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CROP PRODUCTION MAGAZINE

March 2026

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George Swiers, Arable Manager at JF Lister Farms, says high yellow rust pressure means Iblon® is the fungicide best suited to T1 on his crops.



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“This review is about more than reducing bureaucracy”



POINT OF VIEW

As growers, we're no strangers to change. Whether driven by market demands or consumer expectations, the pressure to adapt is constant.

But following last year's farm assurance review (FAR) and Red Tractor's announcement on a review of its standards, we're at a critical point – one that'll determine how the scheme evolves to meet the demands of our sector.

Growers have made it clear that the current system, with its overlapping standards and audit duplication, can feel more burdensome than beneficial. This review will look to streamline the assessment process, ensuring that each subsector – including crops and sugar beet – has standards that reflect its unique needs and challenges.

At the same time, the supply chain has shown a willingness to take a pragmatic approach, recognising growers' concerns and the demand for a proportionate assurance scheme that works both

on farm and for the end market.

As a farmer and chair of the crop sector board, I'm actively facilitating these discussions across the supply chain to achieve consensus on the way forward. Both the sector board and technical advisory committee (TAC) bring together a wide range of voices, with strong grower and NFU representation to ensure concerns are fully considered throughout the process.

In the coming months, we'll review each standard, line by line, to ensure that it's justified, necessary and fit for purpose. If it isn't, we won't include it.

As part of this work, we're considering whether more tailored standards that recognise the diversity within our sector are appropriate, such as a model with a legislative baseline and premium add-ons for the likes of malting barley and milling wheat. This structure could also help to address concerns regarding imports produced to lower standards, undercutting Red Tractor assured cereals, particularly in feed.

Alongside the standards themselves, the assessment model is also under scrutiny. We continue to discuss

whether lower risk farms with a strong compliance record could have less frequent audits, submitting evidence of compliance in-between via the portal.

I want to stress that engagement remains central to this process. Revised standards are expected to go out for formal consultation in the autumn, when growers will have another opportunity to shape the outcome.

This review is about more than just reducing bureaucracy; it's about ensuring that the Red Tractor scheme remains fit for the future. My hope is that the end result is a system that supports the future of British agriculture while ensuring that our products continue to meet the expectations of consumers and industry alike.

By Julian Sturdy, Red Tractor combinable crops and sugar beet sector chair. Julian is also a third generation arable farmer based in North Yorkshire, running a 300ha business across owned, tenanted and contract-farmed land; growing combinable crops, sugar beet and potatoes.



Opinion
Smith's Soapbox: No profiting from perversity
I know I'm not the only one who won't remember 2025 for its benign weather. The scale of this meteorological adversity is neatly illustrated by the accompanying image of my neighbour's maize...



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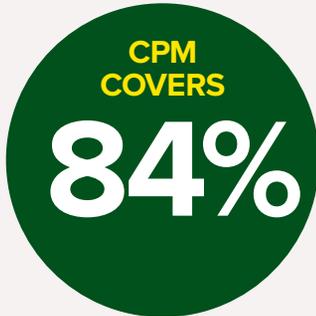


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CPM is here to inspire, stimulate and inform, while maintaining a positive outlook for the future.



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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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Ready in defence mode



“There’s a volume of septoria inoculum waiting to build, plenty of mildew and in some cases, brown rust.”

PAUL GRUBER

With the weather finally beginning to turn after weeks of inclement conditions, the joy of spring seems to be tantalisingly close. Still, experts reiterate that growers could be in for a disease heavy season. *CPM* gets the lowdown.

By Janine Adamson

In many ways, messaging from industry is beginning to sound like a stuck record – early drilling, forward crops, high disease risk, focus on fungicides. While repetitious, it should hardly be surprising.

Those with an air of cynicism may attribute this to a desire to ‘flog’ more chemistry, however, with prolonged damp conditions and few frost events, is it time to heed the advice?

Hutchinsons’ David Howard stresses that complacency should be avoided across the whole cropping rotation. “Growers shouldn’t be lulled into a false sense of security following the relatively

low disease incidence seen last season, when a cold January and February followed by a dry spring and summer, helped to keep a lid on problems.

“The situation could be very different with more normal weather patterns this season. Although the winter is likely to have slowed and delayed rust arrival in crops, to what extent is always challenging to predict until we get to spring, and it’s unlikely to have gone completely.”

According to ProCam’s regional technical manager Nigel Scott, the reality is indeed high risk, with growers in the North facing a ‘double whammy’.



