedly, leadership isn't all fun; there are a lot of tough decisions and it's stressful. But you learn most from the tough phases, and that motivates me, makes me stronger and gives me courage.

It's not a one-woman show: you're rarely alone. Make sure you have the right people on board, both professionally and personally. With a strong team, helpful leaders, and colleagues, you can achieve more and enjoy the journey together.

Agriculture's future calls for leaders with both ability and agility, since leadership is defined by how we grow and adapt, not by gender.

By Maren Franke, vice president for Yara UK and Ireland. With a passion for transformation and sustainable growth, Maren is committed to leading through change and strengthening partnerships across the agricultural sector.

CPM CROP PRODUCTION MAGAZINE

We visit the English Olive Company in Spalding P.47

September 2025

COVER STORY

OPINION

AGRONOMY

VARIETIES

ROTATIONS

Operator Gareth Waite's knowledge of digestate spreading is paying off for his employer P.71

Why Holly Pratt thinks chlorotoluron has fallen out of favour P.9

CPM
CROP PRODUCTION MAGAZINE

September 2025
Volume 27 No 8

CPM is examined by some of the leading agricultural researchers in their field, as well as the next generation of crop specialists.

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About Crop Production Magazine

Crop Production Magazine is the leading specialist journal for UK arable farmers and agronomists.

The magazine operates within a controlled circulation with a readership including farm managers, agronomists, machinery dealers and other arable supply industry professionals.

CPM is also distributed to agricultural universities, colleges and research institutes, examined by some of the leading researchers in their field as well as the next generation of crop specialists.

Above all, the magazine is read by UK farm business owners – decision makers. Articles are mostly in-depth and analytical, exploring the issues behind a current problem while aiming to present new ways of thinking.

The magazine doesn't seek to prescribe solutions, rather inspire, stimulate and inform.

CPM is proud to represent some of the most experienced agronomic, technical and machinery journalists, many of whom have received British Guild of Agricultural Journalist awards for their contributions.

The team works closely with companies that support *CPM* to gather inside knowledge on the technical issues that affect farmers and the wider food chain. Although small, *CPM* is managed by a driven team, responsible for delivering the sharpest insight and most relevant information across both print and digital formats.

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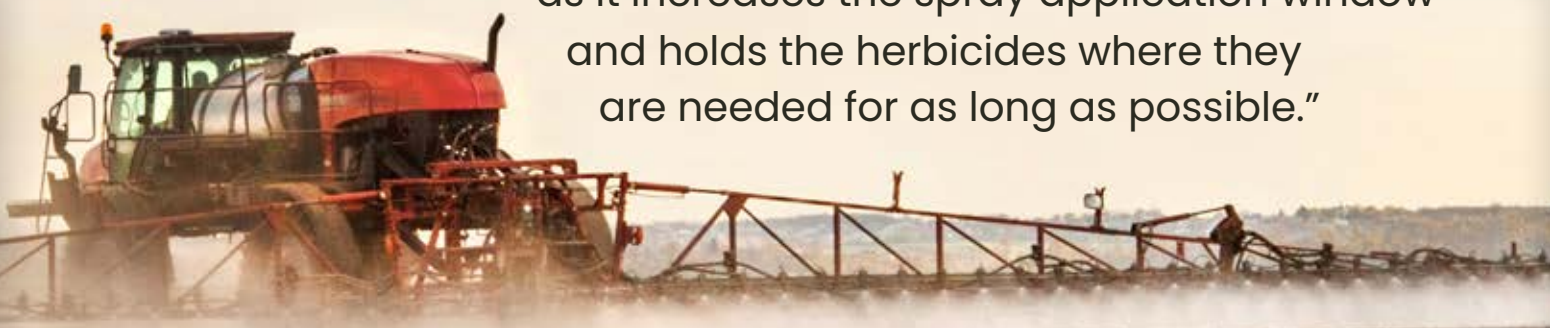

Peter Cartwright,
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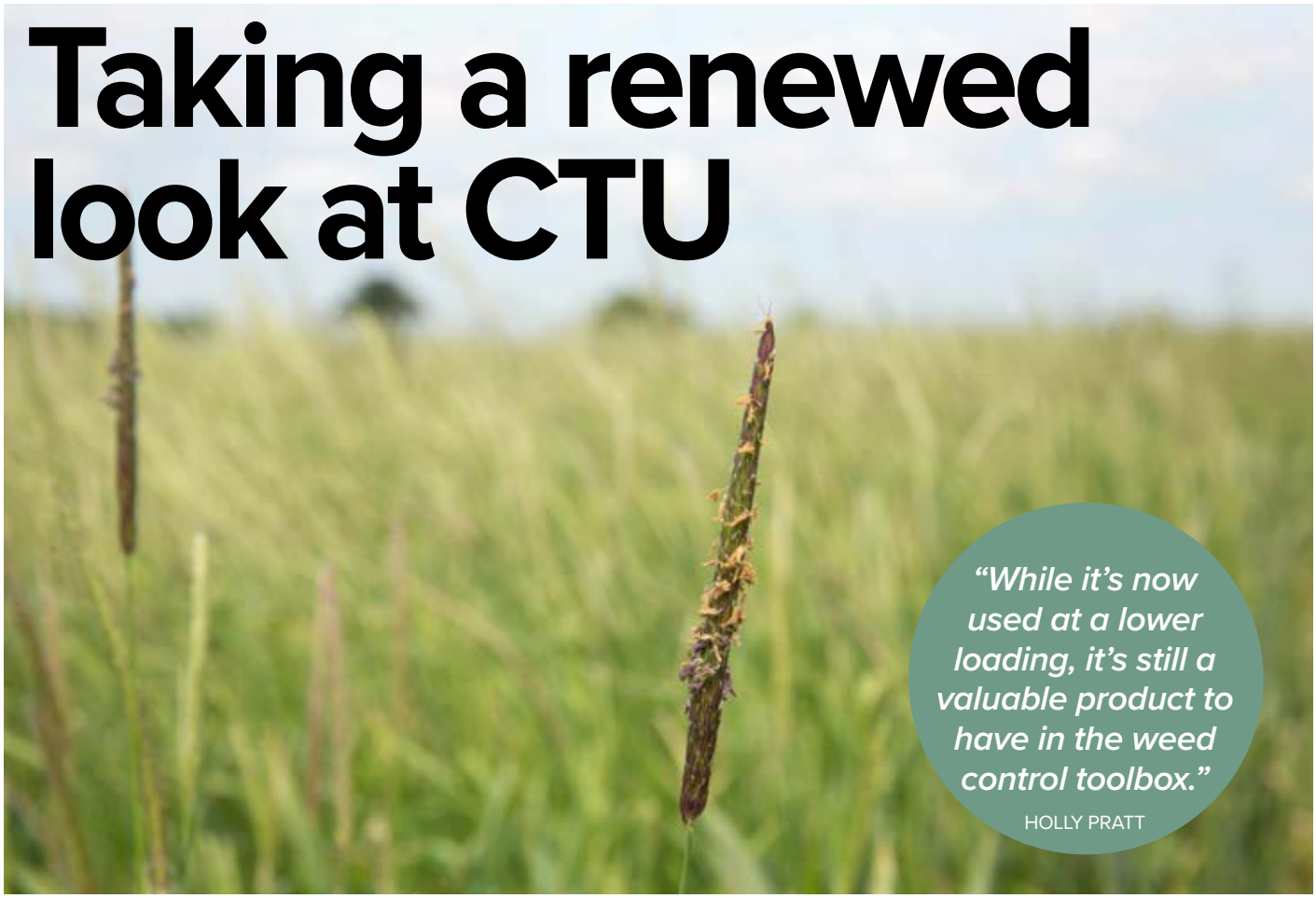
Taking a renewed look at CTU



Despite being a stalwart in the weed control toolbox, chlorotoluron has arguably found itself relegated to the shadows following a series of big herbicide launches. *CPM* takes a look at the value it can offer current day programmes.

By Janine Adamson and Rob Jones

With a range of new, highly effective residual herbicide actives being launched during the past few years, it's understandable why focus may have wandered from chlorotoluron (CTU).

And while it's unlikely to ever compete on like-for-like performance, what it does do, according to experts, is bolster overall control while offering added benefits such as aiding resistance management.

For context, CTU's journey hasn't been straightforward. Following withdrawal from EU registration in 2010, it was successfully re-registered in 2014 but at a lower dose rate, as part of a three-way co-form. Adama's Holly Pratt believes this could be why it's fallen out of favour.

"It was very efficacious at the higher rate, and while it's now used at a lower loading, it's still a valuable product to have in the weed control toolbox," she says.

Available as two three-way products – Tower/Tribal (chlorotoluron+ pendimethalin+ diflufenican) and Chrome (chlorotoluron+ flufenacet+ diflufenican) – it's intended use is to combat annual meadowgrass and a range of broadleaf weeds such as groundsel, chickweed and mayweed.

Weed expert, ADAS' John Cussans, says it's the flexibility of the product labels which adds most value. "You can use the products at the same rate across winter and spring crops, at both pre- and post-emergence timings.

"While other chemistry may remain in the shed not being used, growers are likely to always find an appropriate and timely opportunity to apply Tower or Chrome during the season."

He agrees that even at the lower rate, CTU remains effective. "It's a useful active in meadowgrass especially. Plus when combined with two other actives in a co-form – whether that's pendimethalin/diflufenican or flufenacet/diflufenican – it's targeting a wide spectrum of ▶

Partner product

For pernicious grassweeds like blackgrass and ryegrass, Adama's Holly Pratt says chlorotoluron is an effective partner product for hard-hitting chemistry such as cinmethylin and aclonifen.

weeds, there's a lot in there."

A weed increasing in prevalence due to changes in tillage approaches is brome. Holly points out that by adding Tower into post-em tank mixes, this could reduce pressure across all brome species.

"Because it contains CTU, Tower adds persistency to a programme which is useful when a pre-em application may start to run out of steam. With brome having protracted emergence throughout the season, a level of product longevity is important in those situations," she explains.

An example tank mix could be Tower plus prosulfocarb, adds Holly. "For the best results, it's always wise to target the weed at early emergence, before it starts to tiller."

According to John, the rise in popularity of no-till means that weed spectrums are changing overall, not just encouraging brome, but favouring species such as groundsel and poppy too. As such, glasshouse work conducted by ADAS has been looking at the performance of Tower against varying groundsel populations, compared with ALS-inhibiting chemistry such as metsulfuron, pyroxsulam and florasulam.

"Although further work is required to understand this fully, initial results indicate that Tower maintains control of groundsel, despite variation across the other actives screened," says John.

ProCam agronomist for the North, Alistair Gordon, has used Tower for around eight years to primarily target annual meadowgrass. He says compared with straight flufenacet, the added broadleaf weed activity is what makes the product a solid all-rounder, thus proving popular in his region.

"In Scotland, with rotations shifting to include more cover crops and fallow areas, we're also finding an increase in groundsel, which seeds quickly in the spring. This proves a significant problem in subsequent cereal crops.

"And because no pre-em herbicide gives full broadleaf weed control, and SU (sulfonylurea) chemistry is beginning to indicate resistance issues, we require alternative modes of action, as in products like Tower. We simply can't rely on SUs alone to eradicate broadleaf weeds," he stresses.

As for pernicious grassweeds like blackgrass and ryegrass, Holly says CTU is an effective partner product for hard-hitting chemistry such as cinmethylin and aclonifen. "It bolsters those actives and powers them up. In being a different mode of action, CTU is also helping to safeguard the newer chemistry in terms of resistance management."

John agrees: "Supporting other herbicides and reducing the pressure on them is a critical part of product stewardship.

"If you take the whole weed control window and the opportunities presented for control, you can certainly introduce Tower or Chrome and see a potential benefit, particularly during difficult conditions such as cooler temperatures."

To conclude, Alistair reveals that where he's advised the use of Tower on-farm, he's observed a positive outcome from it being a three-way co-form. "When the three actives are presented in one formulation, it appears to deliver synergistic results in meadowgrass, compared what would be the sum of the solo actives. It's efficiency in a can." ●

Delivering synergy

According to ProCam's Alistair Gordon, when the three actives are presented in one formulation, it appears to deliver synergistic results in meadowgrass.

UK glyphosate resistance update

Further suspected cases identified and under investigation

Earlier this year, the Weed Resistance Action Group (WRAG) announced the first confirmed case of glyphosate resistance in Italian ryegrass from Kent, with two further cases later confirmed in Gloucestershire and north Yorkshire. A fourth population in Essex also showed decreased glyphosate sensitivity in the tests.

Due to the importance of these incidences, Bayer funded ADAS to investigate further suspected cases, typically where plants had survived an earlier application of glyphosate. This led to 10 cases, representing eight farms, being examined in spring 2025.

In a note issued by WRAG in late August, it states that following glasshouse plant-based screening, it's become apparent that there's a high risk of resistance on three of these farms. Seed from these new populations will now be tested to fully confirm if they should be classified as resistant; this is in addition to the three cases previously confirmed.

The note adds that with good background on all of the cases investigated, there are common principles:

- **All the three cases identified as resistant and four high risk of being so, are from high risk crop management situations (no cultivation and/or very little soil disturbance, larger weeds allowed to grow without earlier control when small, such as can happen before spring crops)**
- **It's likely that all cases have evolved from independent selections; there's no geographical pattern related to their incidence**

To continue monitoring the situation, Bayer has agreed to fund ADAS to conduct a further year of focused testing in spring 2026. As in 2025, this will target populations of Italian ryegrass-surviving glyphosate application, prior to drilling a spring crop as this has been identified as high risk situation.

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Cut weed populations before turning to herbicides

With cereal drilling poised to kick off, there are still opportunities to control weeds out of the crop before turning to the performance of residual herbicides, remind experts

Following an earlier than usual harvest, Bayer technical manager, Aleks Ćurčić, expects relatively early cereal drilling this season, with farmers keen to get on with fieldwork and put last season behind them.

However, with blackgrass, Italian ryegrass and brome persistent problems on many farms, Aleks urges farmers to go in with their eyes open if they're planning to drill early. She says weed pressure, septoria and BYDV all benefit from a delay into October.

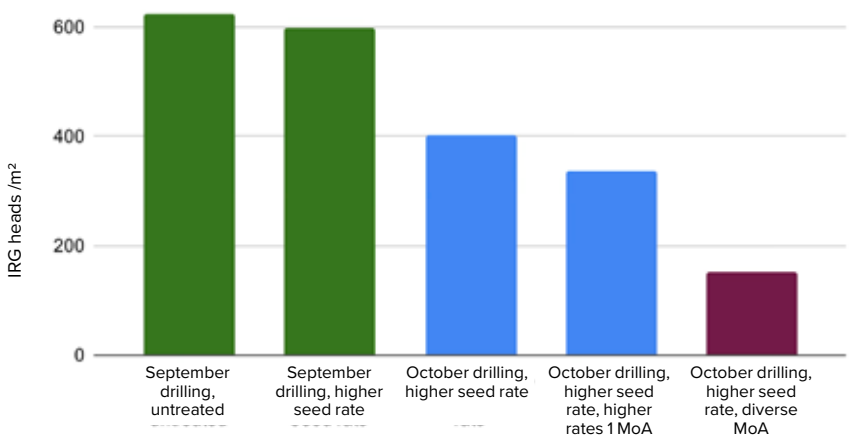
"Varietal resistance and a robust spray programme can help to manage the risk from aphids and disease, but weeds require cultural controls ahead of drilling to reduce the population.

"Consequently, make sure you achieve at least one good stale seedbed; ideally, you want a month between cultivation and spray off to ensure good germination, but it depends when there's sufficient moisture to cultivate, and, the target drilling date. Aim to spray off with Roundup (glyphosate) within seven days of drilling."

Aleks points out that if BYDV is an issue, be aware of aphids surviving in cereal volunteers and catch crops. In these situations, a gap of 10 days between spray off and drilling removes the green bridge, so aphids either die or move on.

"Autumn is about balancing different priorities and understanding conditions on farm, from cultivation to drilling and subsequent herbicide applications," she says.

Stacking controls for Italian ryegrass control



Source: Niab Faversham (Kent) trial site 2023

Getting ahead
Bayer's Aleks Ćurčić urges farmers to go in with their eyes open if they're planning to drill early.

CHALLENGE CONTINUES

Niab regional agronomist, Keith Truett, who advises farmers in Kent, Sussex and Essex, believes that in reality, grassweeds aren't getting any easier to control.

"In my experience, Italian ryegrass is the nastiest. Although blackgrass is manageable by using spring crops, ryegrass germinates more readily all through the year. Even a low plant count can tiller extensively and create a high weed return. As a result, residual control has to last from drilling until March."

On one farm near Faversham, Keith has worked closely with the farm manager to control a serious ryegrass infestation. Eight years ago, they recognised they weren't achieving sufficient control with residual herbicides due to resistance.

He says the most important step in starting to rectify the problem was using a rotational fallow, then everything that grew was cut before maturity and taken off-farm for silage, which helped to reduce populations to a manageable level.

"For grassweed control, it's cultural first because chemistry won't do the job on its own," stresses Keith.

In terms of programme approach, the farm uses a pre-em comprising Proclus (aclonifen) plus Liberator (flufenacet+ diflufenican). Usually this

Weed out **uncertainty.**

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To control brome in wheat, **Emma Jones, Bayer Technical Manager**, recommends a robust pre-em. Use stale seedbeds and delayed drilling to reduce population size but all brome species will be a threat to cereals in the crucial window just after drilling. Metribuzin co-forms like Alternator® Met, Octavian® Met or Cadou® Met provide effective control with the option to add Proclus® to tackle the most difficult populations. Be aware that rye, meadow and soft brome tend to germinate in spring too so be prepared to come back later in spring for these weeds.

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Find out more

Alternator® Met contains metribuzin, flufenacet and diflufenican. Cadou® Met contains flufenacet, diflufenican and metribuzin. Octavian® Met contains metribuzin, flufenacet and diflufenican. Proclus® contains aclonifen. Alternator®, Cadou®, Octavian® and Proclus® are Registered Trademarks of Bayer. Use plant protection products safely. Always read the label and product information before use. Pay attention to the risk indications and follow the safety precautions on the label. For further information, including contact details, visit www.cropscience.bayer.co.uk or call 0808 1969522.

is followed by a second application based on cinmethylin one month later, rather than the 1–2 weeks later that's common in blackgrass programmes, he explains.

This is to control germination throughout autumn. "On the other hand, blackgrass tends to mainly germinate in the first three weeks of October, so the aim is to have high levels of residual herbicide on at this time," explains Keith.

For especially difficult Italian ryegrass, he has the option of a third application which would usually be a chlortoluron-containing product, plus prosulfocarb. He says he prefers using prosulfocarb later in the season when it's cooler to reduce losses due to its volatility.

"You can't take a ryegrass problem too seriously, stamp it out as soon as you have it. You require attention to detail in everything, which includes preventing movement of resistant seed on machinery. On the farms I'm advising, the resistance has been to in-crop herbicides, but we're all aware of the announcement of a case of glyphosate resistance in Italian ryegrass too."

And while resistance testing is a useful tool, Keith suggests growers shouldn't be surprised if results come back inconsistent. "There's variation in resistance status even in the same field, so diversity in the chemistry is important and fierce cultural approaches. You can't keep escalating herbicide spend, you have to be serious about cultural control."

He adds that ploughing is a good option to reset grassweed numbers if the soil type and condition allow effective inversion. "Ploughing very dry soils, and some silty or sandy soils can result in soil moving sideways but not burying seed from the soil surface. Don't plough the same field too often, keep seed buried for at least five years, ideally more."

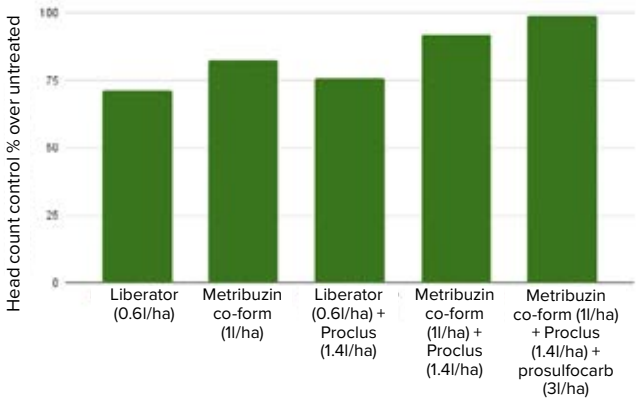
A persistent problem
Niab regional agronomist, Keith Truett, believes that in reality, grassweeds aren't getting any easier to control.

FLEXIBLE CULTIVATIONS

Equally, Keith cautions against a prescriptive no-till system which rules out ploughing completely. Instead, a flexible approach to cultivation and tillage is necessary, he suggests. "Added to that, there is plenty of evidence that ploughing occasionally doesn't reverse the benefits to soil condition and biology from several years' no-till.

"For any residual programme, don't lose sight of the fact that herbicides can affect crops, and open crops lead to more tillering and more seed return from weeds – there's a balance in what you're trying to achieve."

Italian ryegrass control using a diverse programme



Source: Bayer contracted trials x3 (2022-23) Pre-em applied autumn 2022. Average untreated count = 110m²

Considering conditions all round and fine-tuning herbicide programmes accordingly are critical aspects full stop, adds Aleks. "If you're going early, you have to plan for at least two sprays in the programme against blackgrass and ryegrass. Persistency is key – higher soil temperatures at early drilling dates mean residual herbicides break down more quickly."

She highlights that the first spray should go on at 'true' pre-em timing. "For the follow up, a little flexibility is helpful to ensure there's protection when weeds chit. Factor in rainfall which promotes germination, into the spray decision."

Furthermore, soil-mobile actives like flufenacet and metribuzin have a relatively short half-life so should be used with longer-lasting chemistry, points out Aleks. She recommends starting with Proclus plus a metribuzin co-form like Alternator Met, Cadou Met or Octavian Met (all flufenacet+ diflufenican+ metribuzin), which are particularly useful where broadleaf weeds are a problem too.

"Because it has a half-life of 2-3 months, using Proclus means you have the reassurance that there's some protection if the second application is delayed. For the follow up timing, use different modes of action; diversity helps with weed control and is a good resistance management strategy."

Trials at Niab's Faversham site have demonstrated the importance of this in residual programmes especially, although the benefit is more pronounced in ryegrass than blackgrass. In addition to chemical controls, the trial suggests cultural controls also stack together to increase efficacy (see charts).

In the experiment, the starting point was an untreated September-drilled crop. Next, higher seed rates were tested and October drilling; the latter which had a significant impact on overall control.

In addition to cultural controls, a single active programme was compared with one utilising diverse modes of action. The different programmes had the same total loading of herbicide to pull out the effect of mode of action diversity. The results indicate the uplift in weed control from utilising a spectrum of active ingredients.

CHALLENGING GROWING SEASON BRINGS WHEAT VARIETY CHOICE INTO FOCUS

A challenging year has highlighted the performance of wheat varieties in less-than-ideal conditions and left farmers contemplating their sowing choices this autumn. *CPM* catches up with members of RAGT's Growers Club across the UK, to learn how different varieties performed on farm.

SPECIFIC WEIGHT WINS SPURS GREATER INTEREST IN RGT HEXTON

Higher specific weight grain is encouraging Norfolk farmer Ken Goodger to grow a larger area of RGT Hexton next season, after a small trial area was combined this harvest.

With potato harvest the priority during autumn on the 320ha farm on the Norfolk / Cambridgeshire border, wheat drilling tends to be later in autumn, and it was no different in autumn 2024 when it began in mid-November.

RGT Hexton was compared with last year's farm standard LG Redwald – the highest yielding soft wheat variety on AHDB's Recommended List – in the same field.

"It was a first wheat following the perennial herb camomile," Ken says.

Initially, Redwald looked stronger, with RGT Hexton suffering from slug damage. "The Redwald seed was treated with Vibrance Duo (fludioxonil and sedaxane), which I think gave the variety a head start and helped it grow away from the slug damage."

But at harvest, the most striking difference was in specific weight, with LG Redwald testing around 70-72kg/hl, while Hexton was clearly above the minimum specification needed for a premium for soft wheat into Whitworth Bros at around 75-76kg/hl, Ken says.