High alert

Previously, options like LG Typhoon and Champion were relatively easy-going varieties, but these are now high-input from T0 onwards, stresses ProCam’s Nigel Scott.

Calming the chaos of chocolate spot

Protecting clean bean leaves from severe disease pressure is critical

Following the prolonged wet weather recently, field beans have come under severe pressure, namely from chocolate spot. And with every rain event, the risk of spreading spores onto new growth continues, warns Syngenta field technical manager, Simon Jackson.

Latest reports from PGRO support evidence from the field, highlighting that early applications of fungicides may be required to prevent further development. This means checking bean crops should be a priority, especially on the underside of leaves where leaf spots may be more prevalent.

Simon urges protecting newly emerging leaves from continuing infection at the earliest opportunity. "Field trials and growers' experience suggest Amistar (azoxystrobin) can keep leaves green and clean of infection until weather conditions dry up and the main fungicide programme can kick in.

"For added curative activity in high pressure situations on infected crops in continuous wet weather, tank-



High pressure

Caption: Early applications of fungicides may be required to prevent further development of chocolate spot in winter beans.

mixing a product with some curative activity, such as metconazole, would further increase results," he adds.

In response to research into bean disease resistance management, growers should avoid using an SDHI at this stage in the season so it can be utilised later in the programme, points out Simon.

He says one of the challenges with wet soils is finding a spray opportunity and a period where crops aren't under stress for application. "Growers should also be alert for potential risk of frost damage exacerbating

any spray effects, ideally applying before any frost forecast, or leaving at least five days after a frost event for plants to recover. The impacts of early chocolate spot under such high-pressure conditions can be severe.

"With the potential of well-established bean crops from the autumn, the current aim is to protect the new growth. Then, when we get to Elatus Era (benzovindiflupyr+ prothioconazole) timing for both chocolate spot and brown rust – from GS51 – there's strong clean growth and good yield opportunity."

► "There are a lot of forward crops with septoria already in the base. This is in addition to justified concerns regarding yellow rust, given the North is where the Yr15 breakdown was first noted last year.

"With a lack of viable alternatives,

growers have had to continue with susceptible varieties even if the resistance scores have dropped significantly. For example, in the past options like LG Typhoon and Champion were relatively easy-going varieties, but these are now high-input from T0 onwards and must be guarded appropriately," he stresses.

Nigel, who's based in Durham, says on average, growers drilled winter wheat up to 10 days earlier than usual

in his area into warm soils; autumn conditions were then conducive to forward growth. He adds that it's a similar story for winter barley too.

"Barley is looking very forward, increasing the risk of diseases such as net blotch. For those growers who've grazed their bulky crops with sheep, this will help to manage subsequent PGR and fungicide use, although isn't something I'd recommend now onwards."

Nigel's colleague

Paul Gruber is based in North Oxfordshire and highlights the changes between this season and 2024/5.

"Yellow rust was first observed in my crops around 31 January this year,

while last year it wasn't visible until May. Importantly, this is comparing the same variety – Champion.

"This confirms the significance of the Yr15 breakdown, that it's very real and widespread across the country."

Paul says many growers in his area won't necessarily be used to seeing yellow rust, so communicating



Country-wide issue

ProCam's Paul Gruber says the significance of the Yr15 breakdown is very real and widespread across the country.

"Biological controls may provide another option to help keep disease at a manageable level when fungicide options are limited."



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A captive audience

Secretary of state Emma Reynolds announced the new SFI offer at the NFU conference in February.

SFI update for 2026

Fewer actions and less complexity lie ahead, but with an annual agreement cap

According to Defra, the new SFI offer for 2026 has been shaped directly by industry feedback to support 'productive, profitable farm businesses while delivering environmental outcomes'.

As outlined by secretary of state Emma Reynolds at the NFU conference, Defra has worked closely with stakeholders during workshops and forums, using the feedback to refine and strengthen the policy within the scheme.

Looking at the broad headlines, firstly, SFI should be simpler with fewer actions and less complexity. Then, it promises fairness and access will improve, with a £100,000 annual agreement cap so more farms can benefit.

Delving into the detail, the new offer includes 71 actions (down from 102 in SFI24), having removed those with low uptake or that perceived to deliver less for food production, the environment, or wider environmental targets.

By reducing some payment rates introducing an area cap for the enhanced overwinter stubble, and applying the new annual agreement cap, this should ensure that more farms can participate.