Yields were more challenging to judge with no weighbridge on the farm and only an uncalibrated yield monitor to use as a guide. "Hexton's high points on the yield monitor were higher than Redwald, but Redwald was probably a bit more consistent."

Overall yields across the 100ha of wheat on the farm were lower than in a typical year at just over 8t/ha, he estimates.

"We've done well supplying Whitworth over the past couple of years. Last year we received

Frank Stennett.

RGT Hexton.

a premium of £20/t, this year it will be lower at £5/t, but it's still worth having, Ken stresses.

Additionally, he has signed up for a Frontier-administered Sustainable Supply Chain Programme in conjunction with Pladis, the parent company of biscuit-maker McVitie's, Carr's and Jacob's. Ken receives payments for supplying grain produced using certain regenerative farming practices, such as reduced tillage, using inhibitors with urea fertilisers, and applying organic fertiliser.

While the farm's root crop focus makes it difficult for him to qualify for the top 'Gold" tier payment, he's able to achieve the 'Bronze' level for an additional payment, he says.

"But you don't get the payment if the grain doesn't meet the correct spec," he says.

And with LG Redwald's specific weight weakness, he's looking to grow more RGT Hexton next season for greater peace of mind. "The other thing that attracts me to Hexton is that it has good disease resistance. We're always under pressure staff-wise as a family farm growing root crops in the spring. So if we have a bit more flexibility with fungicide timings, it all helps."

VARIETIES HELP WELSH GROWER BEAT CHALLENGING CONDITIONS

Based 10 minutes from St Brides Bay on the Pembrokeshire coast, Richard Darlington's crops usually face high pressure from septoria, while mild winters with few frosts bring a significant risk from barley yellow dwarf virus.

That combination is why he has been keen to try RAGT's BYDV-resistant varieties, with this year both RGT Grouse and RGT Goldfinch grown as a comparison in the same field.

"We've grown Grouse for a couple of years, but we have found it a little lacking in disease resistance, whereas Goldfinch has a better disease resistance package," he says.

"As it turned out it wasn't a year to test against disease with crops clean all the way through."

That's suited RGT Grouse, which tillered more profusely than RGT Goldfinch and produced a slightly bolder grain. "But despite the Goldfinch looking a little thin and more open, it yielded on the higher end compared with anything else."

As a test, he also sprayed one tramline with insecticide for BYDV, but saw no difference between treated and untreated.

Richard has also been impressed by a small area of RGT Hexton, a new Group 4 soft wheat, especially its big, strong flag leaf and autumn vigour. "It gave big bold grain and had no disease problems," he says.

With suitability for growing on his drought-prone red soils over sandstone, he's planning to grow more Hexton to sit alongside RGT Highgrove, which has performed well on the farm for several years.

TILLERING ABILITY PROVIDES YIELD SUCCESS

Early drilling and a higher seed rate, plus the ability of RGT Grouse to tiller and propensity for retaining those tillers, are perhaps behind the variety's surprising yield success for Frank Stennett on his farms on the Norfolk / Suffolk border.

In a year where virtually every other variety's performance, including high-yielding feed varieties such as Champion, was bordering on disastrous on the mostly light sandy soils at Place Farm, Ingham, RGT Grouse stood out, Frank says.

"We grow Grouse because we can drill it early and it is tolerant to barley yellow dwarf virus, which is useful with the no-insecticide payment in SFI, if you qualify," he says.

"But it's also a highly vigorous variety that tillers a lot and retains its tillers. This season [with the very dry spring and summer] has favoured a variety like Grouse because it's been a very clean season in terms of disease."

One 25ha plus field averaged over 9t/ha, with the combine yield monitor showing areas as high as 13-14t/ha in parts of the fields, all the way down to 5.5-6t/ha on a sandy headland, he reports.

"The other fields were around 8-8.5t/ha, with specific weights of 74kg/hl above the 72kg/hl threshold for feed. It yielded like in a normal year."

RGT Grouse.

Supporting efficacy, drop-by-drop

A new online hub dedicated to overcoming water quality issues associated with glyphosate performance, plus the importance of its overall stewardship, has been launched. *CPM* investigates why adhering to best practice matters in ensuring this critical tool has a future.

By Janine Adamson

Glyphosate is arguably the lynchpin of the weed control toolbox, whether that's in agricultural settings or beyond. However, following confirmed incidences of UK glyphosate-resistant Italian ryegrass earlier this year, experts are stressing the importance of adhering to stewardship as growers prepare for the upcoming season.

According to Bayer's Roger Bradbury, this is compounded further by the fact glyphosate is a unique mode of action in terms of Herbicide Resistance Action Committee (HRAC) classification, therefore it must be protected.

"It's also unique in that it's been around for 50 years, continues to be highly effective and a vital non-selective herbicide with wide-ranging uses."

He adds that herbicide resistance issues mostly arise from misuse or overuse of an active ingredient, so are intrinsically linked to actions made on-farm. "However at the moment, bar the odd case, glyphosate performs and continues to be an important component of any integrated weed management programme."

ONGOING RISK

"What the glyphosate-resistant Italian ryegrass has taught us, is that we have to shine a spotlight back on stewardship and responsible use. Although the fundamentals are nothing new – as issued by WRAG (the UK's Weed Resistance Action Group) around 10 years ago – the ongoing risk must be recognised," he urges.

This risk is heightened in situations where mechanical weeding is significantly reduced or no longer taking place, highlights ADAS' John Cussans. "Equally, long periods of stubble allow weeds to become very large and well-tillered. In those scenarios, not only is glyphosate relied upon heavily, but it's being asked to do a much tougher job," he explains.

John agrees that the current situation

Taking responsibility
Herbicide resistance issues mostly arise from misuse or overuse of an active ingredient, so are intrinsically linked to actions made on-farm, says Bayer's Roger Bradbury.

Critical stewardship

Following confirmed incidences of UK glyphosate-resistant Italian ryegrass earlier this year, experts are stressing the importance of adhering to stewardship guidance.

with Italian ryegrass should be impetus for growers to pay attention to what's going on across their own farms. "Resistance through selection is a process that happens over time; you won't wake up one morning to find glyphosate no longer works.

"It's a slow shift and it's at this point when there's still an opportunity to head the problem off. By monitoring closely and recognising patterns – noting any increases in unsatisfactory control – this helps to identify whether crop management decisions are increasing or decreasing risk. Then appropriate action can be taken while there's a window to act."

Although there are many factors involved in effective glyphosate stewardship (see box), John says one aspect that makes the active ingredient particularly vulnerable, is its relationship with water.

"This is because glyphosate, a polar herbicide, has the potential to bind to the cations (calcium, magnesium and iron ions) found in water, known as lock-up. Once bound, it's no longer active and can't be absorbed by the target weed – this is irreversible.

"Compared with other risky plant protection products, it's particularly susceptible due to its chemistry and volume of use," he explains.

Hard water in particular contains high levels of cations, expressed as either degree of hardness, or as parts per million of calcium carbonate, adds John. "This is what gives a measure of concentration.

"The more water versus glyphosate in the tank, the higher the risk – meaning sub-optimum dose rates and high water volumes pose a greater chance of lock-up."

> ***"To help address this gap in understanding, we've launched our new 'Clean Water. Clean Kill' glyphosate stewardship campaign."***

Conventional mains water has a hardness in the range of 100-400ppm. In calcareous areas, bore holes and wells may contain up to 1000ppm, as well as iron from sandstone, or high organic matter/acid levels from springs, bogs and moors.

"Glyphosate is also affected by organic matter contamination or residues, which could be the result of capturing rainwater off a mossy roof, for example, or abstracting from bore holes. So it's not just cations, it's water quality full stop which is critical for the product's efficacy," states John.

De Sangosse's Rob Suckling points out that in essence, poor water means poor weed kill. "Furthermore, many growers don't know their water quality, especially hardness. Having conducted research into this area, we've been surprised at how much of an overlooked blind-spot it is in regard to application planning."

This research involved speaking to more than 120 farmers, revealing that of those, just 4% knew the hardness of their water. Most were suspicious of hard water due to observing limescale in a kettle, but weren't proactively testing, adds Rob. "While the knowledge gap around water quality was surprising,

Glyphosate stewardship considerations

To maximise the efficacy of glyphosate applications, the following key factors should always be considered:

TIMING

Treat small, vulnerable, actively-growing weeds while acknowledging that not all species are equally susceptible; do not use when the target weed is in stem elongation phase or when plants are under stress such as waterlogging, drought or during very cold weather

DOSE RATE

>540g is critical for optimal control and this should be increased as factors like growth stage/weed size and conditions come into play; repeat applications of glyphosate to the same individual weed is a major resistance risk; lower water volumes should also be used to mitigate lock-up

SUBSTITUTION

Glyphosate should not be substituted, or part-substituted, for an alternative such as fulvic or humic acid, citric acid or straight ammonium sulphate. It's important to use the recommended dose rate and utilise a true water conditioner where necessary

APPLICATION PRACTICE

Use well-maintained machinery with correct nozzle choice (medium to coarse spray quality dependent on the application, avoiding flat-fan due to drift potential) plus slower forward speeds and lower boom height

WATER QUALITY

Efficacy will be compromised in hard water scenarios, as well as affected by organic matter contamination or residues depending on water collection and storage methods; consider a true water conditioner where appropriate, always added to the tank first

MONITORING

Evaluate success – has the herbicide performed, and if not, why not? Take rapid action to remove surviving plants while avoiding re-applying glyphosate to these survivors. Where a pattern of increased frequency of failure develops, populations should be tested for sensitivity to glyphosate

the positive news is that farmers are highly engaged with the issue.

"To help address this gap in understanding, we've launched our new 'Clean Water. Clean Kill' glyphosate stewardship campaign to highlight the importance of water quality and its role in resistance prevention."

Having explored water hardness for some time, he shares that De Sangosse estimates that 70% of UK farms are using moderately hard to very hard water. Given that even 150ppm calcium carbonate can mean a level of lost performance, this suggests a profound potential impact on glyphosate chemistry, says Rob.

"Hard water can easily reduce efficacy by 20-30% if left unaddressed. What's important is to differentiate this from pH, which affects the stability and uptake of some herbicides.

"Glyphosate itself is an acidifier – it acts as a buffering agent and resists pH fluctuations in the spray tank. The ideal pH for glyphosate performance is between 4 and 5, so while glyphosate likes acidic conditions, pH is not the culprit in poor control."

To rectify the impact of hard water on glyphosate, a true water conditioner can be added to the tank, proposes John. "Unlike pH buffering, this acts as a sacrificial chelating agent, meaning the cations bind to the water conditioner before the glyphosate is added to the spray tank. This difference is why understanding what goes into the tank with any plant protection product, and its function, is key."

Impact on efficacy

Hard water can easily reduce glyphosate efficacy by 20-30% if left unaddressed, highlights De Sangosse's Rob Suckling.

In agreement, Rob explains that true water conditioners, like X-Change from De Sangosse, are designed to neutralise the minerals in hard water that deactivate glyphosate. "Therefore they protect glyphosate availability in the tank for maximum uptake."

CORRECT DOSE RATE

"But, you have to know the hardness of your spray water to dose the correct amount of water conditioner, and critically, the water conditioner must enter the tank first. In dosing correctly, the result is more active glyphosate molecules available to reach the leaf which increases kill rates."

He adds that all water destined for a sprayer should be tested for hardness, whether that's from rainwater, mains or boreholes. "The advice is, test don't guess; you can't tell whether water is hard or soft just by looking at it.

"That's why we distributed free TDS (Total Dissolved Solids) meters at our summer open days, to help farmers assess whether they're at risk of reduced glyphosate performance."

The meters give a reading for TDS in ppm to quantify dissolved calcium, magnesium, and iron; the ideal hardness is <100ppm. Above 150ppm is the danger zone where a true water conditioner like X-Change will be beneficial, he suggests.

Rob hopes that by encouraging further discussion about water hardness, understanding will also improve regarding the difference between water conditioners and adjuvants. "They aren't the same thing. A water conditioner protects the glyphosate in the tank whereas an adjuvant optimises its performance on the plant.

Role of water

Although there are many factors involved in glyphosate stewardship, ADAS' John Cussans says one aspect that makes the active ingredient vulnerable, is its relationship with water.

"With the removal of tallow amine surfactants, many basic glyphosate formulations lack the power to penetrate leaf cuticles, especially under stress conditions. An adjuvant such as Validate – which will also condition the water – should be considered when using cheaper formulations of glyphosate."

Because so many external factors are beyond the control of growers, this is why something as simple as using the correct water conditioner at the correct rate, is vital, suggests John. "It's the same message for all aspects of glyphosate stewardship, with water volume and quality being just one piece of the jigsaw." ●

Championing best practice

De Sangosse recently launched its 'Clean Water. Clean Kill.' initiative to help growers and agronomists address the hidden water quality issues that may undermine weed control and stewardship.

This online hub brings together a series of technical videos, a downloadable stewardship guide, and an interactive FAQ — all aimed at improving glyphosate performance through better water management.

Clean Water. Clean Kill. has been launched in direct response to increasing concern regarding inconsistent weed control, sub-lethal doses and growing resistance pressure – particularly ahead of key pre-drilling and stubble applications this autumn.

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

***CPM* would like to thank De Sangosse for sponsoring this article and for providing privileged access to staff and the material used to help bring it together.**

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Maintaining weed control momentum

Having mostly achieved a good level of weed control last season, experts are urging growers to avoid complacency and keep their foot on the gas as pre-emergence applications near. *CPM* opens up the discussion for this month's Common Ground.

By Janine Adamson

In many instances, conditions last season proved conducive to effective grassweed control – whether that was from enforced later drilling, having adequate seedbed moisture, or, the results of a rotational plough reset.

While growers may have reaped the rewards of cleaner crops due to reduced weed pressure for a year, it mustn't stop there, stress experts. In fact, the season should be perceived as a positive story to be replicated.

To discuss the topic further, *CPM* brings together weed scientist for ADAS, John Cussans; independent agronomist and former technical manager, Jeff Fieldsend; and BASF agronomy manager, Hugo Pryce.

POSITIVE STARTING POINT

Opening the discussion, Hugo stated that having spoken to agronomists across the country, most seem content with the level of grassweed control achieved last season. "Drilling was quite convoluted with it turning wet, but fortunately the weather provided a break and there was another opportunity to drill.

"In the main, I think for the crop that's being harvested now, grassweed control has been good."

John added that last autumn's wet conditions meant the power of a classic stale seedbed could really come to the fore. "Being forced away from drilling meant a much more elongated period of perfect conditions for weeds to chit, and that did lead to relatively low pressure in a lot of crops that were drilled.

"But we have to remember that the challenges on-farm are a lot more diverse now than simply just getting blackgrass control right. Due to changes in system approaches we're seeing more varied weeds emerge such as bur-chervil or apera; plus an increase in ryegrass, brome and even wild oats."

Having taken on two new farms last year, Jeff said he agreed. "The weather patterns actually played in our favour. When growers did manage to plant crops, there was plenty of moisture to make the most of the residual chemistry.

Success story

ADAS' John Cussans said he wanted to flip the conversation around to celebrate the year as an illustration of how effective an integrated weed management strategy can be.

Watch-out

On the back of a successful year for grassweed control, growers are urged to not be complacent.

"That's in addition to stale seedbeds, planting competitive varieties and where appropriate, using the plough as a targeted cultivation. While we'll go back to min-till this year because we've achieved such a good result, we will rotationally plough in the future – perhaps one in three or one in four years – to keep on top of any issues.

"Ploughing is also a significant contributor to ergot control – which we saw a lot of in Harvest 2024 crops, in many cases because of the prevalence of grassweeds."

AVOIDING COMPLACENCY

On the back of a successful year for grassweed control, Hugo stressed the importance of not being complacent. "It doesn't take much, only single figures in terms of grassweed plants/m2, before you have an infestation. You can't cure blackgrass in one year – that's impossible.

"So it's an ongoing process whereby you require 95% control just to stand still, otherwise you go backwards. And it all starts in the autumn, which is the most effective time to be controlling grassweeds given the efficacy of spring-applied contact chemistry is reduced in most cases."

In response, John said he wanted to flip the conversation around to celebrate the year as an illustration of how effective an integrated weed management strategy can be.

"When you have the right drilling date for the field, have created an effective stale seedbed, and applied herbicides at the right time to get the maximum benefit, I think rather than taking that as it's in the bank let's move on, we have to learn from it."

Jeff added that he has no intention of taking his foot off the gas and will continue with an integrated approach including using the best chemistry available. "Having seen the decline of herbicides such as flufenacet, we're actually looking at incorporating actives into the programme such as tri-allate alongside Luximo (cinmethylin), to try and get the best result that we can."

UNDERSTANDING THE SEED-BANK

Another reason to avoid complacency, stated John, is the fact that the emerged weeds in a field represent just 5% of the total present, with the rest waiting in the weed seed-bank. "Work sponsored by AHDB at their Strategic Farm East reinforces the principle that when control is classed as good, it's actually 95% control of only 5% of the population.

"So if you have a historically bad grassweed area but a positive control year, you've had a good year but on a relatively small proportion of the population. That momentum of the seed-bank which has been built up over years should be in your thinking."

Where the seeds physically are in the seed-bank should always be considered, continued John. "The AHDB project has looked at one field which has 95% of weed seed in the top 5cm, yet in another field only 10% is in the surface. This relates to cultivation strategy and how mixing the soil vertically interacts with the state of the seed-bank.

"You don't necessarily have to dig many holes, rather consider what cultivation you've had in place during the past few years, and compare that with when you've had bad grassweed years and good grassweed years."

In response, while highly knowledgeable about the threat of weeds, Hugo shared that he found these numbers staggering.

MAXIMISING PRE-EM PERFORMANCE

Conversation in the group then ▶

Full speed ahead

Independent agronomist Jeff Fieldsend has no intention of taking his foot off the gas and will continue with an integrated approach including using the best chemistry available.

evolved to the topic of herbicide performance and the importance of soil conditions including moisture. "I recall the autumn of 2022 when Luximo was launched, it was really dry in September and everyone was waiting for rain to give a chit of blackgrass, but it didn't happen," said Hugo.

"The clock ticked around to October and growers feared they wouldn't have an opportunity to travel, so started drilling in into bone-dry seedbeds without having had a chit. This put huge pressure on the pre-emergent chemistry.

"Then come the middle of October, we had decent rain and therefore achieved the performance from the chemistry once there was moisture in the seedbed – it was like chalk and cheese."

He added that a benefit of Luximo is its label flexibility. "You don't have to apply it pre-em if the conditions aren't right; you shouldn't be drilling into dry seedbeds."

Jeff agreed that grassweed control is variable when applying to very dry seedbeds. "I also remember the launch of Luximo that year and the comments that came back from on-farm were, it's not bad, but is it any better than straight flufenacet?

"Clearly it is, having compared it like-for-like, with a substantial improvement in the overall level of control. But I'm hearing the same concerns now regarding drilling dates and opportunities to travel, so I encourage loading the best chemistry pre-em due to the risk of not achieving peri-em application."

However, when it comes to soil conditions, all of the little things do add up, he continued. "If possible after drilling, getting a set of rolls across to ensure a good, fine, firm seedbed will help; cobbly seedbeds are no good."

In reflection, John reinforced the overall importance of autumn weed control. "It's not a trivial business to achieve grassweed control – you only have effective herbicides in that autumn window.

"Then once you've done that, you're waiting until the summer to see what the results are. We can adopt strategies to help the transition of autumn weed control to the outcome in the summer, such as seeds rates, crop and variety choice, but even so, it can be unpredictable and disappointing in some seasons. When we have a good year, I don't know why we don't congratulate ourselves more, because it really is hard."

CHAMPIONING BEST PRACTICE

Furthermore, John stressed the importance of adhering to stewardship guidelines and best practice for not only Luximo, but all other crop protection products. "Hearing rumours of Luximo being used straight, or even multiple applications – this is absolutely not acceptable or responsible.

"We really can't afford to impact the long-term sustainability of Luximo with short-term thinking because it's arguably become a mainstay. Going forward, it'll be even more important to the industry, and if we want to grow winter cereals, we have to look after it. We're unlikely to get another active like Luximo for quite some time."

Hugo agreed: "While it's doing the heavy-lifting in weed control, it has to be mixed with other active ingredients to support and protect it. Equally, it's critical to remember that for blackgrass and ryegrass, there's only one rate and that's its full rate which delivers 500g of active."

Jeff added that an aspect important to him is water volume. "I tend to use 200-litres minimum; don't cut water volumes, make sure forward speed is reduced and use appropriate, angled nozzles.

"When applying a product – one which is admittedly expensive – we have to use it in the best possible way. We've learnt from issues faced in the past regarding spraying at speed or in windy conditions – it just compromises the performance of the product.

"When growers are investing a lot of money on chemistry, it has to be done right using the best information that we have available."

Resistance management

While Luximo is doing the heavy-lifting in weed control, it has to be mixed with other active ingredients to support and protect it, stressed BASF's Hugo Pryce.

ANY OTHER BUSINESS

As the discussion came to a close, Hugo highlighted that if ryegrass is the problem weed, as well applied in combination with another mode of action, Luximo should be used as part of a wider sequenced programme.

"A sequence is the way to go because with ryegrass flushing throughout the season, it extends that period of activity."

Jeff then shared his plans for this coming autumn. "I'm looking to use Luximo as the base for my pre-em application because I've seen the results during the last two or three seasons when it's performed well. We'll also be adding competitive varieties to that," he concluded. ●


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Breaking the ergot cycle

Ergot was the talk of last harvest, and now, a new AHDB review is giving practical guidance to minimise risk throughout its lifecycle. *CPM* dives into the detail.

By Mike Abram

If Harvest 2024 is remembered for anything, arguably, it's ergot – lashings of rain during the early part of summer proved the conclusion of what was a perfect storm for infections.

It all started in autumn 2023, recalls ADAS principal consultant in crop pathology, Philip Bounds. "It was a difficult drilling season so there were a lot of crops planted into adverse conditions, leading to inconsistent crops that were more susceptible.

"Weed control in autumn 2023 and spring 2024 was also challenging, so grassweed pressure was high. Then, the cool and damp weather around flowering was perfect for ergot infection," he explains.

In reality, this was the culmination of a longer period where ergot has been increasing in prevalence, according to Joe Brennan, head of technical and regulatory affairs at UK Flour Millers. "Data collected by AHDB's annual monitoring of contaminants in UK cereals used for processing food and animal feed has clearly shown an increase in ergot alkaloids," he says.

"Beyond that official dataset, while there might not be any publicly available related data showing ergots are increasing, speak to any farmer, grain merchant or co-operative, and they'll tell you prevalence has been increasing considerably in the UK during the past five years.

"In particular from 2022, 2023 and 2024 crops, there was an iterative increase in ergot occurrences, which is very concerning."

FOOD SAFETY

Ergot is primarily a food safety issue – the ergot sclerotia which can grow in the ears of cereals contain the mycotoxin ergot alkaloids, and ingesting these can be harmful for both human and animal health.

But it doesn't have much impact on yield, which could contribute to why despite being a well-known cereal disease for hundreds of years, it hasn't had much research prioritisation, or at least from a husbandry perspective, suggests Joe.

To meet the legal limits (see box), merchants, co-operatives, millers and other processors have made

Low priority

Because ergot doesn't have much impact on yield, this could contribute to why it hasn't had much research prioritisation, at least from a husbandry perspective, suggests UK Flour Millers' Joe Brennan.

Brought to attention
According to AHDB's Kristina Grenz, levy payers have questioned the increase in ergot and whether it's linked to changing farm practices, and whether it can be managed.

investments in grain cleaning, particularly colour sorters, to remove ergots. However, as well as the initial capital investment, the cost of running cleaners each season adds significant cost across the supply chain, he adds.

A further challenge is that previous AHDB research by Dr Anna Gordon, then at Niab, found that while cleaning was effective at removing the ergot sclerotia, it can break the ergots into smaller pieces that could adhere to grain and bypass cleaning, leaving alkaloid contamination.

"The work also looked at ergot infection in the ear and discovered that infections resulted in loading of alkaloids above and below the initial point of infection. These grains appear visually normal but still contain a background level of alkaloids," points out Joe.

"What that could mean, although we don't know the magnitude of this effect, is a lot of invisible contamination of the crop with ergot alkaloids that you can't clean out as nothing distinguishes those grains from healthy ones.

"And with no rapid test for those alkaloids at intake, no way of visually inspecting and no way of cleaning them out, that's really challenging."

All of that combined, along with the commercial realities of rejections for farmers, is why AHDB has funded work to support farmers in tackling ergot infections on farm, says Kristina Grenz, senior cereal product quality scientist for AHDB.

"We had questions from levy payers about the increase in ergot and whether it was linked to changing farm practices – such as the introduction of environmental stewardship options or reduced cultivations – and whether it could be managed despite limited fungicide and seed treatment options," she explains.

A key piece of work has been a review by ADAS of 450 relevant research papers to provide updated management guidelines. "It quickly became clear that we weren't going to stumble on one silver bullet and that an integrated combination of approaches all year round would be required," reflects Philip.

FOUR TIMINGS

Indeed, using knowledge about the life cycle of the ergot pathogen, *Claviceps purpurea*, four timings were identified as opportunities to reduce infection. "The first is reducing ergot inoculum in the soil for primary infections," he highlights.

"Keeping records of in-field infestations will help to understand whether a field is high risk. In such fields, rotation will play an important role in reducing primary infection with the frequency of cereals an important higher risk factor."

Where there are ergot sclerotia on the soil surface, ploughing to greater than 5cm is an effective way of reducing the inoculum, as the ergot can't germinate and produce spores, says Philip. "But be wary of ploughing up ergot inoculum that's been buried the year previously – be conscious of the position of ergot sclerotia in the soil, similar to managing the weed seed-bank."

Target timings
Using knowledge about the ergot pathogen life cycle, four timings have been identified as opportunities to reduce infection.

Minimum tillage will also bury some of the sclerotia to greater than 5cm, so will have some effect, while direct drilling leaves the sclerotia on the soil surface. Ultimately, more research is required to quantify the impact of various min-till systems better, he adds, which could help growers target direct drilling or min-till systems according to field risk. ▶

What are the legal limits for ergot?

Legal limits for ergot sclerotia and ergot alkaloids are different between Great Britain and the European Union

In GB, legal limits are based on the weight of ergot sclerotia – the physical contaminant in grain – in unprocessed cereals, whereas from 2022 the EU introduced maximum limits for ergot alkaloids – a chemical mycotoxin – in processed cereal products.

In this context, the EU rules also apply to Northern Ireland because of the Brexit agreement meaning it's subject to EU food safety law.

"There are a lot of existing limits for mycotoxins, which by and large are set at a level where it's reasonably achievable for farmers to produce grain under the limit," says Joe. "But for ergot that's much more challenging because the legal limit for sclerotia doesn't match up well with the alkaloid level.

"If you mill grain that contains 0.02% sclerotia, you will exceed the legal limit for alkaloids," he explains.

That means processors have reduced their tolerance to far below the legal limit, in many cases, to zero. And with the limits applying to Northern Ireland and most businesses not segregating their GB operations, plus exports of processed goods, the EU limits have become de facto limits for GB too, adds Joe.

"And with the recent announcement the UK intends to enter into a common sanitary and phytosanitary (SPS) agreement with the EU, adopting EU food safety limits and pesticide regulation at some point in the next 2-3 years, we can reasonably expect EU limits to soon apply directly in GB too anyway," he concludes.

Integrated management

A review of 450 relevant research papers suggested an integrated combination of approaches all-year-round would be required reflects ADAS' Philip Bounds.

Drilling certified or farm-saved seed that's been cleaned, while avoiding using farm-saved seed from fields that have had a significant problem, is another management tactic growers should employ to reduce primary inoculum, he suggests.

In addition, two seed treatments have label claims for ergot suppression, but again this is an area that requires more work to quantify the impact in field conditions, he says, while cleaning cultivation and harvesting equipment between fields just as with grassweeds should help reduce inadvertent spreading of sclerotia.

The next target stage is growing a crop that's less likely to be infected by aerial ascospores. That could be through planting a cereal crop or variety that has more closed flowers, which reduces the opportunity for infection. In order of risk, rye then triticale are the most susceptible, with spring wheat, winter wheat, barley and oats less susceptible in that order.

"Variety can also have an effect, but again, more information is required," adds Philip. "If you could avoid varieties with more open flowers or grow one that flowers for a shorter period, that could be beneficial."

It's something AHDB is considering in terms of how to provide information, says Kristina. "Talking to grain store managers, they do see varietal differences in ergot levels, but it's figuring out the best way to incorporate it, for example, in Recommended List trials. As a seasonal, weather-dependent pathogen, it can be hard to achieve consistent results."

Growing a uniform crop is strongly linked to reduced infections, due to flowering more consistently during a shorter period, continues Philip. Whereas choosing varieties that put out late tillers – while potentially positive for yields in a challenging season – increase the length of flowering and add to ergot risk.

Following good practices such as using appropriate seed rates, or potentially variable seed rates according to soil type changes, and sowing into a good seedbed to ensure consistent drilling depth will help with uniformity, he says.

NUTRITIONAL NUANCES

Another crop management practice, nutrition, is vital for healthy crops to flower effectively. But in particular, the review found correcting deficiencies of copper and boron, especially on certain soil types such as organic and peat soils, reclaimed heathland sands and shallow organic chalk soils, could reduce ergot.

"Copper deficiency can result in pollen sterility which makes the flowers open more, increasing susceptibility to ergot. Equally, boron is crucial for growth of pollen tubes, and deficiency is linked to high pH, so keeping a close eye on pH and boron levels on deficient soils are important."

Target three in the ergot lifecycle is preventing secondary infection spread. "When the pathogen initially infects the ears, the hyphal mass that develops forms a honeydew that is rich in ergot conidia and can be spread by insects, rain splash or physical transfer," points out Philip.

"Grassweeds are particularly good at encouraging secondary spread because they tend to flower earlier, so the honeydew is around when cereals flower. That means grassweed control is important to reduce secondary spread."

Unfortunately, spring cropping is a double-edged sword – good for grassweed control, but more susceptible to ergot infections, he says.

Secondary spread also makes management of grass margins in stewardship schemes significant, as they act as a source of both primary and secondary inoculum. "The same applies for a sown or naturally-occurring piece of grassland, beetle bank, buffer strip or hedge bottom," notes Philip.

"Ergot from different grass species differ in their infectivity for cereals and their flowering period, so grass species that combine low infectivity with late flowering where honeydew inoculum increases after the main risk period for cereal infection, should minimise the spread of ergot to adjacent crops," he explains.

"For example, meadow fescue or Yorkshire fog have generally lower infectivity and later flowering and so would lower the ergot risk in a grass mixture, whereas varieties such as cocksfoot and timothy have been found to have high infectivity for wheat while also having a flowering period that overlaps."

The final target timing growers can manage is limiting contamination once a crop has been infected with ergot. "Make records of fields that are likely to be high risk and monitor them more intensively," advises Philip. "If you identify a particular field or even an area of a field that's badly infected, consider combining and storing it separately.

"Also monitor grain being tipped in store – it can be easier to see ergot in trailers than fields – and consider if it can be tipped separately to avoid contaminating the whole heap."

Cleaning using a colour sorter is the most effective way of removing ergots but comes at a cost in both time and money, he comments. "The final step is updating records, so the next time that field is in cereals ergot can be taken into consideration." ●

Research roundup

From Theory to Field is part of AHDB's delivery of knowledge exchange on grower-funded research projects. *CPM* would like to thank AHDB for its support and in providing privileged access to staff and others involved in helping to put these articles together.

For more information about the ergot project, visit: ahdb.org.uk/ergot

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Weed-free foundations: getting the best from OSR

With oilseed rape back in the spotlight, strategies for weed control remain hotly debated – with cultural methods and new chemistry both in the mix. *CPM* finds out more.

By Charlotte Cunningham

Following years of uncertainty for oilseed rape, this season's harvest has delivered a shot of confidence for some UK growers – with yields tracking ahead, pest pressure easing, and an earlier-than-usual combining window.

But for Hampshire grower Tom Monk, the standout 5.8t/ha from one field of Attica isn't just down to good luck. It's the product of a long-term, methodical approach to weed control that starts well before drilling and continues right through to harvest.

Farming 1350ha at AF Monk (Rookley) Farm, Tom and his family specialise in seed production, making seedbed hygiene non-negotiable. "We're growing crops for seed, so the tolerances are incredibly tight," he explains. "That mindset carries over into our commercial OSR; a clean crop isn't just a nice to have – it's the foundation for both yield and quality."

Tom's programme begins the moment the previous crop comes off. "We stubble rake straight away to encourage volunteers – often winter barley – to chit, then we go in with glyphosate. That takes out a huge amount of competition before we even think about drilling," he says.

Looking in more detail at the 2025 crop, a disc cultivator with a seeder unit was used to establish buckwheat as a companion crop, in some cases incorporating sewage sludge for early nutrition, and the ground was rolled to retain moisture ahead of OSR drilling a few days later.

"The discs leave some stubble at various angles which helps with soil protection and moisture retention," says Tom. "The buckwheat's there to provide canopy cover against potential cabbage stem flea beetle, but it also helps to smother any weed flush."

Turning focus to chemistry, Tom doesn't believe in a blanket pre-emergence spray. "We wait until we know the OSR is up and even, before we commit to spending. In a clean, thick crop, chemistry might be minimal; in a gappy field, we'll step in."

This season's control strategy included two graminicides to control grassweeds and volunteers. Meanwhile, Korvetto (halauxifen-methyl+ clopyralid) has been a go-to for broadleaf weed control in the spring he explains.

Secret to success
For Hampshire grower Tom Monk, success in oilseed rape comes down to a long-term, methodical approach to weed control that starts well before drilling and continues right through to harvest.

Prices strong, weeds at bay

With strong OSR prices tempting more seed into the ground this summer, a more proactive approach to weed control could be warranted.

▶ "In one field, after the two graminicides, charlock was the only thing popping up – that tells me we'd done the groundwork right," he adds. "The less you have to tidy up in-crop, the better the canopy you'll have by spring."

Long rotations are a central component in the plan, too, he highlights. "We aim for at least eight years between OSR crops in a field. That's not just to help control pests like cabbage stem flea beetle, but to let the weed seed-bank decline naturally. Fields with a known charlock problem are simply taken out of the OSR plan entirely."

One of Tom's most consistent decisions is to avoid a blanket pre-harvest glyphosate. "If the headlands are messy, we'll treat them, but we leave the main crop alone. I've seen around 0.5t/ha uplift in some years by not using it," he says. "Instead, a pod sealant is applied to lock in seed and reduce shedding losses."

Although this strategy has proven successful for Tom, the debate regarding whether or not to invest in weed control until a crop is 'safe' is one that divides opinion – with some arguing this sets the crop up to fail before it's had a chance.

"Ten years ago, two- or three-way pre-emergence herbicides were used regularly, but now, growers are reluctant to invest until they know the crop will survive – whether against cabbage stem flea beetle, pigeons or slugs," says Rob Adamson, head of technical development at ProCam.

"Additionally, some residuals can reduce the vigour of the OSR itself, so there are many factors that mean usage has dwindled. Where it is still done, in many cases pre-emergence applications are pared right back to metazachlor – sometimes with clomazone," he suggests.

Rob says the challenge with a 'wait and see' approach is that the weed burden often builds unchecked. "The weed burden hasn't changed compared with what we were targeting 10 years ago. There are some weeds such as hedge mustard which if not targeted pre-emergence, will be very difficult to control. Other broadleaf weeds such as chickweed have a rapid growth rate, and if left until you're applying Astrokerb (propyzamide+ aminopyralid) in November or December, these weeds can be far too big to get effective control."

As such, he believes residual chemistry still has a

place – even if growers fear early losses. "Metazachlor on its own is still worth applying – it has a level of flexibility with a pre or post-emergence label (up to 4 leaf), so you can still wait for the crop to emerge, while also taking some of the pressure away from post-ems to rescue the situation – which is much harder when weeds get away."

Broadleaf species in particular not only compete for nutrition, but also physically hold the OSR back, he continues. "I've seen trials where untreated plots didn't just have more weeds, the OSR itself was smaller and less vigorous. In other words, by feeding weeds you're starving the crop."

This vigour is crucial in the battle against other establishment challenges, stresses Rob. "The sooner you can take weeds out, the greater the biomass and leaf cover. That vigour makes the crop more resilient to pigeon grazing and flea beetle; it's all interlinked. Leaving untreated weeds is a self-fulfilling prophecy – you weaken the crop and then wonder why it doesn't survive."

For those who do want to hold off until the crop is up and avoid the potential knocks of residual actives, Corteva's Belkar (halauxifen-methyl+ picloram) has provided a flexible option, says Rob. "Belkar is a useful post-em contact herbicide with rates from 0.25 l/ha on 2 leaf crops up to 0.5 l/ha once OSR is beyond the six-leaf stage," he explains. "It gives broadleaf control, but again, requires growers to act before weeds are too big. You can't just wait until November and expect Belkar to clean everything up."

This season, a new development enters the toolbox in the form of LaDiva (aminopyralid+ halauxifen-methyl+ picloram) from Corteva. "It's effectively a stronger Belkar," says Rob. "Where Belkar can struggle with pansies, chickweed, mayweed or speedwell, LaDiva fills those gaps.

"It also has activity on hedge mustard – a notoriously tricky brassica-type weed in OSR – which until now has relied on clomazone pre-emergence to really control it. But the main benefit is being able to use aminopyralid earlier, rather than waiting for propyzamide-based mixtures later on."

That separation is valuable, he adds. "Astrokerb as a product has always been a compromise – waiting for soils to cool sufficiently to optimise persistency and blackgrass activity while also requiring a dry leaf for broadleaf weed kill. By using aminopyralid earlier through LaDiva, you can hit broadleaf weeds when they're smaller, saving propyzamide for grassweeds when conditions are right."

One caveat is rotation, as aminopyralid carries restrictions in following crops. Therefore, if potatoes or certain legumes are in the mix, it's not an option, points out Rob.

While chemistry can often dominate the conversation, cultural practices

Investing in protection

Despite a challenging few years for OSR, ProCam's Rob Adamson says residual chemistry can still be worth investing in – even if growers fear early losses.

shouldn't be ignored either, he adds. "How you establish the crop makes a big difference – the more soil you disturb, the greater the flush of weeds. With OSR, you don't have the luxury of a long stale seedbed, so if you've moved a lot of soil, you can expect broadleaf weed flushes to come through thick and fast. By contrast, direct drilling tends to bring fewer weeds with it."

Rotational position can also play a part in overall control strategies. "With OSR grown less frequently than it used to be, growers can take the opportunity to control key weeds elsewhere in the rotation. Hedge mustard, for example, should be managed in cereals rather than left until OSR," he adds.

Looking ahead, with strong OSR prices tempting more seed into the ground this summer, Rob believes a more proactive approach to weed control is warranted. "There are growers who drilled in late July with moisture and both the OSR and weeds have a long growing window ahead. Without an early plan, the weeds will win.

"If you keep on top of broadleaf weeds, OSR has the vigour to push through everything else the season throws at it. If you don't, you're asking a weak crop to survive pigeons, flea beetle and slugs, on top of weeds. That's not realistic – in OSR, if you set it up to fail, it will fail."

National OSR yields exceed expectation

Could this be OSR's pivot point?

Putting the usual marketing messages from breeders, ag chem manufacturers and alike aside, the evidence does indeed suggest that this year may shift the fortunes of oilseed rape.

That's because up until now it's been rather bleak – a rapid decline in UK hectarage due to the risks associated with the crop deemed the situation a national crisis. In fact, this resulted in the launch of the industry-wide 'OSR Reboot' campaign from United Oilseeds and AHDB.

However, with the winter OSR harvest completed some time ago, the figures indicate a more positive narrative – the average UK OSR yield for Harvest 2025 has come in at 3.98t/ha, ranging 2.88-5.31t/ha. According to AHDB, this is the highest average since 2011 for a winter-sown crop.

As for oil content, that's also been excellent, it says, averaging around 44-45%.

So why the sudden pivot? United Oilseeds suggests the yield uplift has been driven by improved genetics, a season of favourable weather and of course, reduced cabbage stem flea beetle pressure.

The firm's James Warner believes the benefits of the Reboot campaign are now coming through. "For those prepared to give the crop the focus it deserves, OSR continues to prove why so many still regard it as the number one break crop.

"Lower flea beetle pressure, favourable growing conditions, and major advances from seed breeders have all played their part. We're optimistic that this'll encourage more growers to bring OSR back into their plans for the season ahead."

Smith's SOAPBOX

WITH GUY SMITH

Watch this space

My father was one of those post-war farmers where the success of the crop was determined by what you did before you sowed the seed, as opposed to what you did to the crop afterwards. Arable farming in the 1950s was largely a matter of drilling the field, shutting the gate and not bothering to return until harvest.

In contrast, his impressionable son would get excited by every new wonder product that appeared in glossy ads in the farming press. I remember at a formative age explaining to dad that I wanted to spray the wheat with a new formulation of seaweed extract as it'd lead to more vigorous crops by stimulating natural growth hormones. Dad's response was to mutter something along the lines of not noticing much in the way of vigorous growing on the beach foreshore where the tide washed the seaweed in.

Dad's home-spun farming philosophy of concentrating on the basics before worrying about the latest gizmos came back to me this harvest when sitting in the combine cab. You couldn't help but notice the yield meter plummet wherever there was any soil compaction. A drought year can be a very unforgiving one if you haven't done the basic preparation of your seedbed; no amount of fertiliser or fungicide or even biostimulants can remedy neglecting the soil in the first place.

So we've been grinding a lot of metal this autumn in an attempt to bust up a lot of bone dry ground set with all the friability of concrete. The invoices for sub-soiler points at £30 a time seem to arrive rather too regularly. Hopefully I'm building the foundations of some bumper crops next year that'll have roots so deep they'll always sit in the moisture of the sub-soil no matter how severe the drought.

We're growing a HEAR hybrid variety of oilseed rape this year. I've been persuaded that a hybrid will give me extra vigour even if I drill at worryingly low seed rates. I write all of this assuming that by the time you read *CPM*, the cotyledons will have become leafy little plants rather than succumbing to flea beetle, slug or whatever other menace is out there lurking in the undergrowth.

We still tend to drill OSR around the August bank holiday, but I note in the press some farmers claiming the way to beat cabbage stem flea beetle is to drill in July, whereas others claim September drilling is best to beat the dastardly leaf munching critters.

Personally, I think the best timing is just before a few weeks of wet weather to help the plants to quickly grow away. I'll confess that this is totally dependent on luck, because given the inaccuracy of long-term weather forecasts, there's no telling if or when the rain will arrive. This autumn, it looks like we've been lucky given the inch of rain that arrived the fortnight after we finished drilling. To slightly ease my autumnal frets about crop establishment, my kindly seed merchant has said it'll only charge for half the seed until it sees the crop establish in good order. At the moment, we're watching that space.

I note that the old farming practice of growing a mix of two crops is coming back into fashion. Not to be outdone this year we managed to produce a mix of winter beans and black mustard.

The truth is that while we planted the winter beans, the black mustard was self-sown. My crop management proved equally wild when I declined to use bentazone herbicide in the spring. Partly because of the expense, but also because we struggled to find a window to spray given the sunny April weather which not only risked scorch, but also rapidly brought the beans into flower.

Given the year, the bean yield wasn't too disastrous at 3.6t/ha. I've no idea what the wild mustard yielded owing to the fact we had the combine sieves open. Hopefully all this weed seeding will be easy enough to control in the following wheat, but I fear I might have put the mockers on the next OSR crop, unless these Clearfield varieties live up to their billing. ●

YOUR CORRESPONDENT

Guy Smith grows 500ha of combinable crops on the north east Essex coast, namely St. Osyth Marsh – officially the driest spot in the British Isles. Despite spurious claims from others that their farms are actually drier, he points out that his farm is in the Guinness Book of Records, whereas others aren't. End of. @essexpeasant

Destined for greatness?

Named after the bustling London street where the glamour of The Ritz meets the prestige of the UK Flour Millers HQ, a new candidate looks set to shake up the Group 1 market... *CPM* explores DSV Arlington.

By Charlotte Cunningham

The development of a successful milling wheat is rarely straightforward. Balancing grain quality, yield potential and agronomic resilience is a task that's arguably eluded breeders for decades, leaving the Group 1 sector reliant on a narrow band of names like Crusoe, Skyfall and Zyatt.

But that looks like it could be set to change this autumn, with a new candidate coming in hot on the heels of its competitors...

Meet Arlington, a new potential Group 1 from the DSV stable which is attracting attention from breeders, growers and millers alike.

Arlington's journey to hopeful recommendation hasn't been down to pure luck – it's been a breeding project with clear intent which began back in 2016, explains DSV UK wheat breeder Dr Matt Kerton.

"Arlington is a cross between Marston – a line destined for bread but downgraded to feed – and Skyfall, the established Group 1 milling variety," he says. "Although Marston didn't bake well enough to make a loaf, it had superb grain quality and yield. Skyfall brought proven baking performance but also susceptibility to yellow rust. By combining the two, the hope was to capture yield and quality while ironing out weaknesses."

WIDE DRILLING WINDOW

Early selections showed promise, but what became Arlington quickly stood out. "We noticed it had a very low vernalisation requirement," explains Matt. "That gives growers a wider drilling window – it can be sown from a traditional autumn slot right through to early spring. Given the recent run of wet autumns, that flexibility could be game-changing."

Even the name reflects its milling ambition. "We chose Arlington because the UK Flour Millers have their

Strong on-farm performance
While the breeding strategy gives Arlington its technical backbone, its on-farm performance is what ultimately determines its place in rotations, says DSV's Sarah Hawthorne.

headquarters on Arlington Street, next to the Ritz in London," he adds. "It felt like a fitting nod to the sector we were targeting."

ROBUST

While the breeding strategy gives Arlington its technical backbone, its on-farm performance is what ultimately determines its place in rotations, says DSV's Sarah Hawthorne. "Arlington carries a robust disease resistance package, combining strength against yellow rust, a septoria score of 7.1, plus the rare combination of orange blossom midge resistance and Pch1 eyespot tolerance – features that Skyfall alone previously offered in the Group 1 sector.

"It has short, stiff straw, standing it in good stead for early drilling, while its untreated yield of 90% underlines the strength of its resistance profile."

She adds that Arlington mills very similarly to Skyfall – something which has been picked up by a lot of the millers who've seen samples. "It brings together a high protein content, a Hagberg Falling Number around 297, and a specific weight of 79.3kg/hl – ticking all the boxes millers want to see."

Early trial results are encouraging too, says Sarah. "From the AHDB harvest data published so far, it's performing really well among the Group 1s on treated yield. We've completely sold out of seed for this year, with huge interest from both growers and millers. That tells you a lot about the appetite for something fresh in this space."

Matt adds: "The idea has always been to offer something that growers of Skyfall can pick up and grow in a similar way, but with improved yield and resistance."

In the field, for farmer George Page – who runs a mixed arable and livestock business near Banbury – this season offered the chance to grow Arlington for the first time. He was one of just three UK growers involved in the candidate seed crops.

"I had 4ha of Arlington – drilled very thinly because I only had a 500kg bag – but it still yielded 7.5t/ha," he says. "That was higher than the Skyfall I combined straight after it, which was impressive given the seed rate."

He was also struck by its simplicity to manage. "Agronomically, it was straightforward. We followed protocol so it did get a growth regulator, but in truth it didn't warrant it – it stood rock solid. In hindsight, I could have saved the spend, which says a lot about its straw strength."

Disease pressure was low this year, but he notes Arlington showed no weaknesses. "It stayed clean, even in a season where rust was creeping in elsewhere."

Compared with his existing wheats, Arlington impressed, comments George. "The Skyfall looked fine, but Arlington outyielded even at a thinner seed rate. I also grow Champion and Bamford, and while they give market opportunities, Arlington felt like a stronger Group 1 candidate because of its agronomics. It stood better and looked healthier."

Straw yield was also notable, he adds. "It wasn't over-abundant, but what was there was good quality, firm straw – not the weak, lanky type you worry about with some milling wheats."