In particular, rate reductions will apply to herbal lays CSAM3 (from

£382/ha to £224/ha), winter bird food CAHL2 (from 853/ha to £648/ha) and legume fallow CNUM3 (£593/ha to £532/ha). Defra states this is because initial payment rates were set too high, making it too attractive to take productive land out of food production.

For small farms up to 50ha, and all without existing ELM agreements, SFI will open in June for two months. There will then be a second window from September for all farms, which currently has no closing date.

CLA President Gavin Lane says he's pleased SFI has been adapted. "But introducing a cap on payments has risks; limiting the ambitions of those that can do the most for nature. This is counterproductive when the government has legally binding environmental targets and some may have no choice but to intensify production.

"Many farm businesses are facing some of the bleakest profitability conditions in a generation. BPS is virtually gone and SFI is an essential income stream to build business resilience and support food production. We'll continue to work closely with Defra to ensure the scheme is as accessible and flexible as possible," he comments.

the importance of applying a T0 to protect crops will be essential. He's also seeing the presence of septoria. "As with everyone else, growers in the West went early despite not usually drilling until mid-October due to blackgrass concerns.

"As such, there's a volume of septoria inoculum waiting to build, plenty of mildew and in some cases, brown rust. We also have to be aware that lodging risk is high, as well as poor blackgrass management leading into future seasons."

Should septoria pressure be high by T0, David says growers should consider including multi-site folpet in the tank mix to help gain control.

"Use chemistry wisely to its best effect, considering the strengths of individual actives, and where they're best used in the programme. But, beware of label restrictions that prevent the use of some products before GS30.

"Biological controls may provide another option to help keep disease at a manageable level when fungicide options are limited, although remember they're purely protectant and not curative."

One crop Paul is particularly concerned about is winter beans. "Early drilled or forward plantings are under high chocolate spot pressure (see box). It's a wet weather disease and has cycled effectively due to the mild conditions.

"In these instances, crops will likely require extra fungicide and careful agronomic management," he urges. ●



Bubbling disease

Septoria is visible in the base of some crops, as shown by this image taken in January. Photo: Paul Gruber.



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Portfolio and Campaign manager, ADAMA UK



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Figuring out the fungicide balance sheet

“Constantly evaluate the performance of each fungicide application – has it worked as expected?”

PROFESSOR FIONA BURNETT

Established research suggests T1 and T2 deliver the greatest return on investment, but with innovative chemistry on the market plus shifts in certain disease pressures, is this still valid? *CPM* looks at the value of ‘T’ timings across the whole programme.

By Janine Adamson

According to historical industry research, when comparing the economic value of each ‘T’ timing, T0 delivers a much smaller yield response, if at all, compared with later applications. However, since this work was conducted, times have changed... dramatically.

On the plus side, modern varieties feature robust genetics with improved disease resistance scores, albeit, recent Yr15 breakdown aside. Innovation has also been taking place in crop protection, with a raft of new fungicides coming to the market, as well as a steady increase in non-synthetic disease control introductions.

Conversely, poor grain prices, a highly variable Harvest 2025, and a reduction in funding from environmental schemes, means on average, the coffers are somewhat depleted. This sparks the question – is investment in fungicide programmes as simple as that historical research would suggest?

Independent consultant, Professor Fiona Burnett, says scrutinising fungicide

economics has never been more critical. “We’re at a place where we have to really think about each crop on a per-field basis. Last year, economising on a T0 was not the right decision, and while this may steer thoughts this season given the Yr15 breakdown, T0 should never be used as a blanket spray.

“It all depends on whether the crop is a susceptible variety (according to the revised Recommended List resistance ratings), whether the field has a history of yellow rust pressure, and general conditions, which will all inform the level of risk and therefore decision on T0.

“Ultimately, we could hypothesis around the value of spray timings, but really, it’s down to watching the season, evaluating the crop that’s in front of you, and reacting accordingly,” she urges.

That said, Fiona recognises the trend is moving towards front-loading programmes. “T0 is about prevention, particularly from a yellow rust-perspective. Equally, T1s are becoming more sophisticated with greater

stacking, which is required for both disease control, and resistance management.

“This does make economical sense – front-load and judge risk early to avoid having unnecessary intermediary sprays and going in repeatedly. It’s the likes of a T1.5 or T4 that don’t have a huge margin, and tend to be applied to firefight,” she explains.

In agreement, Niab’s Dr Aoife



Prevention rather than cure
Professor Fiona Burnett says front-loading fungicide programmes does make economical sense.