With the grain now destined for baking evaluation, George is optimistic. "It hit spec easily – Hagberg, protein, bushel all stacked up. If the millers sign off on quality, I'd definitely keep it in the rotation. We require something to take the pressure off Crusoe, Skyfall and Zyatt, which seem to be getting tired. Arlington looks like it could be that replacement."

While growers look at agronomy and yield, millers want security of supply, consistency and functionality. That's where Beth Moses of ADM Agriculture sees Arlington's potential.

"From what I've seen in official trials, it looks like a strong Group 1 candidate," she says. "It brings together traits we've only really seen in Skyfall until now – notably the combination the midge resistance and the Pch1 eyespot resistance – but with a step-up in disease profile."

Beth believes this positions Arlington well among the existing Group 1s. "Skyfall has been carrying a lot of the weight for some time – for those growers looking for these characteristics – but it has weaknesses; Arlington has the potential to share that load. Its untreated yield is strong, its protein levels are high, and it looks like a step forward compared with what else is available."

As the breeders patiently wait for news of its hopeful recommendation, it goes without saying that Arlington enters a competitive marketplace. However, its combination of resilience and flexibility could make it attractive to a wide range of growers, proposes Sarah. "Anyone who's liked Skyfall should be interested."

For DSV, Arlington also demonstrates the value of its genomic prediction and trait-stacking approach. "It's about delivering varieties that meet end-market requirements while giving growers security in the field," concludes Matt. "Arlington is the start of that next generation of milling wheats."

Breeding with clear intent

Arlington's journey to hopeful recommendation hasn't been down to pure luck – it's been a breeding project with clear intent which began back in 2016, explains DSV UK wheat breeder Dr Matt Kerton.

DSV ARLINGTON AT A GLANCE

Yield (%) treated controls	
UK treated	101
UK untreated	90
East	102
West	[99]
North	[[98]]
Grain quality	
Specific weight	79.3
Protein content	11.4
Hagberg Falling Number	297
Agronomics	
Resistance to lodging without PGR	0
Straw height without PGR (cm)	80
Ripening (+/- Skyfall)	0
Disease resistance	
Mildew	6
Yellow rust	9
Brown rust	6
Septoria	7
Eyespot	6@
OWBM	R

Source: AHDB winter wheat Candidate List for harvest 2025 [ ] = limited data [[ ]] = very limited data @ = Believed to carry the Pch1 Rendezvous resistance gene to eyespot, as this is a breeders claim it has not been verified in RL tests.

Setting the pace in wheat

A flexible 'sprinter' wheat promises to open up drilling windows and help growers mitigate risk

Following a run of difficult, wet autumns and sub-optimal drilling conditions, growers could soon be offered a solution, in the form of new wheat variety, STR Pace.

Developed by crossing a winter and spring variety, Pace is coined a 'sprinter' wheat – boasting the benefits of early vigour and winter hardiness with a wide drilling window.

Agrovista's Ted Williams says the idea came about as a result of seeking a solution to overcome the impact of delayed drilling in blackgrass scenarios. "With winter wheat being planted increasingly later, some varieties have really struggled to make it through the wet winters we've been experiencing.

"There's also the added risk of not getting a crop in at all, should the conditions be unconducive to drilling. If seed remains in the shed until the next autumn, this not only affects cash-flow, but can also reduce germination rates," he explains.

Having observed work by a German breeder that crosses spring and winter wheat, this led to Agrovista trialling some of the new sprinter varieties in UK conditions. Ted says while initially there were issues with yellow rust, having finessed the trial process further, namely drilling dates, they started to see potential in Pace.

"Drilled later, it has huge potential due to its vigour; the earliest I'd drill this variety is 20 October. It can then be planted through to May," he states.

A Group 1 breadmaking variety, Pace recently joined the AHDB Recommended List as a spring wheat. Ted points out that its listed as a spring variety because winter varieties are September-drilled in RL trials, meaning Pace would be too forward.

"We know it does well, offering good quality, specific weight, and high yields, but is novel in that it has a wide drilling window. By choosing Pace, growers can plant the crop when it suits their situation."

Trials-wise, Agrovista's work has involved comparing Pace with RGT Skyfall, evaluating performance at different planting dates. Ted says drilled in late October, the two varieties are on a par, while in November, Pace seemed slightly ahead.

"Drilled on 3 March at 500 seeds/m2, Pace clearly yields well at this timing. But, the real difference is how quickly Pace develops through the season."

Agrovista plans to officially launch Pace in 2026.

Unlocking potential for AD and grain markets

With demand from both AD plants and feed markets on the rise, maize is cementing its place in UK rotations. But, success depends on smart variety choice, sound agronomy and a willingness to keep learning. *CPM* explores.

By Charlotte Cunningham

The UK's demand for maize is showing no signs of abating – from both the anaerobic digestion (AD) industry and feed compounders – the crop is increasingly being viewed as a strategic player in arable rotations.

For growers, opportunities exist on multiple fronts, but careful variety choice and agronomic planning are key to maximising potential returns.

This is according to Andrew Cook, maize product manager at KWS, who says particularly from the AD perspective, there's a window opening up. "A lot of the main maize-for-AD areas have struggled for moisture this year, leading to underperforming crops and reduced feedstock. Many of those plants will be looking to replenish in 2026, creating opportunity for growers to fill that gap.

"On top of that, there are a significant number of AD plants currently in construction or at planning stage. Maize is still regarded as the number one feedstock for biogas yield, so there's no question about its value in that sector."

The case for grain maize is just as strong, believes Andrew. "We import a huge amount into the UK every year. As such, there's scope for more homegrown grain maize which can integrate well into rotations – particularly as it spreads the workload and allows machinery use to be balanced across the season."

LOW BURDEN

From a practical on-farm perspective, one of maize's attractions is its low pest and disease burden, highlights Andrew. "Once it's established, you're not firefighting all season. Costs are front-loaded at drilling and then again at harvest, but in between you can concentrate on your other key crops."

To get the best from maize, Andrew says growers must start with the basics. "Good site selection underpins everything – matching variety choice to drilling and harvest windows, and to end-use. For forage maize, there's also the potential to supply livestock

Window of opportunity
Andrew Cook, maize product manager at KWS, says particularly from the AD perspective, there's a window opening up for UK maize growers.

farms, particularly in areas facing forage shortfalls, but I'd advise having a supply agreement in place before drilling rather than growing speculatively."

He also stresses the importance of aligning maize maturity with the available growing days and heat units for the site. "We have to hit target dry matter so we can get the crop into the clamp at the right time, protect soils, and allow timely drilling of subsequent crops. Growing a huge biomass is pointless if it compromises the rest of the rotation."

For those growing large areas of maize, variety maturity spread is a valuable management tool. "If you have, say, 400ha of maize, you're not going to drill it all in a day and you'll inevitably face some weather delays. Later-maturing varieties should go in first, early ones last, so that when it comes to harvest you're cutting early types first and later ones last. It's about smoothing operations at both ends of the season."

OPTIMISED SEED RATES

When producing grain maize for the dry grain market, Andrew advises reducing seed rates. "This changes the cob-to-stover ratio, brings forward maturity and improves natural grain dry-down which is critical in the UK, where drying costs are high compared with continental producers.

"It's not just about yield – it's about getting that balance between output and the ability to shed moisture naturally. For those without drying facilities, crimping is an excellent alternative.

"Crimped maize is energy-dense feed, requires around 50% less storage than forage maize, and is easier to transport. You avoid the cost of drying, though of course you incur crimping and preservation costs. For livestock producers, it's a product they often absolutely love, too."

In terms of varieties, KWS has a comprehensive offering with KWS Anastasio an example of a grower-favourite thanks to its high yields and flexibility for use as forage, grain or for AD, says Andrew.

"For AD and forage growers ▶

Maximising maize – what does the science say?

Maximising maize's productivity while lowering input costs is the dual challenge for UK growers, however, new trial data from the Maize Growers Association points to practical strategies to deliver both

According to Jon Myhill, technical lead at MGA, recent replicated trials are beginning to show clear gains from refined approaches to nitrogen use, seed rate management, and drilling date flexibility.

"During the past two years we've focused on nitrogen dynamics, particularly the role of foliar nitrogen applied later in the season," explains Jon. "From the nine-leaf stage onwards, maize still requires around 60% of its total nitrogen – that's as it moves into the reproductive phase, so supplying N efficiently at this point is critical."

The trial work has compared foliar-applied products with standard seedbed applications. The foliar formulations tested are designed to release N gradually while being low-scorch compared with conventional liquid nitrogen.

"In practice, we've found these foliar products can replace 30-40kgN/ha of seedbed-applied nitrogen," notes Jon. "Yet at the point of application they are only delivering 7-15kgN/ha actual. That means a potential saving of 33kg/ha in fertiliser use."

The implications are twofold, he says. Firstly, a reduced reliance on bagged fertiliser – which supports farm decarbonisation strategies – and secondly, the economic benefits in light of the volatility still surrounding N prices.

Early data also suggests improvements in grain maize, adds Jon. "Where foliar N was applied alongside seedbed N, we recorded both yield gains and higher protein content. It's only one year's dataset so far, but we'll continue for another two years to verify statistically. The direction of travel is promising."

A second MGA trial has examined optimum seed rates for yield and quality in forage maize. "We looked specifically at emerged plants rather than seed drilled, to account for establishment losses," says Jon.

Results point to a clear sweet spot, too. "Maximum yields came in at 100,000–105,000 plants/ha. Below that, yields began to drop off, while higher populations risked compromising quality at harvest."

Jon stresses the importance of factoring in variable establishment. "The discrepancy between drilled and emerged plants can be wide – we've seen germination range from 95% down to 60% in some cases, depending on seedbed conditions and bird pressure. Growers must compensate in their seed rate calculations if they want to reliably hit that 100,000 target."

Dry matter content at harvest wasn't negatively impacted at optimum populations, suggesting yield gains aren't offset by quality penalties, he highlights.

The latest work, still in progress, explores sequential drilling dates from late March through to early June. Crops are drilled at two-week intervals, with yield and dry matter measured at harvest.

"For AD plants in particular, flexibility is essential – they want to spread drilling and harvest to keep feedstock supply consistent. We want to quantify how much yield or quality penalty there is from drilling later, versus the benefits of earlier harvest and reduced frost risk."

So far, early indications suggest frost damage is less of a concern than many growers assume, while the benefits of securing an early harvest window are significant, he concludes.

Refining the approach
According to Jon Myhill, technical lead at MGA, recent replicated trials are beginning to show clear gains from refined approaches to nitrogen use, seed rate management, and drilling date flexibility.

specifically, there are lots of options. For those requiring something ultra early – either due to a marginal site or a short season – KWS Temprano or KWS Jardinero – deliver high gas potential in testing conditions.

"At the other end of the spectrum, in a longer season or on light land, KWS Granturismo is well suited to the longest growing windows, and consistently delivers exceptional output."

Looking forward, Andrew believes the trend towards earlier-maturing varieties will continue. "Breeding progress, especially in early and ultra-early types, is delivering yield improvements of 1–2% per year. The yield gap between early and later-maturing varieties is closing meaning growers can choose earlier types without sacrificing output, and gain more flexibility in the rotation."

> *"Good site selection underpins everything."*

One grower who's realised the value of maize as part of the arable rotation is James Faulkner. Farming at Colchester in Essex, James has gradually reshaped his system during the past two decades.

Once a continuous wheat business, the farm now grows 500ha of maize with a further 900ha harvested on contract. The crop supplies both an AD plant and the grain market, but as James explains, the path to this point has been full of trial, error and plenty of learning.

"About 20 years ago we moved to a more traditional rotation, and then around eight or nine years back, we had the opportunity to work with an AD plant. That's where maize came in."

Maize was a steep learning curve for an arable business rooted in cereals, he notes. "Traditionally, maize was more of a western crop, grown with livestock. What works there doesn't always work here."

One of the most significant lessons has been around soil type. "When we first started, we grew maize on the lighter land and rye for AD on the heavier ground. But we soon realised maize requires moisture, so we swapped them around. We're now growing maize on London and Hanslope clays, and while the light land can out-yield the heavy soils in a good year, the clays give us a far more reliable average."

Approaches to establishment have been equally varied. "We've gone from ploughing to min-till, and now we're doing a lot of maize after cover crops with strip-till," says James. "The strip-till looks promising, but it can be tricky especially on headlands. This year we strip-tilled the fields but cultivated the headlands – we're still working out what gives the most consistent result."

FOLLOWING CROP

Perhaps the biggest headache has been establishing wheat after maize, he suggests. "You're harvesting late in the season, leaving huge amounts of trash on the surface. Our existing drill just wouldn't cope."

After trialling various disc-based and cultivation setups, James recently invested in a 9m Amazone Cirrus. "It handles the residue really well and the hope is we'll be able to go straight in after maize more often. On heavy soils that's a big step forward."

Variety choice is another area where James has been on a journey. "As I grow older, reliability has become the number one priority," he laughs. "Any variety can perform brilliantly in one year but we want consistency."

Multi-purpose varieties have been especially valuable, he adds. "KWS Anastasio is probably our favourite. It's adaptable – excellent as forage, but also strong for grain. We drop the seed rate down to 75–80,000 seeds/ha for grain, compared with 100–110,000 for forage."

Trial work on the farm has helped refine variety decisions too, says James. "We've run variety trials for years which has been much easier since we invested in our own combine and forager. Anastasio has been very strong, and newer options like Granturismo are looking like the next step for us. KWS has been not just consistent, but also genuinely interested in what we're doing – which makes a difference."

Despite the challenges, James is convinced maize has a strong role to play – both in AD systems and as a grain crop. "The soils are better, the business is more resilient, and there are genuine market opportunities here in the East."

For growers considering the crop, his advice is pragmatic: start with reliable, well-known varieties, and test others on smaller areas. "I always say to keep experimenting too – with establishment, with nutrition, with variety choice. You won't get clear answers every year, but over time you build a picture of what works."

And as the combines roll later this autumn, he'll once again be weighing up what the season has taught him. "It's been a tricky year with the drought, so crops are variable; some look fantastic, others are struggling. But that's maize – and that's why you keep learning."

High output varieties

In a longer season or on light land, KWS Granturismo is well suited to the longest growing windows, and consistently delivers exceptional output.

Early options

For those growers requiring something ultra early – either due to a marginal site or a short season – KWS Temprano (pictured) or KWS Jardinero – deliver high gas potential in testing conditions.

Productivity Matters

In this new series, Productivity Matters, *CPM* has teamed up with KWS to examine the breadth and depth of how optimum productivity can be achieved within arable rotations.

Things can only get better

With some growers experiencing their worst harvests on record, coupled with excruciatingly low grain prices, the question on many lips is when will things improve? *CPM* gathers early market intel for how the current campaign might play out.

By Janine Adamson

AHDB's late August harvest report revealed that while incoming winter wheat quality is good this year, output is highly variable from farm to farm. And, although yields have improved as harvest has progressed, a previous iteration of the report highlighted that for the first 10% of the crop, yields were down 11% on the five-year average.

Furthermore, in terms of the now completed winter barley harvest, yield is 1% down on the five-year average, while having done a complete 180, average OSR yield is the highest it's been since 2011, at 3.98t/ha.

Openfield's Richard Jenner explains that from a volume perspective, the dive in wheat yields means the UK is looking at 1M tonnes less winter wheat output than forecast. "Not only that, with the higher costs of production and low grain prices, some growers will be making a deficit this harvest.

"However, there is a positive – milling wheat is mostly making specification so there's an opportunity to sell premium grain with a low chance of claims. The challenge truly lies in feed grains – this is where growers will be seeking improved prices," he says.

US MAIZE CROP

As always, the UK market is at the mercy of global influence, in the case of this season, a burgeoning US maize crop. "Recent reports project an increase in both US acreage and yield, even more so than what was initially anticipated in June figures. This has a significant implication on the global animal feed market.

"Although US maize harvest isn't until September, we can't escape the weight on the domestic market which has almost collapsed under the strain," comments Richard.

The abundance and affordability of US maize will prevent prices from increasing in the UK, he adds. "So the key will be monitoring the progress of US exports, particularly upcoming harvest performance – a reduced maize output would mitigate pressure ▶

Silver lining

Despite otherwise poor prospects for growers, Openfield's Richard Jenner says there should be a positive in milling wheat.

Harsh realities
Bar a brief rally in June, the market has been on a downward curve since February meaning growers haven't had many chances to take advantage of forward values.

on the UK. Equally, gleaning any 'good news stories' from Europe to support home prices, for example, poor quality and low spec from the Black Sea."

According to Richard, it depends on how much UK growers have already sold, as to whether they'll be currently thinking about crop marketing at all. "We also have no idea regarding this autumn's plantings, although Harvest 2026 appears to be at a premium compared with Harvest 2025.

"We have to hope that all of the bad news is already in. Although the market is highly unlikely to jump around, there may be some subtle variances to be aware of along the way," he advises.

LIMITED OPPORTUNITIES

Richard acknowledges that so far, any opportunities have been few and far between. "Bar a brief rally in June, the market has been on a downward curve since February – growers simply haven't had many chances to take advantage of forward values.

> *"Unless you must sell grain now for cash-flow reasons, time is on your side."*

"I believe we've had the worst of it. There are some watch-outs on the horizon, but this campaign has a long way to go. Unless you must sell grain now for cash-flow reasons, time is on your side."

He recognises that from a grower's perspective, agriculture feels like an unpalatable place this year. "But, the market is the market; it's how you navigate out of it that counts. Be alive to external factors and have an awareness of global shifts – there may be brief opportunities where the market may rally. Brief being key, because the times of gradual, incremental shifts seem to be long gone.

"Either monitor the markets yourself, or work with someone who can help you. Admittedly, the conundrum will be what to do next."

A crop Richard is keeping a keen eye on is barley. "Historically the UK is a large exporter of barley with an established programme in place. But based on the poor quality and lower yields from the East of England and some other parts of the UK, availability is significantly reduced.

"While ordinarily we'd be looking to export, UK demand may in fact mean the domestic market is more favourable this year," he concludes.

Broader horizons

How two brothers are maximising the value of malting barley through the export market

Working alongside a seed merchant has allowed Ben and Roy Cooke to navigate the grain markets, particularly malting barley, to tap into the stability and higher returns of export opportunities.

Managing 220ha in Lincolnshire, Ben says the farm's aim is to make smart, streamlined decisions that maximise efficiency. This includes having no leeway for wasted time, complicated logistics or unreliable returns.

Historically, the brothers avoided growing malting barley due to perceived risks associated with selling into the domestic market, he explains. "We always used to shy away from it because our experience was that the domestic malting industry can be picky, and we'd had experiences of downgrades and rejections."

But this all changed two years ago, when Tom Burt from Saxon Agriculture offered a different approach – growing malting barley for export to Belgium and Holland. As for logistics, they'd be handled locally through the port at King's Lynn, a short distance from the farm.

Having embraced this new approach, Ben says it's been a positive move – reducing both transport costs and hassle. "We haven't had any issues with rejections; it's proved a quick, easy and profitable process."

This season, the brothers are growing around 70ha of Laureate malting barley with a split sales strategy. Four lorry loads are committed directly to Saxon and destined for the export market, two for the domestic market, and another four into Saxon's export barley growers' pool – a group marketing and sales scheme.

"We tried the growers pool last year and had good returns," highlights Ben. "So, we're committing to it again this season. We think Saxon offers good options when it comes to malting barley."

He believes that working with a grain buyer should mean more than just a good contract. For Ben, it's about long-standing support and strong communication. "We've been working with Saxon for around 10 years and have a very trusted relationship. We like that we receive a mix of digital, in-person and over-the-phone communication – it's far more personal."

Risk factors
Historically, Ben Cooke and his brother avoided growing malting barley due to perceived risks associated with selling into the domestic market.

Ben adds that the company's agility was valued this year, following difficult autumn drilling conditions driving more growers toward spring plantings. As such, the brothers were keen to commit to contracts early.

"Tom secured us some good deals relatively early, which has given us peace of mind but also offered the hope of healthy returns. What we require is a grain buyer who supports what we're doing on farm. With Saxon, I think we have a business partner that does just that," he concludes.

Soil carbon restored

The conclusion of a nationwide survey suggests UK farmers have reversed the trend of falling carbon levels in arable soils, potentially reducing their impact on climate change. *CPM* gets exclusive insight from one of the team that carried out the work.

By Mike Saull

Sceptics said it was impossible, others that it'd take many years, but against all the apparent odds soil carbon levels look to be increasing and experts suggest positive, on-farm actions are the likely explanation.

While there are no laurels to rest upon just yet, the good news is that UK soils appear to be more sustainable and in better shape as a result.

Furthermore, in research published in the European Journal of Soil Science, it suggests that after prolonged, historic decline, soil carbon levels are starting to increase.

Looking in more detail, initial analyses since the start of a survey some 40 years ago showed that soil organic carbon (SOC) was being lost at a rate of 0.16t/ha every year. However, during the 15 years to 2022, cropland soils have annually accrued 0.17t/ha of SOC on average – that's equivalent to 0.74 mega tonnes of carbon across the UK every year.

According to Dr Laura Bentley, the environmental scientist who fronted the work, this data clearly demonstrates that topsoil properties can be restored. "It offers real hope that a concerted effort by land managers can halt, and potentially reverse, SOC loss from cropland soil," she says.

LONG-TERM APPROACH

The Countryside Survey, carried out by the UK Centre for Ecology and Hydrology (UKCEH) has been examining soils for almost 50 years as part of the world's longest running national monitoring programme.

"It's a unique audit of the national resources of the UK countryside, and the scientific methods employed allow us to compare the results from previous surveys and pick up trends," explains Laura.

Previous conclusions from past surveys have shown that there was an 11% loss of cropland topsoil carbon ▶

Soil restoration
Data from a long-term study demonstrates that topsoil properties can be restored, states environmental scientist, Dr Laura Bentley.

between 1978 and 2007 – equating to around 5t/ha of organic carbon stocks.

These latest results come from a survey round carried out between 2019-2023, which tested more than 300 randomised and representative soil samples collected from arable and horticultural soils across the UK.

The survey team collected samples from 0-15cm depth taking a standard volume 5cm diameter core from the topsoil zone. Soil organic matter levels were assessed by standard 'loss on ignition' techniques in a furnace and – prior to being placed in the furnace – the researchers also assessed the bulk density of the soil samples.

"We're pretty confident that we have a suitable sample size that's nationally representative of the different cropland types found in the UK. As a result, while levels of carbon vary and not all sites showed a positive increase, the national mean for both tests is statistically robust," says Laura.

"What we've found is a reversal of the trend, with levels back to where they were 15 years ago, and, to the best of our knowledge, this is the first set of data to provide evidence of the positive effects of recent farming practices on soil carbon."

Alongside the higher soil organic carbon levels found, the soil analyses show that bulk density has significantly decreased from the levels found in 2007 by 0.04-0.06g/cm^2 of soil. "You'd expect such a response resulting in more open, less compact soils as the higher levels of soil carbon will help to stabilise soil structure," she adds. "It's another positive indication that soil health is improving as a result."

Bucking trends

Paul Hallett, professor of soil physics at Aberdeen University and president of the British Society of Soil Science, says the survey results go against common perception.

SUSTAINABILITY FOCUS

Laura suggests that the diverse range of sustainable land management techniques now being practiced by UK farmers is likely to be behind much of the increased levels of carbon in soils, although this has yet to be confirmed.

"These include the use of cover crops, more use of temporary grassland and switching to perennial crops and legumes. While there's no 'one-size fits all' approach to sustainable land management, such techniques can work in tandem when tailored to suit the farm and soil," she points out.

"While national estimates for the uptake of sustainable land management practices aren't available, a previous survey of 600 farmers suggests that 92% are engaging with these techniques. We think it's likely they've played a part in contributing to the improvements seen."

Laura believes that the move to reduced tillage and minimal cultivation to establish crops may have also helped in stemming

carbon loss from soils. Evidence from other surveys suggests that 40% of UK farmers now practice some form of reduced tillage – up from 25% in the 1980s. In reducing soil disturbance, less carbon will be released and lost from the soil system; similarly, the greater organic matter content will help reduce soil density.

Additional data also shows that wheat and barley straw removal peaked in the 1990s. This, combined with the increasing predominance of wheat over barley on farm, means the likelihood is that straw is more commonly left in the field, again which could contribute to building carbon reserves and the looser soils found in the survey.

While some farmers are introducing organic manures to their cropped soils and where they do, this can have a major effect on soil carbon levels. The researchers point out that Defra figures suggest that since 2007, the number of crops receiving manure has decreased nationally, so this isn't likely to be a significant contributor to the national average.

Laura emphasises that the survey only confirms carbon benefits in the top 15cm of soil. As a result, some could argue the positives might be restricted to this zone where farmers are increasingly focusing their efforts, and that there could be stratification with less carbon than being sequestered below the topsoil.

However, she points out that the effects in this upper zone alone are significant and there are other studies looking at the soil at greater depth where the use of deeper-rooted crops – including cover crops – is helping improve health and soil stability below the zone sampled in UKCEH's survey.

Looking at the bigger picture, Laura adds that high levels of SOC are an important part of the soil's capacity to function and support growth, and levels are built up over thousands of years. "Yet it's estimated that one-third of global soils are rapidly losing this resource. As a result, the ability of soils to support agriculture, strong biodiversity and flood and drought resilience, has diminished."

Across vegetation and soil, 94% of GB's organic carbon reserves are in the soil and it's important that they're kept in the ground and not the atmosphere in order to minimise climate change, she states.

Data set

Randomised and representative soil samples were collected from arable and horticultural soils across the UK as part of the UKCEH Countryside Survey.

And according to Laura, high levels of soil organic carbon loss from cropland soils are widely acknowledged as a potential contributor to climate change as well as compromising soil and ecosystem health. In fact, stabilising and reversing the loss of organic matter from cropland soils is a challenge for all nations to meet the United Nations Sustainable Development Goals.

"Looking at climate change policy and reducing our carbon footprint, scientists estimate that soils could potentially hold 5-10% of the total additional carbon required to help meet our climate change targets and it's important to boost these reserves.

> ***"It's heartening to have data to prove that the positive efforts taken during the past 10-12 years have worked."***

"To our knowledge, this data is the first to indicate a reversal of soil carbon loss in cultivated topsoils at a national scale and comes following a period of reported increased sustainable land management uptake, so it's good news not just for croplands in Great Britain, but also the rest of the world," champions Laura.

She confirms that the Countrywide Survey is now in its next monitoring cycle and will be reporting on trends across a range of farming and broader land habitats.

"Farming isn't an easy job and there are a lot of pressures to deliver on a range of targets. So it's great to see these positive trends on carbon in this latest dataset. While we can't confirm why they're being seen, it's a good sign for soil health in the round and probably reflects an increase in awareness on farm backed by regenerative agricultural practices."

OPTIMISM

Paul Hallett, professor of soil physics at Aberdeen University and president of the British Society of Soil Science, adds that the results go against common perception, offering hope that some modern farming practices may be starting to reverse long-term trends in declining topsoil organic carbon.

"This is a consequence of the widespread adoption of conservation practices, including a significant switch to minimum tillage. It's also good news for soil health and biodiversity, while with more accruable biomass in the top 15cm of soil, there'll potentially be a reduced requirement for fertilisers, a greater ability to absorb and hold water, and a reduced risk of erosion.

"We do have to be slightly guarded as the research is limited to the top 15cm; we require more hard scientific data to confirm any significant evidence, particularly from the point of view of wider carbon trading or storage.

"The UK and nations globally require greater investment – particularly in surveys of this nature – to obtain a deeper understanding of the drivers and impacts down the ▶

entire soil profile," stresses Paul.

Hutchinsons' Dick Neale supports the view that the recent on-farm adoption of soil improvement measures could explain the increase in soil carbon found in the survey. "The results don't surprise me in the slightest, but it's heartening to have data to prove that the positive efforts taken during the past 10-12 years have worked on a national scale.

"Soils and soil improvement is very much at the forefront of our engagement on farm, and have been ever since we launched our healthy soils assessment service back in 2015. One of the first courses any new entrant to our business goes on is soils, and we now have an on-going training cycle that updates all our agronomists on management, nutrition and microbiology."

Dick believes farmers have responded positively and wholeheartedly to the focus on better soil husbandry. "You only have to look at the fact that attendance figures at Groundswell are now 10-fold what they were 12 years ago.

"While you can, see, feel and smell the improvements in soil condition during the past decade, the problem has been to quantify these changes. This Countryside Survey goes some way towards doing that."

And like Laura, he believes that no single management change is responsible, rather a mix of techniques. "Incorporating straw, reducing ploughing and mixing up cultivations have all made a significant impact, but anything that adds organic matter or boosts natural soil recovery processes will play a part.

"Other improvements have come from forced changes where we've had to use stale seedbeds and shallow tillage to halt blackgrass, and the use of cover crops has meant less carbon is burned-off and more is introduced to the system," he comments.

According to Dick, while no-one wants to ban the plough as there are times when it's required, systems should never go back to deep inversion wholesale. "I'd advise continuing to add carbon to the soil, sometimes removing but other times leaving straw, and using digestate and other materials appropriately.

Collective action

Hutchinsons' Dick Neale believes farmers have responded positively and wholeheartedly to a focus on better soil husbandry.

"You can visibly see the benefits on farm over time and data such as this confirms trends have been reversed and that we're bringing soil back to life."

The crazy Englishman's olive gamble

"No one knows whether it'll work because it's not been done in the UK before."

DAVID HOYLES

Described by Italian producers as 'the crazy Englishman', a Lincolnshire grower is diversifying into producing olives – many miles further north than anyone else. *CPM* visits David Hoyles to hear his story.

By Mike Abram

Lincolnshire arable farmer, David Hoyles, has never been afraid to push boundaries on his farm, whether that's through the early adoption of technology, or, growing niche crops like mustard. But, those endeavours are nothing compared with his latest venture – planting 18,000 olive trees across 10ha with the ambitious goal of commercial UK olive oil production.

Sitting alongside his more traditional potato, sugar beet, wheat, vining peas and mustard production, David admits it's been a leap into the unknown. "The Italians call me 'the crazy Englishman'; no one knows whether it'll work because it's not been done in the UK before."

His inspiration came during a visit to Italy while looking at veg production, where he found high-intensity, high-production olive trees were being grown on a similar soil type to his own. "The farmers told me producers were moving to good land – growing trees close together, with the old system of widely dispersed trees being phased out."

GOING BIG

The initial plan was to plant a few hundred trees, but post-Brexit costs soared for phytosanitary and plant health inspections, making it cost-prohibitive to be just a hobby-scale operation, recalls David.

Instead, with inspection fees on a consignment basis, it made more sense

International inspiration

Inspiration came during a visit to Italy, where he found high-intensity, high-production olive trees were being grown on a similar soil type to his own, explains Lincolnshire grower, David Hoyles.
Photo: Mike Abram.

Mitigating risks
Varieties have been chosen for slightly later flowering and early maturing characteristics to mitigate two key climate risks. *Photo: Mike Abram.*

Planting setup
At David Hoyles's farm, four main olive varieties are being grown in blocks of 20 rows. This is in addition to six trial varieties in single rows in a high-density design. *Photo: Mike Abram.*

▶ to go big, he says, but that required serious research into the idea. As such, during 2022 and 2023, he spent time with growers, agronomists, researchers and processors in Europe, as well as conducting online research, before deciding on varieties that he hopes will survive and yield in UK conditions.

"We're pushing boundaries, but with climate change we're getting more sustained warmer periods. Also, while researching, I found the main producers, the cooperatives and privately owned labels who are investing in hundreds of hectares, are all planting further north.

"Their homelands of central Spain and central Italy are becoming too unreliable, with two years where temperatures have been above 40°C on regular occasions, stressing plants and reducing yields by 30-50%."

At David's farm, four main varieties are being grown in blocks of 20 rows. This is in addition to six trial varieties in single rows in a high-density design, with the tree lines 4m apart in 1m beds separated by 3m of flower-rich grass. Within the rows, David has experimented with different spacings from one to 1.4m, to determine the optimal spacing for UK conditions.

Varieties have been chosen for their slightly later flowering and early maturing characteristics to mitigate two key climate risks – late frosts in the spring and maturing too late to fully ripen – rather than out and out yield.

"The main blocks are the ones I've put my money on, while the six trial varieties I've been more uncertain about," highlights David.

For the main varieties, trees were planted north-south to maximise light exposure into 1m-wide 20cm depth beds created using a farm-made tine cultivator with ridge-formers and a press wheel to ridge roll.

Planting was GPS-driven using an imported olive tree planter attached to a tractor in a process that took five days to complete. "It functions like a veg planter with a carousel on the top where you drop the trees, which moves round to plant the trees with a press wheel squeezing them in."

Stakes to protect the young saplings from the prevailing southwest wind were then knocked in by hand, with the trees taped to the stake.

David says environmental conditions have played a part in survival rates, with the variety closest to woodland that borders one edge of the field experiencing higher first winter mortality, likely due to increasing shading prolonging frosts and colder temperatures. He adds that rows further away from the wood progressively showed better survival rates, with any non-surviving trees replaced with another of the same variety and marked for monitoring.

Other differences between varieties are apparent, he suggests, not just in leaf shape and growth habit, but also in number of flowering sites, fruit shape and development, and uniformity.

Perhaps typically, five of the six trial varieties look promising, while two of the main variety blocks are struggling to some extent in year two. "But, it's only year two – the plants are three years old and next year might be different.

"The varieties respond to the climate in different ways. This year it might be good and next year it might not be, if they flower at a slightly different time and we get an early frost, or they take longer to mature."

Managing the olive grove is far more intensive than he'd originally thought, admits David. "The books and other farmers don't really tell you how involved it is."

This is because typically, he's spending around two hours a day walking through the grove to monitor the trees. Key tasks include removing the growing point once the tree is 80cm tall to eliminate apical dominance and encourage side branching. Then, once there's enough growth, all of the leaves are stripped from the lower 50-60cm to create a clear trunk – essential for future mechanical harvesting.

"Eventually, as we keep pruning, the trees will bush out and look like hedges – around 1.2m wide and 2.4m high. That's the maximum capacity the self-propelled harvester will cope with," he explains.

According to David, pruning is no one-and-done task – last year he went through all 18,000 trees around five or six times. While this year – a better growing season – it's already been three or four times and it's only mid-growing season.

Each row takes around two hours and with 80 rows, it's no small undertaking, he comments. Plus at the same time, he's monitoring for pests and diseases.

David points out that one currently unidentified insect lays its eggs in the growing point, which the larvae eat out causing potentially unwanted branching. This season, he's also finding large privet hawkmoth caterpillars in the grove causing damage.

Having decided to implement a no-insecticide, no-fungicide policy, removing caterpillars by hand as required is the only option. "The grass and wildflower mix was planted mostly to encourage beneficial insects. I'm sure the longer it's insecticide-free, then nature will balance itself out."

Xylella fastidiosa is another concern. A bacterial disease transmitted by insects, this causes wilting and tree death known as olive quick decline syndrome, and, there's no cure. "When you import trees they have to be certified as Xylella-free," says David. "But I don't think we get it in the UK yet."

Nutrition and water are supplied through an advanced fertigation system which allows David to control irrigation to each of the four main variety blocks separately through a pressure-regulated permanent trickle tape.

Despite the common perception that olives 'grow on red rock in the middle of nowhere' they require a 'remarkable' amount of water at certain times to get the oil quality and quantity desired, he says.

To monitor water uptake and potential deficits, David uses soil moisture probes down to 1m depth. "It's been useful to show us how the trees are growing and the root system developing. We now have water use down to about 40cm; last year it was at only 10-15cm.

"I didn't really believe the data so I dug some trees up and was disappointed with how poor the rooting was last year, but I think it was the weather. This year they've motored."

One challenge is that the 60cm spacing on the drip irrigation tape doesn't quite line up with the tree spacing, comments David. "In a wet year like last year, it wasn't a problem, but this year's dry conditions have meant some trees have been short of water necessitating some hand irrigation."

An integrated Dosatron system precision applies nutrition through the irrigation tape. Using a combination of his agronomic knowledge and research into what key nutrients the trees require at different growth stages, he varies what's being dosed.

"I have a blueprint from research for what's required during early spring vegetative growth, then flowering, fruit development and for established fruit. But I'm tweaking it because our plant growth is variable.

"If every plant was flowering at the same time it'd be easier, but they're not, so it isn't an exact science. At the moment, some weeks I'm thinking the backward plants require nutrients for root development, and then other weeks it's the forward ones that require nutrients for fruit swelling.

"It's not as precise as I thought it was going to be, but hopefully in a few years, it'll be easier to manage."

MAIDEN HARVEST

Rather excitingly, the first olive harvest could be as soon as this autumn. And while not every plant has fruit, he's hoping that those that do will ripen to an off-green colour. "It's like pulling a raspberry – there's a little resistance but they do come off."

In the first years, harvesting will be by hand until production is significant enough to justify a harvester. "I'm hoping I can rent a self-propelled harvester used for blackcurrants in the summer as it's the same core machine and you just buy the olive harvesting kit to change the sieves and fingers," he explains.

> ***"It's not as precise as I thought it was going to be, but hopefully in a few years, it'll be easier to manage."***

In theory, yields should double each year until the trees reach maturity after around 10 years, but David acknowledges with the inherent risks and uncertainties with olive growing in the UK, harvest volumes are an unknown.

Ultimately, the plan is to process the olives to make extra virgin grade olive oil – the key being to minimise impurities and the time from harvesting to processing, he says.

"To give the best chance of making the grade, traditionally, growers would harvest olives in the morning.

Product range

Oil will be sold in 250 or 500ml bottles along with associated merchandise such as honey, olive leaf tea, clothing, art cards and imported olive wood products. *Photo: Mike Abram.*

In the afternoon sun, they then use their covered area to grind up the olives to produce a pumice before spinning it out to get the oil.

"That process hasn't really changed – even the big producers are harvesting and processing within a few hours, so my plan is to do much the same. I'm going to buy a machine that chops up the olive and stone, centrifuges it and spins out wastewater and oil. You filter the oil and store in airtight stainless-steel tanks before being bottled.

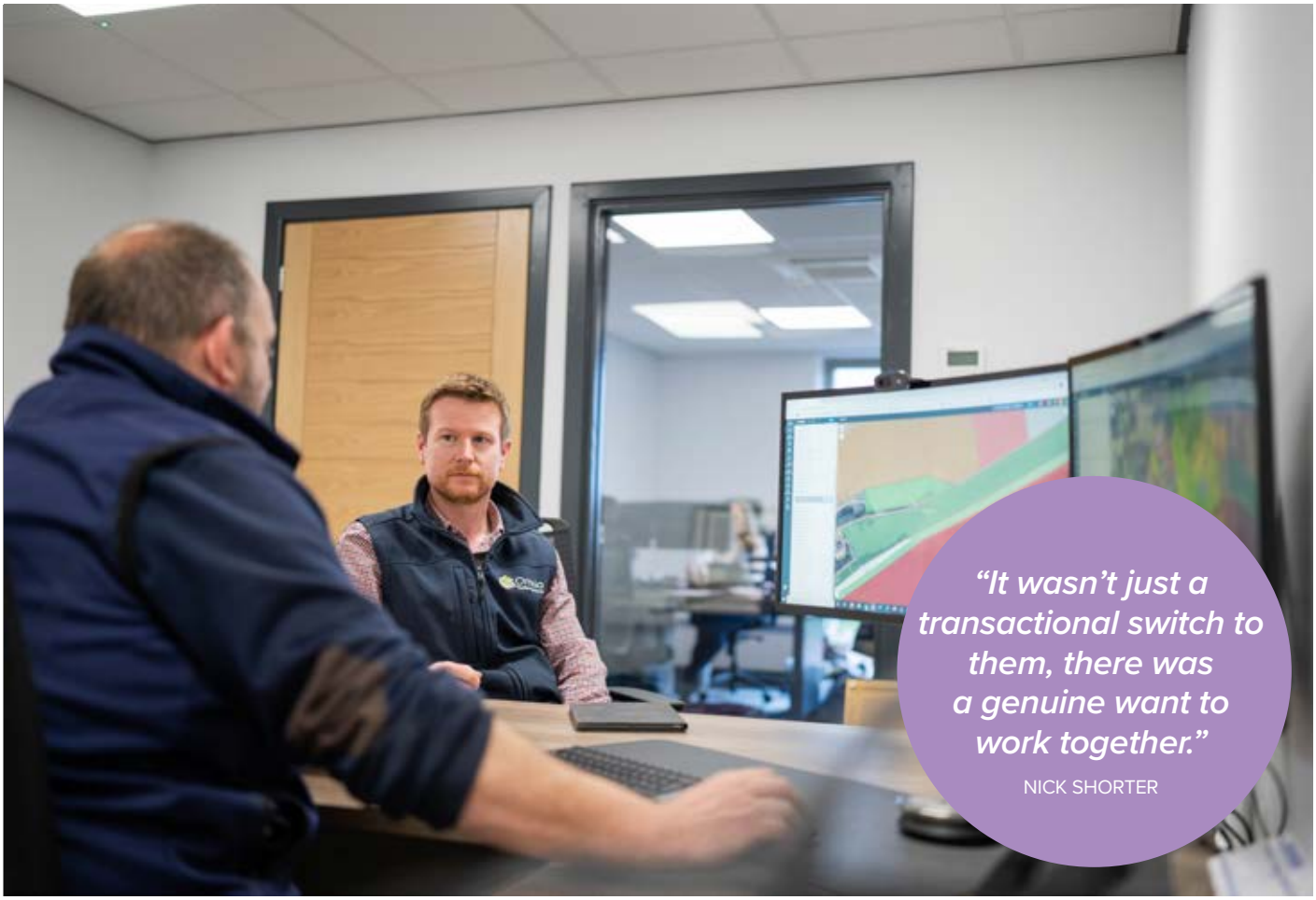
"Initially I'm going for a machine that can process either 50 or 100kg/hr. When hopefully there are more olives to harvest, I'll buy a second and third machine, or a buy a small version of the kit big producers use which is more of a production line," he explains.

That separates out the processing into different tasks – washing, de-stoning, mashing, centrifuging and filtering. "At which point we'll require a new building."

Each variety will be processed individually, he hopes, so he can sell by named variety and highlight their distinct attributes, health benefits and flavours. Product will primarily be in 250 or 500ml bottles labelled with The English Olive Company brand he's already set up to sell associated merchandise, such as honey, olive leaf tea, clothing, art cards and imported olive wood products.

"We plan to sell our oil online and through local shops and restaurants initially. If we have hundreds of litres to sell, which would be a nice problem, then that might change," he concludes. ●

Making the switch



Following the Omnia upgrade launch more than a year ago, growers with businesses of all sizes are finding the lure of an all-in-one farm management software solution too tempting to ignore. *CPM* finds out what's involved in making the migration.

By Janine Adamson

Deciding to swap providers whether that be energy, mobile phone network, home insurance or finance-related matters, can often be laden in administration and unwanted hassle.

Add in the fact that in the case of farm management software, this can mean juggling multiple companies, various data streams and a wealth of historical information – while maintaining 'business as usual' – and it's understandable why the task may be perceived daunting.

Yet since the launch of its upgrade more than a year ago, Omnia has upped the ante in this space, including ensuring the migration process is as pain-free as possible, and that users can access continued support well beyond the initial change-over period.

EXPERTISE

Key to this is a highly-skilled UK-based workforce both in person and behind the scenes, highlights Hutchinsons' head of digital agronomy, Lewis McKerrow. "Whether that's our digital specialists who visit customers on-farm, or speaking to our Omnia

Support team

Key to ensuring migration to Omnia is pain-free, is a highly-skilled UK-based workforce both in person and behind the scenes, highlights Hutchinsons' Lewis McKerrow.

Knowledge hub launch
Omnia's Oliver Wood says the recently launched knowledge hub features a range of short training courses and learning paths to go beyond 'how-to' and into 'why'.

support team on the telephone or through video link, someone will be available to answer queries.

"Often this can depend on the IT literacy of the individual client, but for those who are confident, we also have a suite of help videos within the Omnia platform itself, to guide users through the different processes, step-by-step," he explains.

To rewind a little, Omnia was relaunched by Hutchinsons with the aim of producing a new style of farm management software. More than just a technology tool, its upgrade was promised to be a fundamental shift in agricultural practice to ensure productivity and sustainability gains.

With such a compelling offer – from streamlining crop production plans to simplifying record-keeping – growers with farm businesses of all sizes are now taking the plunge and making the switch.

Head of Omnia, Oliver Wood, says in many ways, the process couldn't be easier. "It usually takes a few days to get on board, but for a simple holding, it might involve just a few hours to set up a new account. It varies depending on the complexity of the farming system," he explains.

"Importantly, we encourage all individuals to be active during that setup process because it means they're hands-on with the platform as quickly as possible and learning as they go."

Lewis adds that from the team's perspective, first steps are to understand a grower's existing system(s) and what data will be available. Acknowledging not all individuals use digital solutions, in some cases, this might mean making the journey from a paper-based approach.

Then, it's considering what's a priority for that particular grower. "It's usually relatively simple to import the basics over such as field boundaries and cropping rotations. We then look ▶

Stress-free migration

How one Scottish Omnia user rates the recent upgrade

Although it wasn't a hard switch to Omnia for Graham Innes, rather a gradual migration, he says the process couldn't have been simpler.

Graham – who co-runs contract farming business A P Innes in the Scottish borders – manages 850ha comprising winter wheat, winter and spring barley, spring oats, oilseed rape and vining peas.

His first experience of Omnia came around 3-4 years ago when he wanted to find a digital solution to manage nutrition applications and seed use. At the time, Omnia couldn't fulfil all of his requirements, but since the upgrade, that's changed.

"Once Omnia could offer the additional functionality we required, such as evaluating gross margins, and creating and applying crop protection plans and programmes, we made the decision to fully move over from our previous provider.

"We were warned to allow a couple of days for the migration to complete, but after a few hours I received a phone call informing me it was ready to go. It genuinely couldn't have been any easier," he stresses.

Regarding the process, Graham explains it was all done for him by Omnia's tech team, creating a stress-free experience. And now, with everything in one platform, he's using it every day both from the office and through his mobile phone.

"There's such a benefit from being able to see the live details of the very field you're stood in – from the crop variety to Terramap soil mapping results – all with a few simple clicks. And importantly for me, the app itself has improved significantly since the upgrade. Whereas before it was quite clunky, now it's much better and works consistently," he adds.

Now well in his stride with the technology, Graham says whenever there's been a problem, he's preferred to contact the Omnia support team via telephone or email. "They are excellent, but even this aspect has improved as time has gone by, which is reassuring as more customers migrate over to Omnia."

Perhaps contrary to expectation, Hutchinsons doesn't manage the agronomy for A P Innes, instead it's overseen by an independent provider. Graham points out that all parties are content with how Omnia is performing, and he believes it demonstrates it's not just for existing Hutchinsons customers.

Speedy switch
Although Graham Innes was told to allow a couple of days for the migration to complete, after just a few hours he received a phone call saying it was ready to go.

"Our agronomist uses Omnia to input his spray recommendations for the business, so as promised, everything is in one place. They can also utilise the help desk in the same way I would, although he's so familiar with the platform now that he rarely has to."

A final aspect that's significantly impressed Graham is Omnia's integration with machinery through Omnia Connect. "Having this synchronicity is a big win; I'm extremely happy," he concludes.

Built for success

Because Omnia has been built from mapping fundamentals, it sets it apart from other solutions which have been developed using databases, believes Velcourt's Nick Shorter.

at aspects such as yield data and soil analysis results," highlights Lewis.

For larger or more complex businesses, the Omnia team will devise a defined action plan, taking a project management-style approach. As well as the over-riding key objectives, this takes into account the most appropriate time to move over to Omnia within the season, and the range and experience of individuals requiring training.

This systematic approach was critical for Velcourt when navigating the migration to Omnia, shares CEO, Nick Shorter. With 44 farm managers and more than 100 farms in its portfolio, the goal was to make a 'hard switch' across all sites and hectares.

"Previously, our farms were operating using Gatekeeper for record-keeping plus various additional platforms for general management and precision-type activities. We wanted a route to assimilate all of that function in one place," he explains.