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Broader thinking

NIAB's Dr Aoife O'Driscoll believes it's time to question what each spray delivers across the whole system, rather than in isolation.

- ▶ O'Driscoll raises that current chemistry is more protectant and less curative compared with when the 'T' timings were first devised. Furthermore, what's involved in growing a crop has changed dramatically during recent years.

"In some ways, we're using 2026 fungicides with a 2010 mentality, which includes looking at each application timing in terms of yield response alone. Instead, we should question what each spray delivers across the whole system, whether that's risk management, inoculum reduction, even holistic aspects such as general peace of mind," she says.

This means overall messaging regarding fungicides may have to change too, believes Aoife. "We can't always measure the impact of front-loading, including T0, so we have to find new metrics to quantify. Exactly how we achieve that, remains an open question.

"But if we can move away from binary thinking – where we're guided by a growth stage – we can start to think more broadly about what we're actually trying to achieve with a fungicide, and how we might realise that."

And as always, there remains an element of 'watch and see', suggests Fiona. "Constantly evaluate the performance of each fungicide application – has it worked as expected? This will influence future sprays, as if successful, is an opportunity to sensibly tweak a later dose to make an incremental gain.

"Unless in an extreme scenario such as last year's drought, this won't mean slashing applications by half. Instead, it's fine-tuning the dose of certain products in a balanced way, which again,

assists resistance management."

UPL's Tom Wheelhouse believes given the threat of septoria hasn't gone away, the T timings exist for a reason. "We don't have effective curative chemistry for septoria, it remains 'the' most yield robbing disease. That's why the onus is on being proactive with fungicide programmes and maximising preventative product choices.

"It costs a lot of money if you're on the back foot, both in the product then required and through a hit on yield," he stresses.

Tom agrees with Fiona that no two years are the same and the days of blanket recommendations are over. "Just because a fungicide programme worked last year certainly doesn't mean it will work again this season. Yes from a sprayer operator's point of view it's a pest to have different fields requiring different tank mixes and timings, but this is how any potential savings could be made," he says.

INNOVATIVE SOLUTIONS

Scientific understanding has also moved on significantly since T0 was dismissed as low priority, adds Tom. "An elicitor product like laminarin, for example, when applied at T0 is about protecting the plant early doors and creating resilience against septoria.

"Its activity is prolonged too – supporting later fungicide applications and allowing a little flexibility. Importantly, it isn't just about carrying a crop through to T1, it supports beyond that and plays its own role throughout a plant's life cycle," he explains.

Meanwhile, Fiona warns against being 'gung-ho' with products in the alternative plant health sphere in a bid to save money. "This is an exciting, emerging area but is again something that should be scrutinised. Equally, if there's good evidence that a crop requires feeding, then fine.

"I think this raises the importance of evaluating the economics of all crop inputs as a collective, whether that's fungicides, herbicides, biostimulants or nutrition. Of course fertiliser, regardless of type, will require the greatest investment."

Tom agrees: "Other inputs could be tweaked for a more significant gain than immediately jumping to slashing fungicides to the detriment to the crop." While Aoife reminds that labour and machinery also contribute considerably to the cost of production, so in balance, too much time is spent questioning the value of fungicides.

Subsequently, Fiona encourages growers to have an open, honest conversation with their agronomist

if they have concerns. "You'd like to think this wouldn't be the case, but if all field recommendations are the same, that should be questioned.

"Also, to achieve any potential incremental savings, is it time to accept a crop won't be totally clean? While even traces of yellow rust are unlikely to be tolerated, for less aggressive diseases – mildew, septoria in some cases – is a little actually okay?

"This could be the year of more crop walking, more conversations, and more tweaking," she comments.

One agronomist already operating by this approach is Yorkshire-based Richard Boldan of Edaphos Agronomy. He says while current crops have a lot of potential, he'll be assessing on a field-by-field, farm-by-farm, margin-led basis.

"I'm having a lot of discussions regarding input costs and on the whole, growers want to spend as little as possible. But, there's a significant quantity of varieties in the ground that are now susceptible to yellow rust.

"Luckily, the chemistry to control yellow rust is cost-effective so it's worth hitting susceptible crops hard and early to prevent ingress. That said, some varieties have maintained good resistance and you can't beat decent genetics, so it's far from a blanket spray," he explains.

However, while not a primary concern now, he remains wary about septoria. "It's the most expensive disease to control and the fungicides required this season will all depend on the level of risk. If it's a repeat of 2024, then the newer chemistry will be justified, while if it's like last season, it just won't be worth it," he concludes. ●



Weighing it up

If this season is a repeat of 2024 then newer chemistry will be justified, while if it's like 2025, it just won't be worth it, suggests agronomist Richard Boldan.