Having made the decision to switch to Omnia, with a desired launch date of 1 September 2024, the work began six months prior when a project management team was identified. Comprising both Omnia and Velcourt individuals, they then created a shared action plan.

"Omnia's in-house tech team – which importantly, is UK-based – worked hard to ensure that all of the functionality we required was ready for live date. It wasn't just a transactional switch to them, there was a genuine want to work together.

"As with everything, there were a few niggles and additional desires that we identified during that process. But, it was rewarding and greatly appreciated to see the updates being made, often based on our individual feedback," says Nick.

Because Omnia has been built from mapping fundamentals, it sets it apart from other solutions in the market which have been developed using databases, he believes. "Mapping has become key in modern systems. As we're using Omnia for telematics and field analysis, it's proving very intuitive.

"Furthermore, its general functionality has been designed from scratch with UK agriculture in mind – as a user, this is clear. It's also excellent in terms of cloud-based inter-device functionality – whether that's an iPad or laptop, across individual users – it's live and updated."

FURTHER UPDATES

Since its relaunch, Omnia has revealed additional functions and builds to the platform as part of its continuous development. Most recently, this has meant an upgrade to the report module, and, a new knowledge hub, points out Oliver.

"We wanted to expand on the existing help videos to provide a more rounded user experience. As such, the knowledge hub features a range of short training courses and learning paths to go beyond 'how-to' and into 'why'.

"There's a blend of video, text, audio and quiz material all to encourage user engagement. The Omnia team will then monitor the trends within the hub, so we can respond to the most popular aspects and develop those further," he adds.

NEXT STEPS

A function Nick would like to see developed is inter-business analysis, to enable comparisons to be made between individual farms. "This would be very useful for a business like Velcourt, or for those who may be managing multiple sites; producing one report would be powerful."

However, something he says he's been impressed with from the start has been the ongoing support, which continues even now. "It's about ensuring reality means expectation, including identifying additional functions so Omnia can expand and grow."

> ***"Through the business, we can access highly experienced BASIS- and FACTS-qualified individuals, which is critical when it comes to compliance and agronomic tasks."***

Lewis believes the reason why Hutchinsons is ideally placed to deliver such an agile, living solution for the industry, is because of the wealth of expertise at hand. "Through the business, we can access highly experienced BASIS- and FACTS-qualified individuals, which is critical when it comes to compliance and agronomic tasks.

"These individuals supplement the Omnia team's knowledge even further. We can also reach out to crop or area specialists, who are at the fore of regulation, product stewardship and regional nuances."

Digital Direction

As arable farms progress towards a digital future it can be difficult to know how to navigate data generation, capture and analysis, in order to provide worthwhile benefits to a business.

Through its Digital Direction series, *CPM* is working with some of the industry's leading companies to understand the latest data-driven solutions from an on-farm perspective.

***CPM* would like to thank Hutchinsons for sponsoring this article and for providing privileged access to staff and the material used to help bring it together.**

Nature NATTERS

What next for nature?

WITH MARTIN LINES

We seem to find ourselves in a two-tiered farming system. We have those that are in Countryside Stewardship alongside those in an overgenerous Sustainable Farming Incentive (SFI) scheme, receiving public money to deliver public goods.

Then, we have the rest of the farming industry, who'd previously received area-based payments and now have a phasing-out imbursement of just £600 for this coming year – a mere drop in the ocean.

With SFI 2024 maxing out its budget and closing prematurely, many have been left with a hole in forecasted budgets. Having a 'public money for public goods' government-funded scheme without proper budgetary controls on individual holdings was always going to be a problem, especially when the money runs out.

There are also many thousands of farmers whose Countryside Stewardship agreements expire at the end of this year, joining those in Higher-Tier schemes also due to expire who'd planned to enter SFI 2024 to replace the payments. This leaves them with the dilemma of what to do with these nature-friendly areas of land next year, as the forthcoming revised scheme won't be ready to move seamlessly into.

I speak to hundreds of farmers and I know many will decide to put these areas back into cropping. And this will be done despite these areas often having been chosen for schemes due to being in awkward corners or less productive areas. What will this do for their bank balances, nature recovery, and even farm resilience?

For certain nature-positive actions to be delivered there are clear costs to the farmer. Aspects like planting wild birdseed or pollen-rich mixes and nectar-enhanced margins take time and management. There's growing evidence that these increase the number of pollinators and beneficial insects while improving soil health, which helps to reduce input and pesticide costs. But to the farmer, these up-front costs for nature-positive actions aren't necessarily associated with the financial resilience that nature provides.

Research shows that nature can recover significantly when a minimum of 10% of the farmed landscape is managed using nature-friendly methods; the exact features and approaches to achieve this will vary just as much as our landscapes do.

The government has legally-binding commitments to halt nature decline by 2030. To achieve this, most farmers will have to deliver environmental improvements. As well as nature recovery, there'll have to be actions that support food security such as improving soil health, climate adaptation and water management. There'll also be a list of targets in the new Environment Improvement Plan that's due to be released.

It's extremely difficult for Defra to budget for this or next year's SFI 2023 or 2024 agreements because many farmers haven't completed their annual declarations. Current commodity prices will likely force increased payouts in some areas of the schemes, leaving Defra with an unknown bill to pay from an already underfunded pot.

So what do we as land managers and farmers really want and require from a future 'public money for public goods' scheme? What do we most want support with to help us transition?

Currently, many of our costs go toward the maintenance and enhancement of the natural assets we have on our farms – bigger, bushier hedges, trees, stone walls and clean water courses are elements of our landscape the public cherishes. But what about the unseen key players like our soils? Farmers benefit from building soil health via improved cropping but the wider public also benefits, as we can retain more water in times of drought, slow the flow of excess rain, and sequester carbon, providing the foundation for biodiversity recovery.

The management of these core elements isn't rewarded by the market alone. That's where we require the funding. These assets often benefit the farm business through building climate resilience or improved soil health, but there's no immediate financial return. We have to see environmental land management schemes as more than just an income stream.

Defra has to make rapid decisions about how to support those with expiring agreements to continue delivering for nature before the new scheme is ready. Ideally, the next iteration of the scheme would be more future-proof: what are the core elements of environmental stewardship that public money should support across all farms throughout the nation? Do these elements join up in a way that supports farmers in delivering for nature, the public, and their own balance sheets?

With the majority of arable farmers making poor returns this year following two very wet seasons, prompt access to income streams that reward the delivery of public goods will be essential for farm businesses to remain viable. Otherwise, with narratives such as 'national security equals food security' offered while funding for farmers is whipped away, the government further risks losing farmers' trust and willingness to engage.

I believe the government has a vision of nature-friendly farming but aren't communicating this in farmer-appropriate language or consistently delivering essential support. This makes it difficult or near impossible to invest wisely. With a whole-farm approach and public funding for public goods, we can deliver for the public, nature, food security, and importantly, ourselves. ●

YOUR CORRESPONDENT

Martin Lines is an arable farmer and contractor in South Cambridgeshire with more than 500ha of arable land in his care. His special interest is in farm conservation management and demonstrating that farmers can profitably produce food in harmony with nature and the environment. He's also chair of the Nature Friendly Farming Network UK. @LinesMartin martin.lines@nffn.org.uk.

Saving bees one hive at a time

"We provide responsible businesses with the opportunity to have their own fully-managed honey bee colonies on their premises."

EMMA BUCKLEY

Installing and managing beehives for corporate clients is not only helping to meet sustainability goals, but is also striving to improve the future of the native honey bee. *CPM* meets Buckley's Bees, the Cheshire business behind the initiative.

By Janine Adamson

Following a successful awareness building campaign during recent years, society appears to be well on-board with the importance of pollinators – mainly bees – and the role they play in maintaining a healthy ecosystem.

However, the involvement of corporate businesses can also play a positive part in ensuring their survival, believes Emma Buckley.

In a bid to explore this opportunity further, Emma and her father David set about engaging with businesses and individuals through a unique business model – supporting companies to install and manage their own on-site honey bee colonies.

"We provide responsible businesses with the opportunity to have their own fully-managed honey bee colonies on their premises. Where this isn't possible, we also offer the option to sponsor hives within our own apiaries.

"The hives are low-density and promote positive breeding for behaviour, good temperament and hygiene. Equally important is a focus on local breeding, particularly *Apis mellifera mellifera* (European dark bee) – a subspecies of the western honey bee – which is native to Britain," she explains.

It's important to note that Emma's passion for honey bees isn't something new – David is one of the longest surviving members of BIBBA (the Bee Improvement & Bee Breeders Association) and will celebrate his 60th year of beekeeping in 2026.

Consequently, she was exposed to the world of bees from a young age, highlights Emma. Together they offer more than 80 years of beekeeping experience, based from the family's livestock farm in Cheshire.

While targeting the commercial world is a relatively new concept for the family, Buckley's Bees already has an impressive client list including Taylor Wimpey, CGI and Bentley Motors. And aside from hitting corporate social responsibility targets (CSR), having an on-site hive is beneficial for employee engagement as well yielding the obvious – honey, says Emma.

"In some cases the bees are perceived as pets and as a result, unlock another level of engagement while re-emphasising where food comes from and why insects are so important."

Recognising that not everyone is as knowledgeable about bees as the Buckleys, the support provided in getting things off the ground is plentiful.

"Aside from installing the hives we can also provide advice on how to increase nearby food sources as well as making informed considerations

Unique business model

Emma and David Buckley set about engaging with businesses and individuals through supporting companies to install and manage their own on-site honey bee colonies.

Targetted action

By using AgriSound's Polly device to listen within a crop and measure insect abundance, growers can target specific areas with proactive measures, such as adding a hive, explains the firm's Casey Woodward.

for the surrounding environment and wider biodiversity. An example being a new housing development where we recommended planting wildflowers rather than a standard green space because we knew it had more potential.

"We then employ local beekeepers to look after the hives on behalf of our corporate clients. Being UK-wide, it wouldn't make much sense for dad and I to do this ourselves and it wouldn't be tremendously sustainable," adds Emma. "But crucially, we're able to create paid employment opportunities for our fellow beekeepers."

The freelance beekeeping team includes both hobbyists and professionals, hired on a range of contracts depending on their availability. "We do this to fill the gap in bee management and to help those who are less experienced to build their understanding. Dad also uses his wealth of experience to help with knowledge transfer."

As cited on the company's website, the ethos behind Buckley's Bees isn't profit-driven, it's based on a genuine desire to do more. In fact, commercial honey production couldn't be further from the end goal.

"We want to play our part in reversing native honey bee decline. In 1900 there were an estimated 1M honey bee colonies in the UK, yet now there are just 270,000. Another problem we're facing is a shift in species – we desperately want to see native bees back in the UK.

"Not only are they hardier and more frugal when it comes to finding food sources, but they're also more docile. In fact, we rarely use gloves when we're inspecting our home-bred hives," states Emma.

To that end, not dissimilar to livestock, the business implements a closed-breeding system to produce its own queens and colonies. This is to help ensure the stock they install isn't diluted by imported strains which can lead to aggression and disease issues.

Looking to the future, Emma, a Harper Adams graduate, says she wants to expand her client base including working with more arable farmers. "As well as our typical corporate customers, we're happy to work with individual farming businesses too, whether that's installing hives or providing management advice.

"Knowledge regarding the importance of habitat diversity is certainly improving, no doubt accelerated by the introduction of SFI. It's just making those links between rural and urban communities, helping to establish connected habitat corridors for much broader pollinator coverage," she suggests.

Plans also include continuing to work with local schools which the Buckleys are already adept at, and eventually, developing an education centre at Buckley's Bees HQ. "I'd love to use the bees and the livestock farm for education and to support mental well-being," adds Emma.

For those looking to better understand their on-farm pollinator requirements in the first place, there's now technology available to help. Delivered by AI-driven company, AgriSound, the 'Polly' system involves a smart listening device which uses advanced bioacoustic algorithms to automate insect monitoring.

Founder Casey Woodward says capturing this sort of data can be used in two ways – to inform precision pollination requirements, or, to help measure biodiversity for stewardship reporting.

> ***"Sub-optimal pollination is a low-hanging fruit when it comes to improving the success rate of crops like oilseed rape."***

"The OSR Reboot project led by AHDB and United Oilseeds has found that sub-optimal pollination is a low-hanging fruit when it comes to improving the success rate of crops like oilseed rape; pollination is key for both yield and quality gains.

"By using Polly to listen within a crop and therefore measure insect abundance, growers can target specific areas with proactive measures, such as by adding a hive. In some instances, this could mean working with companies like Buckley's Bees," he explains.

Product innovation

Polly is based on a solar-powered unit that's optimised to attract pollinators. Data is then transmitted via a cellular connection and accessed through a secure data storage platform.

Looking at Polly in more detail, the technology is based on a solar-powered unit that's optimised to detect pollinators like bumble bees and honey bees. Data is then transmitted via a cellular connection and accessed through a secure data storage platform.

Once growers have purchased the unit, there's a monthly subscription fee that covers 'wrap around care' from pollinator experts via Whatsapp, who assist with critical data interpretation, adds Casey.

"This is to ensure growers maximise the value from their pollinator services. Furthermore, during our development phase, it became apparent that the preferred communication method is WhatsApp because it's simple and direct, and avoids users having to log into a specific platform if they don't want to."

With Polly formally launched in 2023, AgriSound has already developed relationships with retailers such as Marks & Spencer, as well as working with a range of individual growers.

Casey says the data shines a light on pollinator performance. "Behavioural patterns, especially foraging, reveal not only the quantity of pollinators, but also colony health status including bee pest and disease pressure.

"Equally, growers may have pollinators, but Polly reveals they're in fact foraging in wildflowers or a nearby crop and not the target area," he concludes.

How fire suppression could better protect combines

"The combination of high temperatures, fine dust and enclosed compartments creates the perfect storm."

FRED DULWICH

With farm fire losses topping £110M in recent years, attention is turning to technologies that can protect the machinery at the heart of harvest. *CPM* explores how fire suppression is moving from heavy industry to agriculture – and why some think it should be standard on combines.

By Charlotte Cunningham

Harvest 2025 will be remembered as one of the most challenging in recent memory. Long spells of hot, dry weather pushed crops rapidly through to maturity, leaving fields brittle and combines working in conditions more reminiscent of southern Europe than the English countryside.

For many growers, the season has been characterised by record-breaking work rates and nerve-wracking conditions in equal measure.

Unfortunately, the dry summer has also fuelled one of the industry's most stubborn hazards – fire.

According to NFU Mutual, farm fire losses across the UK reached £110.3M in 2023, up 37% from £80.4M in 2022. Vehicle fires accounted for £37.7M, with tractors alone making up £20.4M of that.

While combine harvester fire claims fell from £11.1M in 2022 to £7.4M in 2023, insurers stress that the figures remain eye-watering. And the true cost often extends beyond the insurance cheque: harvest downtime, lost crops, replacement costs and stress can turn a single blaze into a season-defining disaster.

So, why – in 2025 – are so many combines still unprotected? And could fire suppression systems, commonplace in industries such as quarrying and recycling, soon become part of the standard combine package?

TRANSFERABLE TECH

To understand how suppression systems are finding their way into agriculture, you have to go back to 2010. Fireward, a well-known name in the fire suppression market, began not in farming but in waste and recycling.

"The owners of Fireward were running heavy plant and machinery in hazardous conditions where fires were frequent," explains Fred Dulwich, head of sales at Fireward. "The systems available at the time weren't as reliable as they could be and were quite cost prohibitive.

"So they set out on a mission to supply the best fire systems possible into any given market, but at price points that didn't make it prohibitive for people to protect their assets. Once finance becomes the blocker to safety, you have a bit of a problem."

For more than a decade, Fireward systems became standard in waste

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sites, quarries and ports. “Those industries didn’t need convincing,” he continues. “The machinery operates in high-risk environments, the risks are well understood, and downtime is simply unaffordable. Fire suppression is part of the package.”

Agriculture, by contrast, has lagged behind. While there has been uptake sporadically, the market has been slower to embrace fire suppression systems, notes Fred. “Money has been a question, but more and more now, when new combines are costing well in excess of £500,000 new and the harvest window is so narrow, the effects of a fire can be make or break.”

So how exactly does it work? At its heart, the Fireward system is designed to be simple, robust and self-sufficient. “Within the engine compartments and hazardous areas, you have a pressurised pneumatic tube,” explains Fred. “It’s a heat-sensitive plastic tubing routed around the machine, and it’s pressurised with nitrogen.

“There’s no electrical power required, no batteries, no complex modules. It just has to be pressurised. If a fire touches the tube and melts it, the gas releases, which lifts a valve in the cylinder and discharges the agent automatically.”

This fail-safe design is key. “The beauty of the pneumatic system is that it fails safe. If there’s an incident, it has to go off,” he stresses.

“On combines, in order to counteract the superheated components and the potential risks of reignition post-discharge, use a dual-agent system. Dry powder is the primary agent and there’s nothing better in the market for putting out fires. It gets everywhere, discharges in seconds, and knocks the fire out.

“But with combines, because of the value and the risk of hot components, we add a supplementary wet agent that’s distributed to the turbochargers, the exhaust manifolds and the DPF. It knocks down engine temperature and minimises the chance of a re-flash. In other words, the fire is not only extinguished but the heat source that could reignite it is cooled down.”

Perhaps one of the most advantageous aspects of suppression is its autonomy. “The ethos is to make sure there’s no human intervention required,” explains Fred. “It doesn’t matter if the fire starts when the machine is going flat out in harvest or when it’s parked up in the yard overnight. Twenty-four hours a day, seven days a week, 365 days a year, that asset is protected.”

Autonomous advantage

Perhaps one of the most advantageous aspects of the Fireward suppression system is its autonomy, with the ethos behind the design to make sure no human intervention was required, explains the firm’s Fred Dulwich.

This is crucial in agriculture, where many machinery fires begin not during the day, but when machines are cooling down. Smouldering straw or a leaking hydraulic hose can ignite minutes or hours after a combine is shut off. With no one around, the outcome is often a total loss, he adds.

"With handheld extinguishers you're relying on someone being there, willing and able to tackle the fire. That might mean a farmer leaning over a hot engine bay and being directly next to a dangerous incident. We want to remove that risk completely."

Of course, this system comes with an additional cost on what is already a pricey asset. But while a common perception is that suppression must be prohibitively expensive, in reality, the numbers tell a different story.

"As a rough ballpark, a fire system will cost you about one percent of the value of a brand new combine," explains Fred. "That's not really a lot when you're spending that much money on the kit itself. They can be fitted retrospectively too, so it's about weighing up the value of that combine compared with the cost of protecting it."

PRE-HARVEST SERVICING

Annual servicing, typically carried out pre-harvest, is a fixed fee nationwide. "Whether you're in the top end of Scotland or the deepest part of Kent, it's the same," notes Fred. "We don't add mileage; it's a flat fee.

"The service itself is basically a recommission," he adds. "We check pressure, check for damage and make sure the system is live. Once it's done you know you're protected for another season."

One grower who's been impressed with the system is Mick Baker, farm manager at Chatterton & Cooke in Lincolnshire, who says fitting the fire suppression system to his new John Deere X9 was a 'no-brainer'.

"I'd seen the system at shows like LAMMA, and our neighbours had a big fire the other year on a combine," he says. "It's getting a lot more common so I decided that the next combine – it didn't matter what colour it was going to be – was going to have one fitted."

The system was installed by Ben Burgess before the combine was delivered ahead of this season. "It was part of a package deal for us, but when you look at the numbers on a £1M combine, it's cheap. If you

Pneumatic power

The Fireward system is in essence based on a heat-sensitive pneumatic tube. ▶

had a fire, you'd lose that much in crop damage pretty quickly. I think particularly if you build it into the package, it's a no-brainer."

That said, he believes adoption is still far too low. "Not many people are using them and I don't know why. I think dealers or manufacturers should be offering it as an option in this day and age, especially with how many combine fires there are now, balers too. It's a real problem. Engines are all enclosed now because of emissions, they run hotter, and it just adds to the risk."

Mick recalls a conversation with a New Holland mechanic on a previous combine. "We had a CR10.90, and the mechanic – a proper old-school guy, 60-years-old – said, if you ride on the back of the combine the engine is firing straw all the time, every second. You don't see it, but it's happening.

"That's just part of the beast – engines are running hotter and everything is boxed in. Fires are only going to become more common."

This chimes with Fred's view that modern machinery design is exacerbating the risk. "The combination of high temperatures, fine dust and enclosed compartments creates the perfect storm," he says.

> *"It's good to know that if the worst happened, we have some protection in place."*

An additional benefit of installing the Fireward system is that NFU Mutual recognises accredited suppression technologies with premium discounts. "All the systems we supply go through international testing laboratories, such as the Research Institute of Sweden (RISE SPCR199) and the Australian AS 5062," explains Fred.

"If you have a system that's passed those tests and is installed to those standards, NFU offers a discount on the combine premium – and the Fireward system meets those requirements."

Mick concurs: "Not many people know about this discount. With premiums going up the way they are, anything that helps bring that down is worth it."

In terms of service and support, Fireward backs its systems with a nationwide network of engineers. If a system discharges during harvest, they prioritise immediate response. "If someone calls up and says they've had an incident, we reroute an engineer straight away," says Fred. "In harvest, you can't wait days, you should be talking hours."

With the benefits seemingly ample, it begs the question – why aren't fire suppression systems standard? Both Fred and Mick point to awareness. "At shows this year, farmers were saying: 'I didn't even know you existed,'" says Fred. "The technology is tried, tested and keeps people safe, but agriculture simply hasn't known it was an option."

Mick agrees. "When you sit down to buy a combine, there are endless options. But suppression isn't one of them; something has to change."

It just makes sense

When talking about a system that costs so little compared with the price of the machine but can save lives, protect assets and keep you harvesting on time, it makes sense, reckons farmer Mick Baker.

SCALABILITY

Although combines are the obvious focus when thinking about machinery fires, Fred stresses that the technology is scalable. "We've protected telehandlers, tractors, forklifts – even micro diggers up to 400t mining excavators."

Going forward, Mick believes suppression should become part of the standard spec. "I don't know why it isn't already. When you're talking about a system that costs so little compared with the price of the machine but can save lives, protect assets and keep you harvesting on time, it makes sense.

"It's also worth remembering that dealers don't keep spare combines. If our X9 went up, we'd be stuck. We want to cut 100 acres a day – every day you're stopped, you're losing money."

As Harvest 2025 winds down, although minds may be far from thinking about cutting the 2026 crops, Mick believes now is an opportune time to protect combines well in advance of next season "We've done very well with the X9 this year and the Fireward system has given us peace of mind. It's good to know that if the worst happened, we have some protection in place."

Fire protection as standard?

Farm manager Mick Baker (right) has had the Fireward system installed on his new John Deere X9 combine and believes such systems should be standard on high-risk machinery.

What's new in combines

Following a busy 12 months of launches, here's a look at some of the latest combine innovation to hit the market

Marking 30 years of the Lexion, Claas is introducing a revised line-up for the 2026 harvest, including the new Lexion 8500.

The 8000 series will now include five models, with the 8500/8500 Terra Trac positioned as the entry-level machine, powered by a 12.4-litre MAN D26 engine delivering 549hp.

The 8600 and 8700 models retain the larger 15.2-litre MAN D38 engine, rated at 598hp and 646hp respectively. The 7500 also adopts the MAN D26 with 466hp. All models use the APS Synflow Hybrid threshing system, with rotor speed capacity ranging from 1000rpm on the 8500, to 1200rpm on higher-spec machines.

Grain tank volumes have been increased with options of 13,000 or 15,000 litres on the 8500 and 8600. The 8700 Terra Trac now offers up to 18,000 litres with a 180 litres/s unloading rate, making it the largest in its class.

Cemos driver assistance features have been reorganised into three packages, offering up to 20% higher throughput. Connectivity is expanded via Claas connect, which now integrates job management, yield mapping, and fleet optimisation tools.

Case IH has added the AF9 and AF10 to its new AF Series combine range, following the launch of the Class 10+ AF11 earlier last year. Together, the three models cover Class 9 and 10+, designed to increase capacity and crop flow while simplifying maintenance and connectivity.

The AF9 is powered by a 634hp engine, while the AF10 delivers 775hp. Both use an AFXL rotor, 40% longer than that in the previous 260 Series, to increase throughput. Grain handling has been matched across header, rotor and spreader to maximise efficiency per engine hour.

Technology is included as standard, with Dual Pro 1200 displays, Harvest Command automation and RowGuide Pro for steering assistance. A 'Connectivity Included' feature provides subscription-free data transfer to Case IH FieldOps, enabling yield and machine information to be viewed and managed remotely without additional licence fees.

New Holland has announced a range of updates across its CX, CH and TC straw walker combines, alongside changes to Varifeed headers, aimed at improving crop flow, cutting performance and ease of set-up.

Varifeed headers now feature an inline knife drive that delivers smoother, more precise cutting with less vibration and maintenance than the previous belt drive. Knife speed rises 11% to 735rpm, matched to a reinforced 660mm auger with new pre-set height adjustment for faster switching between crops.

A synchronised dual knife drive is extended to 10.5m and 12.5m models, reducing vibration. Other changes include single-side PTO connection, quicker side-knife installation using lighter aluminium units, and cab-operated gauge wheels for easier trailer loading.

Within the combines, the UltraFlow drum – designed to smooth crop intake and boost capacity by up to 10% – becomes optional on CX5 models.

CX5/6 and CH7 machines gain a revised Smart Sieve option with linked pre-sieve adjustment, plus new sensors on hillside versions to better control rear axle and slope response. A rear camera is now standard across European CX5/6 and CH7 models.

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Protecting more than yield

With machinery getting heavier and harvest windows shorter, tyres are being pushed harder than ever. *CPM* investigates the launch of BKT's new Agrimax Proharvest, designed to meet the challenges of modern harvesting, while still protecting soils.

By Charlotte Cunningham

Harvest has always been one of the most demanding times of year, but in recent seasons the pressures on operators have grown considerably. Combines are bigger, with headers that can stretch further than ever before, and grain tanks that swallow vast capacities before unloading.

While this improves efficiency in the field, it brings new challenges for tyres, which are required to carry unprecedented loads, adapt quickly to changing pressures, and endure the constant transition between field and road.

For soil and cultivation expert Philip Wright, the focus must start beneath the surface. "Soil preservation is everything," he stresses. "This season has been unusual because the dry conditions have created almost a plate across the surface.

"Many farmers may put a spade in, hit that tough layer and give up. But if you persist and punch through those 60-100mm, you often find the soil underneath is actually in very good order."

Philip explains that this apparent paradox is down to the season's extremes. With evaporation constantly drawing soil moisture to the surface, minerals like calcium and magnesium have been left behind. "In dry soils those bonds are incredibly strong, which is why it feels like concrete. But as soon as moisture returns, that surface can soften – almost visibly. I often explain

Damage done – even when it's dry

Even in a year like this, when it feels like operators are driving on tarmac, it's still possible to do damage, particularly on headlands or when turning with a nearly full grain tank, says soils and cultivation expert, Philip Wright.

Long-lasting impact

Heavy equipment, particularly when conditions are less than ideal, can create long-lasting damage to soil structure, reducing yields and impacting crop performance long after the combine has left the field, says BKT's Piero Torassa.

A tyre for intense conditions

BKT has developed the Agrimax Proharvest – a new tyre designed specifically for modern combine harvesters and the intense conditions they face.

this as being able to see the soil physically melt, which is a reasonable way to describe what is happening.

"I sometimes show farmers this effect with a watering can. Half an inch of gentle 'rain' on a patch, come back a few hours later, and the spade will go in far more easily – the lump will start to crumble instead of shattering like brick. That shows how quickly soil can change and how important patience and timing are."

That doesn't mean traffic is irrelevant, he notes. "Even in a year like this, when it feels like you're driving on tarmac, it's still possible to do damage, particularly on headlands or when turning with a nearly full grain tank. And as soon as we get a wetter season – which could be next year – the importance of minimising pressures becomes absolutely critical. Ultimately, it is the pressure within a tyre which determines the severity of soil squeezing beneath, which leads to a reduction in porosity.

"Investing in the right tyre technology is as much about insurance for the unpredictable future as it is about performance today."

Philip has long worked with growers to help them understand these trade-offs. He often points to trials on trailers and spreaders, where central tyre inflation has allowed operators to drop from around 58psi on the road to nearer 26psi in the field. "The effects are remarkable," he says. "Fuel use fell from 18 litres/hour to 14, infiltration rates more than doubled, and visibly you could see the difference: trafficked lines that used to sit full of water suddenly started soaking it in. Those numbers tell you how much difference pressure alone can make."

LOAD BEARING

The risks also vary across the machine. "Rear combine tyres are probably the killers when it comes to pressure," he explains. "With the header off, they take a disproportionate amount of load, yet because of clearance issues, they're relatively small and low capacity. They're often ignored, but they're the ones where replacing or upgrading can give you the best value for money. They may not cost as much as the front tyres, but they can save a lot of soil damage."

He believes the lessons from one operation extend into others. "On a drill tractor, we've measured yield penalties of up to 40% when running at one bar compared with less than 10% at 0.5-0.6 bar."

> *"The Agrimax Proharvest has been designed with today's realities firmly in mind."*

While combines and trailers are different animals, Philip says the principle holds true: the lower the pressure you can safely run, the better your infiltration rates, fuel efficiency and soil structure. "If you don't get that right, you carry the problem all season.

"I've seen more blackgrass establish in compacted strips left by a drill tractor – and once those seeds are lifted by the combine header, they're spread right across the field. That's how a small oversight on tyre choice or pressure can become a whole-farm weed issue."

Attention to detail is the common thread, he believes. "Every piece of machinery plays its part in the bigger picture of soil health, and tyres are one of the simplest but most powerful tools in that fight."

Picking up the conversation, Piero Torassa, field engineering director at BKT Europe agrees that soil compaction is becoming an increasing concern, especially when it comes to harvest. Heavy equipment, particularly when conditions are less than ideal, can create long-lasting damage to soil structure, reducing yields and impacting crop performance long after the combine has left the field, he points out.

At the same time, operators are being asked to work more sustainably, with a focus on reducing inputs and waste. "Tyres sit right at the centre of this web of challenges," says Piero.

Equally, being a tyre specialist, he notes that a single tyre failure in the middle of harvest can have knock-on effects that cost growers dearly – from lost time and compromised soil conditions to delays in getting the crop in while the weather allows.

It's against this backdrop that BKT has developed the Agrimax Proharvest – a new tyre designed specifically for modern combine harvesters and the intense conditions they face. Piero explains that the brief was to bring together soil protection, resilience and operator comfort into one package.

At the heart of the Agrimax Proharvest ▶

is VF, or Very High Flexion, technology. "VF tyres can carry up to 40% more load than a standard tyre at the same inflation pressure," he says. "By spreading this load across a larger footprint, we're able to reduce ground pressure and mitigate compaction – something that helps growers to protect their soil for long-term productivity."

The Agrimax Proharvest also incorporates CFO, or Cyclic Field Operation, capability, which is designed to cope with one of harvest's realities: temporary overloads. "When a combine is unloading on the move, the weight distribution and stress on tyres can fluctuate rapidly," comments Piero. "While standard tyres may struggle under these cyclic loads, CFO technology allows the tyres to absorb them without compromising performance, keeping the machine rolling at the most demanding moments."

Durability has been another major focus. Harvest conditions can be harsh, with tyres exposed to stubble, stones and uneven ground, but the tyre has been engineered with a reinforced polyester casing and three layers of steel belts to provide mechanical strength and stability. "That's what prevents deformation under heavy loads so the tyre maintains its shape and integrity even after long hours," he explains. "And we've developed a new compound to resist cuts and chips, reducing the risk of punctures from stubble or debris. The practical result is fewer interruptions, longer tyre life and lower maintenance costs."

Harvesting, of course, rarely stops in the field. Increasingly, combines and their support vehicles travel significant distances on the road, sometimes at higher speeds than in the past. The tread pattern of the Agrimax Proharvest has been designed with this dual role in mind.

"The open-shoulder design improves traction and self-cleaning in wet or sticky soils, while on the road it promotes even tread wear and better handling," says Piero. "We've also considered operator comfort. A smoother ride reduces vibration and fatigue – and after 12-14 hours in the cab, that can make the difference between staying sharp and making mistakes."

Piero continues that the Agrimax Proharvest represents a step forward from BKT's earlier Agrimax Teris, building on its predecessors' strengths while adding new capabilities. The combination of VF and CFO technologies, together with the reinforced casing and cut-resistant compound, positions the tyre to compete in what Piero acknowledges is a crowded market.

Spreading the load

At the heart of the Agrimax Proharvest is VF, or Very High Flexion, technology, which can carry up to 40% more load than a standard tyre at the same inflation pressure.

But he believes there are other dimensions to consider, too. "Every time we can extend a tyre's life, reduce breakdowns or minimise waste, we're reducing agriculture's footprint.

"A tyre that lasts longer requires fewer replacements, which lowers the carbon impact of production and logistics. And in the middle of harvest, every breakdown avoided saves not just money, but also fuel, time and stress."

GOING FOR IT

Of course, growers will no doubt want to see real-world proof before committing. "The true test will be performance in wet harvests, resistance to stubble damage and longevity over multiple seasons," accepts Piero. "But what we can say is that the Agrimax Proharvest has been designed with today's realities firmly in mind. It's built around the concerns growers raise most often: soil compaction, downtime, and how a tyre performs both in-field and on the road."

The launch also reflects a broader change in how tyres are perceived. Once treated as an afterthought, they're now being recognised as an integral part of the machinery system, he suggests. "As combines increase in size and output, tyres have to work harder than ever to support both machine and soil," says Piero.

"If we don't innovate here, we risk undermining the efficiency gains that modern machinery is meant to deliver. Tyres are not just round black things – they're central to productivity."

Harvest will always be an unforgiving test. The weather waits for no one, machines run at capacity, and operators are stretched to the limit. In that context, tyres carry more responsibility than might be obvious at first glance.

"By protecting soil, supporting heavy loads, resisting damage and easing the journey from field to road, they can make the difference between a smooth season and one plagued by setbacks," concludes Piero. "With the Agrimax Proharvest, growers will have that assurance and confidence that the tyre won't let them – or their soils – down when the pressure is at its highest." ●

Innovation Insight

CPM **would like to thank BKT for kindly sponsoring this article, and for providing privileged access to staff and material used to help put the article together.**

BKT GROWING TOGETHER

Tried, tested and still essential

"Utilising an applicator that can keep pace with drilling and deliver a consistent 15kg/ha across every run and headland shape is key."

JOE ALLEN

With more than 60 years of efficacy under its belt, Avadex (tri-allate) remains a key component in crop protection strategies. But as the application technology evolves, are growers still following best practice? *CPM* finds out more.

By Charlotte Cunningham

In the battle against grassweeds, few products have stood the test of time quite like Avadex. First introduced more than 60 years ago, the pre-emergence herbicide – based on the active tri-allate – still holds a central role in integrated weed control strategies.

"Tri-allate is one of the few molecules out there with no known resistance in the UK," explains Hank King, country manager for Gowan. "It continues to give robust control of blackgrass, ryegrass, bromes, wild oats – essentially the whole grassweed complex – and it does so consistently, year in, year out."

It's this consistency that's perhaps Avadex's defining trait, he adds. "What's remarkable is that the additional benefit Avadex brings – above your base programme – is stable regardless of whether your base residual is having a good or bad year. That's huge value."

That reliability, he stresses, comes with responsibility. "We want this product to continue to deliver outstanding efficacy for users and that means using it correctly now and in the future. Best practice isn't just about getting it applied – it's about timing, seedbed preparation, applicator accuracy, environmental stewardship and operator training."

For Hank, timing is the first principle.

No known resistance

Tri-allate is one of the few molecules out there with no known resistance in the UK, explains Hank King, country manager for Gowan

Getting kit right
Joe Allen of Horstine says selecting the right applicator for the individual farm, its set up and its requirements, are key to getting the best from Avadex.

"Avadex is strictly a pre-emergence treatment, and the greatest efficacy is achieved when applied within 24-48 hours of drilling. That's when you have the best chance of the product being in the right place for weed germination at the right time and therefore maximising efficacy.

"If the top 5-8cm of soil are absolutely bone dry, nothing's germinating – so Avadex won't be doing what it does best. In that case, you should delay slightly until conditions are conducive for weed germination. But be mindful that autumn weather can turn quickly, so be careful in this scenario."

Seedbed quality matters too. "Clods can harbour weed seeds which are then not in contact with the herbicide. Rolling before application, if possible, is best practice and gives Avadex the best chance of delivering its greatest efficacy. It's not essential, but it's very much best practice."

Hank is equally firm on applicator standards. "Liquid sprayers are tested annually without fail but granular applicators don't always get the same attention. Annual servicing including calibration and pattern testing are critical, but regular machinery checks throughout the season are equally vital.

"As an example, deflector plates can be bumped in transport or field work, and that will distort your spread pattern. Always test for even distribution before you start."

Operator training is another area which he believes shouldn't be compromised. "Anyone applying Avadex Excel must have a PA4G certificate. If the applicator is mounted on the back of the drill then this includes drill operators too."

With the liquid formulation (Avadex Factor), the principles are slightly different. "Standard spray practice still applies – correct boom height, buffer zones, recommended water volumes and sensible forward speeds all contribute to consistent coverage. Avadex Factor will work in drier conditions, but it performs best where there's some soil moisture. Another important point is to avoid applying it at the peak heat of the day. If you can apply in cooling conditions, for example in late afternoon or early evening, then you tend to get better results."

Looking at the kit involved when it comes to applying Avadex, there are a number of options available from manufacturers including Stocks Ag, Opico, Techneat and Horstine. Joe Allen of Horstine says selecting the right applicator for the individual farm, its set up and its requirements, are key to getting the best from Avadex.

"When Avadex is part of the resistance-busting stack, the two non-negotiables are timing and uniformity," he says. "That means utilising an applicator that can keep pace with drilling and deliver a consistent 15kg/ha across every run and headland shape."

He believes Horstine's line-up reflects that. "The TM Air is a compact drill- or roll-mounted unit, popular with smaller farms or where growers want granules going on at the point of drilling.

"The TMA4, available at 12m, offers an affordable standalone option, either linkage-mounted or trailer-towed

behind an ATV. At the top end sits the Cascade, aimed at contractors with big areas – a 1500-litre hopper, wide booms and four independently controlled sections make it well-suited to long runs and awkward headlands."

One benefit is that all the machines are pneumatic, he adds. "A central hopper meters granules into air streams that carry them to fishtail outlets along the boom. Those outlets are set up to create a double overlap – just like a sprayer – so each pass smooths out any variation."

Crucially, each outlet has its own metering rotor. "We don't meter once and split," says Joe. "Every point is identical so there's no risk of one end of the boom under-applying while another is over-applying. That's something Gowan is very keen on – it protects crop safety as well as weed control."

Modern control systems now mirror sprayers too, he points out. "Avadex is a fixed-rate job at 15kg/ha, so the challenge is holding that rate regardless of speed. Our applicators take a signal from the tractor or a GPS sensor and adjust automatically. Cascade goes a step further: as you turn on headlands, the ECU varies delivery across the boom sections to account for the inner end slowing and the outer end speeding up. That's how you keep coverage consistent in real-world field shapes."

Calibration has been kept intentionally simple, too. "Prompt the rotors, collect and weigh, adjust if required. Users find the machines extremely accurate – it means you can order product with confidence, knowing hectares covered will tally with tonnes applied."

With best practice in mind, maintenance is where Joe urges growers to not cut corners. "Granules are abrasive, so the metering unit is the main wear point. We use ▶

Hopper capacity key

Jonathan Tunmore, contractor in East Suffolk, runs a 24m self-propelled and a 36m trailed Rauch unit, both with generous hopper capacities which he believes help maximise the efficiency of Avadex applications.

Photo: Chris Lockwood/Anglian Agri Media Ltd

Top end options

At the top end of Horstine's applicator range sits the Cascade, aimed at contractors with big areas – a 1500-litre hopper, wide booms and four independently controlled sections make it well-suited to long runs and awkward headlands.

hardened parts and stainless-faced washers, but tolerances should be checked and refreshed pre-season.

"Pipework requires a visual check too – splits at folds or joins will show up as granules leaking where they shouldn't. A quick pre-season once-over, plus annual NSTS testing, is the best way to keep performance good.

"Granular chemistry is a rarer sight on farms than it used to be, but where Avadex earns its keep, the applicator has to be simple, accurate and fast. Individual rotors, pneumatic delivery and intelligent control are the three pillars we build around. They target the two things that matter most: a consistent 15kg/ha and the ability to apply it exactly when the window opens."

Jonathan Tunmore, a contractor in East Suffolk, is an advocate for how this best practice theory plays out in reality. "By background, I was a farm manager, then moved into pest control, but I could see Avadex starting to take off again about 2011," he recalls.

"Blackgrass was a huge problem; my wife is an agronomist and we both felt demand was about to go mad, so we built our own application machines to start with then sold those and invested in bigger kit. Last year we covered around 2500ha and I'd expect it to be similar again this year – sometimes it's closer to 3000ha, depending on the season."

"Reliability depends on everyone in the chain – from manufacturer to applicator to contractor."

Jonathan now runs a 24m self-propelled and a 36m trailed Rauch unit, both with generous hopper capacities. "That's what often lets machines down – small hoppers. With ours we can do 250-300ha in one load which makes a huge difference when you're trying to cover ground fast. Both machines are on wide tyres – 750s on the self-propelled, 710s on the trailed – so we can tread lightly and keep travelling when soils are softer."

With ensuring best practice is always the goal, Jonathan says the machines' design gives him confidence. "Each outlet has its own fluted metering roller, so distribution is spot on. They're straight-piped with three fans driving air down large-bore tubes, so granules get to the outlets very quickly. That produces a really clean, reliable pattern. Other machines that split product part-way down the pipe just can't match it."

He's also developed his own routines for filling and monitoring. "I cut bags a particular way so nothing's left inside; we work in lots of 10 and keep empty bags nested inside one so you don't lose count. Always fill the hopper level so you can see the flow, and constantly check product against area covered – with big hoppers you really have to keep an eye on it."

He's equally clear on timing. "Avadex prefers going onto a moist seedbed. If you get heavy rain straight on top, it doesn't work quite as well but when it's applied in the right slot, it's very consistent. The trouble is, drilling dates are narrowing – when I first started we'd be applying from about 10 September, but now it's more like the 20th or 25th, which is 10-15 days lost."

Although new chemistry to battle blackgrass is starting to appear, Jonathan still sees Avadex as unique. "There's competition on the borders now with new technology, but Avadex is well understood and dependable. If you know your machine, your soils and your timing, it still earns its keep."

For him, the key is familiarity. "When it's one man, one machine, you really get to know it. You can tell immediately if something's not right. That's how you keep accuracy – and keep Avadex delivering."

And it's this accuracy that means six decades on, tri-allate has earned its place not through novelty, but through reliability. However, that reliability depends on everyone in the chain – from manufacturer to applicator to contractor – holding up their end of the stewardship bargain. "It's so important to use Avadex as a foundation product alongside other residuals to get best efficacy on target weeds," concludes Hank.

"This means utilising products with different modes of action in the stack or sequence actives to protect against resistance, and combine with cultural controls like delayed drilling, competitive varieties and stale seedbeds. That's how you keep the chemistry working and get the greatest efficacy." ●

Diversifying with digestate

Ninth-generation farmer James Nott has grown a thriving business around digestate spreading. With Samson kit now at the heart of the operation, *CPM* finds out about the drivers behind the enterprise and the machinery that makes it possible.

By Charlotte Cunningham

Farming has been in the Nott family for nine generations, and James Nott is the first to admit that resilience and adaptability are stitched into the fabric of the Suffolk business.

"We're a relatively small family farm, but contract farming has given us scale and efficiency," he explains. "Even so, agriculture is cyclical – there are always good years and bad. We've had to diversify to create income that supports the core farming."

Diversification has taken many forms over the decades, from business lets and contracting, to moving into digestate application seven years ago. But in fact, what began as a pragmatic attempt to tackle the limitations of heavy clay soils has become one of the farm's most important enterprises.

"It started from a simple realisation: our soils required more than bagged fertiliser," says James. "Clay is slow to release nutrients, so you can apply N, but crops don't always get it when they require it. I wanted to put something back into the soil that would build fertility, improve nutrient availability, and support long-term resilience."

The answer was digestate. Today, the team spreads around 140,000-150,000m³ each year, between February to October, across a wide swathe of East Anglia. Feedstocks are drawn from both farm-fed AD plants and food waste digesters serving London, with material transported out of the capital and onto arable land from Thetford to the Suffolk coast.

"The difference is visible," says James. "You walk into a field and can see the areas that have had digestate and those that haven't. Over time, fertility is clearly improving."

One of the enterprise's driving forces is operator Gareth Waite, who joined the farm straight after university. "I'm not from a farming family but I always had a passion for it," he says. "In my third year at university I trialled different application rates of digestate on winter wheat, and that gave me real insight into how it can be integrated into a modern farming system."

When the pandemic curtailed arable operations, Gareth threw himself into digestate spreading. Three years on, he now manages daily logistics, co-ordinating haulage and operators. "Each year we spread more," he says. "Our land bank is wide and having the tanker-based system gives us reach. We can travel seven miles from a lagoon, which opens up land that would otherwise never be available."

At the heart of the operation is a Samson PG II Genesis 35 tanker – a flagship model designed for high-output contractors – which was purchased following a factory visit to Denmark ▶

No changes required

Operator Gareth Waite says in the three year's he's been driving the Samson PG II, there is little he'd change – having spread nearly 390,000m³ with minimal issues.

a few years ago, explains James. "Samson is decades ahead in terms of slurry and digestate handling. Seeing the thought that's gone into design gave me the confidence that this was the right choice and a major upgrade compared with our previous kit.

"From the moment it arrived it was a game-changer," he adds. "The engineering is spot on – robust, fit for purpose, and clearly designed by people who know exactly what they're trying to achieve."

Gareth shares the same view: "The booms fold out smoothly, the fast-fill system keeps downtime to a minimum, and everything just works. Once you've used a Samson, it's hard to imagine going back."

Delving into the detail behind how exactly the PG II works, Samson's David Bowman explains that James' workhorse is a 35m³ tanker with a centrifugal pump capable of 15.5m3/minute at 4.5 bar. "That pressure is key – it's what drives liquid to the end of a 36m boom, ensuring the smallest triangles of non-application in the industry."

Unlike vacuum tankers, the PG II creates vacuum only in the pipework to draw liquid into a turbo filler, which then rapidly loads the tank. Construction from Domex high-tensile steel keeps the machine lighter than conventional builds, explains David. "We can empty an artic in three minutes. James's machine also has a front-mounted filling arm that reaches over hedges or tankers, which gives great flexibility."

Boom design is another differentiator, compared with other options on the market. "The 36m boom was engineered as such from the outset," he continues. "Epicyclic packs replace folding rams, meaning widths can be adjusted on the move – 34m, 32m or 30m – directly from the cab. Four macerators ensure high-capacity distribution so you can apply 30m3/ha at 8kph with even spread."

High-output option

At the heart of Nott Farming is a Samson PG II Genesis 35 tanker – a flagship model designed for high-output contractors – which was purchased following a factory visit to Denmark a few years ago.

For operators, those features translate into real gains, believes Gareth. "Our old spreader would take 8-10 minutes to unload a lorry. Now we're down to 2.5-3 minutes. Turnaround time is night and day."

Digestate spreading often prompts debate regarding whether tanker or umbilical systems are best. James and Gareth are clear why they've committed to the tanker route.

"Umbilical has its place – it's lightweight and can achieve high output close to the source," says James. "But it's limited by distance and rate; you can't push it beyond 24m reliably, and nutrient loading around lagoons is often too high. With tankers we can apply accurately at 36m and much further afield."

For Gareth, it's also about practicality. "With umbilical you have downtime setting up and rolling pipes, and it ties up haulage. With the Samson, I can finish one field and be applying in the next within minutes. In the right conditions, umbilical may edge daily volumes, but with the PG II we regularly hit 1500m³ – my best day was 1900m³."

Concerns about compaction are often raised, but both men argue the design of modern tankers has addressed this. "We stick to tramlines, and with tyres up to 800mm across five axles, the footprint is surprisingly light," says Gareth. "Compared with older designs, the pressure on the soil is well within acceptable limits."

In terms of the value of the digestate itself, every load applied is PAS110 accredited, with monthly testing of feedstocks. Additionally, James's machine is fitted with a John Deere HarvestLab 3000 sensor to deliver real-time nutrient data. "That gives us flexibility," says James. "If a client wants variable-rate application, we can deliver it. Even if not, we can demonstrate exactly what's gone on the field. It's reassuring for us and our customers."

For Gareth, the sensor makes day-to-day work more precise. "It takes away the guesswork – I know what I'm applying and can make adjustments instantly. It's another reason clients have confidence in us."

The capital cost of replacing a tanker

and tractor together can approach £800,000 – a daunting figure. But Samson argues ownership costs must be measured differently. “Yes, initial outlay is high,” admits David. “But these machines are designed for two tractor cycles – 8-10 years – and residual values are excellent. I’ve had machines with 800,000m³ through them still selling at 60% of new price. Once you divide depreciation by volume applied, the cost per cubic metre is very low.”

James agrees: “It’s a big commitment, but it’s paying back. Clients want us year after year, soils are improving, and crops show the benefit.”

Looking ahead, regulation remains a watchpoint. “Digesters have to be empty for winter, but Farming Rules for Water are tightening,” explains James. “Finding compliant windows may get harder, so we have to keep adapting.”

From Gareth’s perspective, refinements could further improve operations. “I’d like a more accurate flowmeter on intake – currently it’s just a needle gauge. Some systems show exact volumes which would be useful. Beyond that, there’s little I’d change; in three years, we’ve spread nearly 390,000m³ with minimal issues.”

So while digestate spreading may once have been seen as a sideline or a way to dispose of waste, at Nott Farming it’s evolved into a core enterprise built on sound agronomy, robust machinery and a clear business vision.

By blending family heritage with forward-looking technology, James and his team are showing how a by-product can be turned into a valuable input – and a profitable service. “It’s a reminder that with the right kit and mindset, farming’s challenges can often become its biggest opportunities,” he concludes.

Industry-leading tech

The Samson PG II is 35m3 tanker with a centrifugal pump capable of 15.5m3/minute at 4.5 bar. “That pressure is key – it’s what drives liquid to the end of a 36m boom, ensuring the smallest triangles of non-application in the industry.”

At a glance – Samson PG II Genesis 35

- **Tank capacity:** 35m³
- **Pump:** Centrifugal, 15.5m3/min at 4.5 bar
- **Filling system:** Turbo filler with pipework vacuum; artic unload in around 3 minutes
- **Construction:** Domex high-tensile steel for a lighter build and stronger structure
- **Boom:** 36m design with epicyclic folding; adjustable to 34/32/30m widths
- **Macerators:** 4 high-capacity units for even distribution
- **Filling arm:** Front-mounted, capable of loading over hedges/into road tankers
- **Options:** Driven axles available on models 20m³+

Talking TATIES

WITH ANDREW WILSON

Gleaning the positives

The only thing worse than a poor performing year is one that follows another poor performing year. It's safe to say arable farming and taty growing isn't much fun at the moment.

Firstly, the positives. Spring barley was the best I can remember – this year's crop comfortably averaged more than 7t/ha, made the grade for malting, was sold forward at around £20/t above the spot malting price, and left a decent swath of straw. This success was slightly tempered by there being only 13ha of it, but let's not spoil the glory!

Predictably, our wheat yield was pulled back by some poor second wheat and flooded off areas; our beans looked amazing in June but then scraped a tonne to the acre average. It's a good job the price isn't quite on the floor, and wheat after beans here is consistently good.

Interestingly, the tramline of intercrop beans and wheat did okay and yield matched the best performing beans. I've yet to carry out a full financial comparison, but it looks favourable on the face of it. The trade-off is twice drilling and separating the resulting crop, so we must be realistic.

A minor crop for us is grass for hay which also hit a high of 6.7t/ha and was made with little cost or effort in the sunshine. How, you might ask, in a season of burnt off pasture in many areas? Luck, mostly. I decided to take my first cut the earliest I ever have on 14 May while the weather was good, albeit early to maximise April-applied fertiliser. We then had decent rain in July meaning a worthwhile mid-August second cut.

It's surprising how well stubbles have greened up over mid-August, allowing a glyphosate clean-up on the majority of land going into cover crops that precede spring root crops and cereals. The main target is volunteer potatoes, beet, blackgrass and brome, but removing the volunteers also removes the competition for our cover crops. From a nematode and general disease point of view, I feel this is important to not ignore.

My sugar beet has been chosen for some root digs and I'm pleased to report decent sugar levels for the time of year and root yields better than feared. Is it enough to keep us growing the crop next year? A top line under £1000/acre ought to be a no this far from Newark, but some of our best beet land is in the rotation next year. Given lacklustre combinable prices, I'm not sure we'll drop it completely immediately.

March-lifted beet before May-drilled vining peas help the numbers stack up, but because I'm mostly making the figures show me what I want to see, it does feel like the writing's on the wall.

So, to potatoes. We were lucky that we had some decent rain in July, because we've pretty much missed the rest of it. It's my view that the high temperatures this summer have done more damage to crop performance than a lack of water, because I think the unirrigated crops would be dead by now if that wasn't the case.

Dry matters are too high and yields currently look like we're in for a break-even season again, assuming lifting time goes well.

We irrigate about a third of our potatoes with what's fair to say, antiquated kit. Surface extraction and ally pipes are hard work whichever way you look at it, but for all the armour chinks are showing, they do the job. Infrastructure investment requires a long-term view and a few good years to pay for it, which seem to be getting further apart in recent times.

Potatoes appear to like sunshine, if not the heat, and perhaps can manage with less water than we sometimes think. This is particularly true on sandier land that holds the heat more than more bodied ground.

Physical organic matter in our potato rows has again shown me that we must be on the right track regarding cultivations. Row structure is good, moisture is still present in most fields, and we have little row cracking at all. Fat hen is the weed of the season in varieties where we've had to hold back metribuzin rates (also getting past Smart beet herbicide this year) which will be a frustration at harvest.

I've been pleasantly surprised so far that I'm yet to see early sprouting or chain tuberisation in any of our crops, although there is secondary growth in places. We don't normally start lifting until the end of September so hopefully temperatures and dry matters will drop by then to ease the pain of delicate harvesting and another challenging storage season.

In addition to drilling cover crops, we're getting land ready for next year's plantings. A combination of good ploughing conditions on some of our heaviest land where a slowly increasing blackgrass infestation exists has meant we're turning a bit over in front of beans, which is unusual here.

One of the fields was last ploughed in 2013, the other in 2009, so it's been a while. My intention is to not plough them again for at least five years which together with a more spring-based rotation, ought to help in the grassweed battle. We always plough out of wheat when destined for barley, with a mix of min-till and strip-till, and some direct drilling where appropriate.

Stale seedbeds were created as fields were cleared, but patience is required to hold off drilling and let them green up to avoid expensive weed chasing down the line. Last year I didn't get all pre-emergence herbicides on which cost us dearly in some fields, so I've tweaked things to make sure that happens this year, with double angled nozzles and high water rates the order of the day.

We're still ahead as far as the calendar shows, but September arrived this morning. It'll soon be the back end, we best crack on. ●

YOUR CORRESPONDENT

Andrew Wilson is a fourth-generation tenant of the Castle Howard Estate in North Yorkshire. He has a strategic approach to direct drilling on his varied soil types and grows a wide variety of crops. He's passionate about the potato industry and having been utilising cover crops to reduce cultivation and chemical use since 2011, dipped his toe in the water of regenerative potatoes in 2021. @SpudSlingsby

Honing in on potato heritage

A study claims to have solved the mystery of how potatoes evolved, and critically, the findings could help plant breeders to improve the drought tolerance of the crop. *CPM* takes a closer look.

By Janine Adamson

Millions of years ago in the foothills of the Andes, a hybridisation event occurred involving two plants which led to the creation of one of the UK's favourite vegetables – the potato. That's according to a team of international researchers, who recently uncovered the mystery of the crop's evolution.

The findings, as published in journal Cell, suggest that wild tomatoes crossed with *Etuberosum* (a cluster of three wild plants) to form a new lineage and from this, early potatoes were able to form underground tubers. This then enabled rapid diversification to create more than 100 species, including the modern-day cultivated potato *(Solanum tuberosum).*

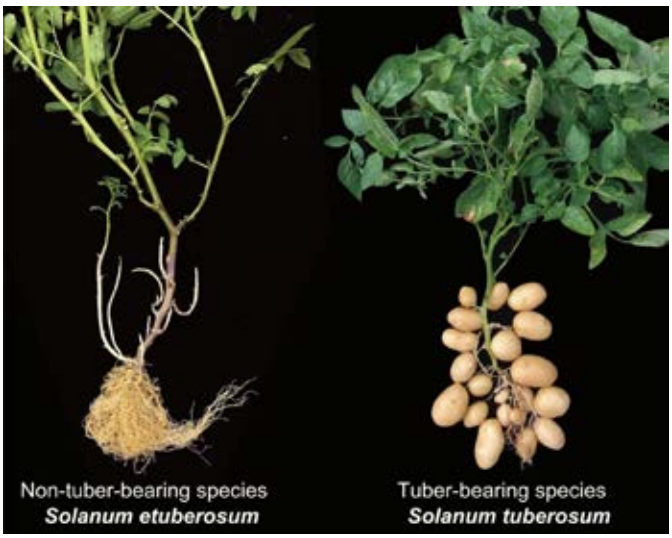
Put simply, this cross didn't merely create a new plant, it was responsible for the concept of the underground tuber. Dr Sandy Knapp, botanist at the Natural History Museum, says scientists have long known potatoes are closely related to two groups of plants – tomatoes and *Etuberosum,* but because neither have tubers, further research was required.

To investigate, the team sequenced

Unsolved mystery

Dr Sandy Knapp, botanist at the Natural History Museum, says scientists have long known potatoes are closely related to two groups of plants but because neither have tubers, further research was required.

Photo: Royal Society



Tuberisation

While *Etuberosum* appear visually similar above ground, they don't bear tubers. *Photo: Yuxin Jia and Pei Wang.*

▶ 450 genomes from cultivated potatoes and some wild potato relatives, revealing that in all of them there was a balanced blend of tomato and *Etuberosum* genes, suggesting hybridisation had taken place.

They also discovered that two specific genes are crucial to make tubers – *SP6A*, a signal for tuberisation found in the tomato, and *IT1,* a gene regulating underground stem growth found in *Etuberosum*. This led to experimenting with removing these genes from potato plants, with the result being that neither is enough on its own, as the potato then struggles to generate tubers.

Sandy says this means tuberisation is a complex trait controlled by multiple genes that the potato inherited. "When the two combine, as in the potato plant, they interact, triggering the powerful process that transforms underground stems into tubers."

> *"We use novel trait discovery techniques to breed from these hardier species to create new varieties."*

This innovative work was led by the Chinese Academy of Agricultural Sciences supported by the Natural History Museum and the Royal Botanic Garden Edinburgh.

The researchers now understand that what occurred all those years ago happened while the Andes mountains were rapidly rising – caused by the Atlantic plate pushing beneath the South American plate.

Scientific analysis of the two parent lineages indicates they each occupy different environmental niches: tomatoes (dry and hot) and *Etuberosum* (temperate). This means the development of tubers by the ancestor of the potato plant gave it a survival advantage in the dry, cold climates of the Andes.

Now, armed with this intelligence, the Chinese Academy of Agricultural Sciences is experimenting with reintroducing key tomato genes into potatoes to create a new variety

reproduced by seeds. It believes this has the potential to enable speed breeding of more resilient, productive crops with traits such as drought resilience or disease resistance.

However, this isn't the first time the history of potatoes has evoked curiosity – in the 18th century, James Hutton was one of the first to write about potatoes being grown in Scotland. According to records, many were suspicious of the crop because some of the early tubers resembled a symptom of leprosy, due to being 'finger-like and black'. Yet today, potato is the UK's second most important food crop.

Colin Campbell, chief executive of the James Hutton Institute, says therefore it's no coincidence that JHI is home to the National Potato Innovation Centre (NPIC). Bringing together scientists from around the UK, NPIC aims to fast-track potato research, accelerating breeding and discovery, and creating resilient production systems.

"I wonder what James Hutton would say if he was alive today, and saw the work we do to help our super spuds thrive?" queries Colin.

He adds that their work is crucial due to the UK's potato self-sufficiency having declined significantly from what was 100% in the 1970s.

"And beyond the UK, our recent work includes creating new varieties suited to growing in sub-Saharan Africa, including Malawi. They're more heat, disease and pest-resistant than our British varieties and produce tubers much faster. This means they avoid problems associated with erratic rainfall or drought and will allow potato farming to expand across non-traditional growing areas and seasons."

Colin points out that in his view, the jewel in JHI's crown is the Commonwealth Potato Collection (CPC), curated and maintained by Gaynor McKenzie. "This genetic treasure trove of more than 1300 different types of potato represents more than 90 different species.

"Each accession traces back to a handful of berries or tubers collected from potato plants in South or Central America (including the black, finger-like ones) gathered from the wild or obtained from growers at a market.

"This collection covers a vast array of species and genes that are supremely able to thrive in diverse and challenging ▶

Tuber treasure trove

The Commonwealth Potato Collection (CPC) is curated and maintained by Gaynor McKenzie (pictured) and has more than 1300 different types of potato.

Stand-out resource

Colin Campbell believes the jewel in the James Hutton Institute's crown is the Commonwealth Potato Collection.

environmental conditions; we use novel trait discovery techniques to breed from these hardier species to create new varieties," he explains.

The collection harks back to the 1930s, initiated in response to the discovery of spontaneous blight-resistant hybrids at the Royal Botanic Garden in Edinburgh, created using cultivated potato and the Mexican species *Solanum demissum*. Realising that late blight could be countered by genes in wild relatives, collecting missions took place, forming the start of the Empire Potato Collection, later becoming the CPC.

In terms of contribution to modern-day potato production, the CPC has provided germplasm to the research and breeding community. One gene, H1, from *Solanum tuberosum* (Group Andigena) has given resistance to potato cyst nematode species *Globodera rostochiensis* in more than half of the current UK National Listed potato cultivars, says Colin.

Current research is now looking to bring in new sources of resistance from the CPC to help combat rising PCN threat, *G. pallida*.

Blight update

While late blight pressure has generally been low this year, risk remains

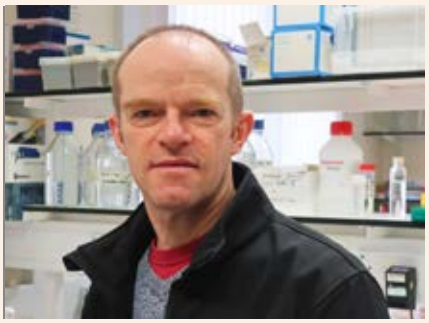
With relentless dry weather from March onwards, signs of late blight have proven sporadic at best, says senior plant pathologist for the James Hutton Institute, Dr David Cooke.

He adds that any primary inoculum present has had little opportunity to establish, with limited infection criteria. "Due to conditions, the infection curve has remained effectively flat, especially in the East."

This has been further evidenced by the quantity of field samples analysed by industry campaign, Fight Against Blight (FAB), he says. "FAB has genotyped just 90 samples from 33 reported outbreaks – none of these have come from the East. This isn't because samples haven't been taken, it's because blight simply hasn't been in this season's potato crop."

Critically, he notes, two of these have recently been confirmed as EU_46_A1 – an aggressive strain of late blight with resistance to OSBPI fungicides. The samples are from sites in Shropshire and Derbyshire, making these the first to be detected in England.

"Previously, EU_46_A1 had only been detected in Wales and Scotland, meaning the staunch industry warning issued last year was warranted. While we knew it was coming, this demonstrates the importance of stringent stewardship, including alternating and mixing blight fungicide modes of action."



Spread of EU_46
This aggressive strain has now spread to sites in England, says Dr David Cooke.

CHANGE

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The power to choose

While some plant breeders are urging growers to consider ordering seed direct following last year's changes to the UK sugar beet seed model, this approach might not suit all. *CPM* looks at both sides of the story.

By Janine Adamson

Following an announcement by NFU Sugar and British Sugar last summer which explained changes to the UK sugar beet seed model, growers can now access greater diversity and benefit from flexibility when it comes to varietal choice and ordering seed.

The notification detailed that having responded to feedback, growers and seed breeders are now "empowered to buy and sell seed direct, or via third party suppliers, as well as via the existing UK Seed Account operated by British Sugar."

The reason behind the move? To allow earlier uptake of new genetics and increase choice for growers, the notice said.

And now, more than a year later, breeders hope growers will take full advantage of the broad range of material available, in readiness for the upcoming season. "Growers have been given a greater level of freedom and we hope that they exercise that right," comments SESVanderHave's Ian Munnery.

"It's admittedly a new way of doing things compared with the old British Sugar UK Seed Account model, but should demonstrate there's a host of benefits in going direct."

From the SESVanderHave portfolio specifically, growers should recognise long-established varieties such as Magpie and Wren. There are also new top-performing varieties on the Recommended List – Antler, Gadwall, Hoopoe and Hilleshög's Aslan, the latter which SESVanderHave is marketing.

With the recently announced 2026 contract price considerably below the previous two years, seed price and quality should come into sharp focus, says Ian. "It's important to buy varieties and traits you actually require, achieved by selecting to suit the situation at hand.

"Equally, as breeders, we recognise the threats growers face on a daily basis and aim to breed new varieties accordingly. This is where on-farm trial data – supplemented by breeder trial data – is critical. This is how we ensure the latest material can be on-farm and making a difference, as quickly as possible."

KWS has been instrumental in developing the changes to the UK sugar beet seed model and has worked closely with both British Sugar and the NFU during the past 10 years to develop them, explains the firm's sugar beet product manager, Martin Brown.

"We believe the changes implemented last year are positive for all involved in the industry, and should be considered against the challenges sugar beet growers will increasingly face in the future," he says.

"Fundamentally, all seed breeders can now offer their own finished product to beet growers, with the majority of breeders also continuing to provide farmers the choice of Germains' finished products.

"This is important as it supports competition, meaning more value to farmers, and most importantly, the

In-house benefits

Ian Munnery highlights that as a result of the changes to the UK Seed Account model, SESVanderHave now manages all seed processing in-house, offering high specifications for germination and monogermity.

opportunity to purchase a breeder's variety with their own pellet technology ensures full accountability for the seed once it's on farm."

Martin says another significant factor is that growers can now buy varieties before they've been added to the BBRO Recommended List, enabling access to better varieties earlier. "Conversely, varieties which have come off the RL will also be available for one more year, extending farmers' choice.

"Another beneficial outcome of the discussions is that seed purchase is decoupled from the beet contract, giving farmers freedom to purchase their seed at any point in the year," he explains.

"So basically, sugar beet growers now have access to varieties up to a year earlier than before, have the flexibility to choose the latest technologies they require, and select who they buy their seed from independently of the beet contract they're on."

Ian highlights that as a result of the changes to the UK Seed Account model, SESVanderHave now manages all seed processing in-house. "This means we can offer high specifications for germination and monogermity while keeping seed costs down. Combined with our top-yielding varieties, this equates to a significant saving for growers.

"Ultimately, we're a specialist sugar beet breeder – we want growers to continue to grow beet. By choosing to buy our varieties direct, farmers ensure they get the best genetics and the best quality for the UK's sugar industry."

While for KWS, a priority has been working constructively across the sector. "An important element of this has been to openly demonstrate the efficacy of the company's genetics and associated technologies," explains Martin.

Rounded view

According to KWS' Martin Brown, buying seed directly doesn't necessarily mean a cheaper product, because the UK Seed Account is run on a not-for-profit basis.

"We were the first breeder to gain access for their own finished product into the market for 2020 drilling, following extensive trials and validation through the BBRO of our proprietary EPD seed preparation methods and seed coating components.

"We also launched Conviso Smart in 2020, which involved establishing a different route to market by working with a network of distributors where farmers can buy the technology package from.

"During the years, we've invested significant time and resources into establishing the principles of the new seed model, and believe strongly that it'll deliver the best results if we work in genuine co-operation and cross-industry partnership," stresses Martin.

He believes there's a bigger picture – helping growers to achieve reliable high performance on farm, supplying consistent supplies of raw materials to industry, and delivering the quality consumers demand – which involves many players.

Grower trials

Providing specific and targeted varietal insight through Club SV

For SESVanderHave, the focus has shifted to on-farm trials, built through a growing network of farmers known as Club SV. These are dedicated beet growers seeking insight into maximising yield and increasing performance on their own individual farms, says the firm's Ian Munnery.

"We're also now testing the sugar beet pulp from these fields for impurities and to detect the DNA from a range of diseases including SBR (syndrome basses richesses), rhizoctonia, virus yellows and more. This provides earlier detection of sub-clinical infections so we can finally determine the level of threat – effectively producing a biosecurity heat map of the UK beet area.

"In screening varieties in this way – using farms sweeping across the UK's beet area – we can verify the performance promised in official trials to truly understand their strengths and weaknesses."

According to Ian, this has led the firm to find the UK's costal fringes behave differently to inland areas, as well as a clear North-South divide. "Furthermore, those farms with a known issue of beet cyst nematode can validate BCN tolerance. With this added intelligence, growers can make more informed choices about the varieties they grow, tested locally and within the scope of the challenges that they face," he raises.

Looking forward, the list of SESVanderHave-bred varieties is set to expand further. The breeder has five new candidates that have already passed National Listing and have since been added to British Sugar's approved list for sowing. These are Pintail, Possum, Partridge, Grouse and Snipe.

There are also five new varieties preparing to conclude National Listing this autumn, meaning a total of 10 new options for growers. Finally, looking further ahead, there are a bumper 30 new varieties on their way to UK growers from the SESVanderHave pipeline, with some exciting new trait combinations, concludes Ian.

On-farm verification
In screening varieties using farms sweeping across the UK's beet area, SES VanderHave can verify the performance of its genetics.

"It's much more complicated than any one part of the debate, such as direct selling, and no one company has sole ownership of all the knowledge, technology and resources required to deliver the best integrated solution for sugar beet growers in the future.

"Our vision is very much to work with trusted, reliable partners and embrace all technology and knowledge. That's why we still choose to sell classical KWS seed through British Sugar via the UK Seed Account – a relationship that has many benefits including getting products on-farm quickly and efficiently."

According to Martin, it's also worth bearing in mind that buying seed directly doesn't necessarily mean a cheaper product, because the UK Seed Account is run on a not-for-profit basis. Equally, the new model may not necessarily deliver greater availability of specific varieties.

"There's an overly simplistic view that growers can now get whatever seed they want, but that's misleading. Just because you can buy seed differently doesn't necessarily mean you're always going to get what you want.

"That's not down to the route to market, but simply because there's only ever so much seed available and when it's gone, it's gone.

"All-in-all, we believe the NFU and British Sugar have considered and acted upon feedback from growers and others in the industry and we're proud to have been an important player in making these changes happen.

"Working together to deliver more choice really is where we think the biggest gain from the new sugar beet supply model lies," concludes Martin.

Supplying British Sugar

To supply British Sugar, varieties must:

- Be on the approved 2026 BBRO Recommended List
- Be on the previous (2025) BBRO Recommended List
- Be national listed on the APHA Variety List and are undergoing year 3 testing with the BBRO Recommended List

Official 2026 Recommended List	Previous 2025 Recommended List	National listed, undergoing year 3 testing
BTS1915, Antler, Katjana KWS, Harryetta KWS, Daphna, Chyma KWS, Gadwall, Annatina KWS, Josephina KWS, Hoopoe, Aslan, Morgan, Magpie, BTS3610, SY Tweed, Button, Osprey, Smart Uma KWS, Generosa KWS, BTS Smart 9485, Smart Vesnica KWS, Smart Nelda KWS, Maruscha KWS	ST Trent, Wren, Stewart, Tawny, Adder	Grouse, Snipe, Possum, Pintail, Partridge, BTS Smart 8565, BTS Smart 4960 N, BTS 6620 N

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