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Formulating success, maintaining trust



“Tread carefully when new generic chemistry appears, seek independent validation and scrutinise that more than the list price.”

STEVE DENNIS

As generic crop protection products steadily enter the UK market, offering growers a cheaper alternative to their branded counterparts, are they really as cost-effective as they first appear? CPM investigates why an active ingredient can never truly be copied.

By Janine Adamson

When making the decision between a famous branded tomato sauce rhyming with ‘meinz’, and a supermarket replica version, while both might contain tomatoes, they certainly won’t taste the same.

Although this is simplifying the matter somewhat, parallels can be drawn between the popular condiment and plant protection products – just because a generic version claims to be the same as its branded counterpart, in reality, that simply can’t be true.

That’s the message from BASF UK’s head of research and technical development, Steve Dennis, who says post-patent generics may promise to be identical, but given the full detailed ‘recipe’ of a product is never published, that’s hardly possible.

“Once a product’s patent expires, it’s

then a race for generic manufacturers to hit the market first with their version of the active ingredient, often at a ‘cheaper’ and therefore attractive price point. However, while the ingredient list must be declared during the regulatory approval process, the full make-up of the product isn’t published.

“This means although other manufacturers can try to analyse a product with the aim of copying it, it’s never quite the same. That’s because when a grower purchases an active ingredient, it’s not just a molecule being bought, so much more goes into the formulation,” he explains.

This can include solvents, surfactants, uptake enhancers, biocides, emulsifiers, adjuvants and wetting agents, and additives to boost shelf life, lists Steve. “These are required to maintain tank mixability, or to ensure the chemistry

can penetrate the leaf surface or the fungus being controlled, for example.

“Often the most difficult aspect of developing a new product is getting the active to where it needs to be – the role of formulation is critical in this. It inherently makes the product work while ensuring it’s appropriate and safe to be used on-farm.”



The full picture

When a grower purchases an active ingredient, it’s not just a molecule being bought, so much more goes into the formulation, says BASF’s Steve Dennis.



Consistent differences

According to sprayer operator, Iain Robertson, it's relatively easy to tell the difference between branded and generic chemistry once a product is being poured.

Equally, while these additional components might not be the leading role in a product, they come at a significant price-point. "You might assume the additives in the can are negligible compared with the main molecule, but that's not the case. Therefore, they're a prime target for generic manufacturers wanting to cut costs – it's essentially cutting corners. Sadly, there's no way you can tell that by just looking at a can," warns Steve.

According to sprayer operator, Iain Robertson, it's relatively easy to tell the difference once a product is being poured. "They're physically different, the original product just 'feels' right.

"There's a lot to be said about the packaging too, and with generics, it shows. This includes significant differences in the can itself, whether it glugs, how easily it washes out, how it's recycled and the cardboard outer.

"All of these smaller aspects add up to saving time in the spray store, and during days where down-time isn't an option, you have to maximise every minute," explains Iain.

He highlights that most of the 'big' manufacturers are transitioning to the closed transfer system, which has many benefits for both the operator and a product's performance. "It all adds confidence to the investment being made in a crop."

For Iain, it's also about trust and

knowing a product is backed by UK-specific support. "With R&D manufacturers, you know that everything has been tested and regulated adequately, to ensure a product is as safe and user-friendly as possible.

"Occasionally, something might not go as planned, but you know there's someone available to speak to who'll potentially come out on-farm to walk fields and find a solution. We have a very good relationship with our area reps who are happy to come out and assess a crop, even before a product has been applied," he says.

EXPERTS KNOW BEST

Iain has his own analogy for generic versus branded chemistry – that it's like baking a cake. "You can have the same ingredients as someone like

Mary Berry, and even follow the same instructions, but I can guarantee you the end result won't be as good as theirs.

"So in crop protection, the experts know how to get the best from their active ingredients to deliver the optimum results. Generics might seem cheap, but they often come with a cost later down the line."

He lists the risks as blocked sprayer nozzles, settling out in the tank, and even packaging errors restricting useability. Of course that's before noting any differences in the chemistry's efficacy in the field.

"Something I've noticed in the past is rainfastness – the R&D branded products seem to withstand adversity better, including heavy dews. This is an important factor given the inclement weather we have in the UK now. I'm not sure I'd want to push a generic in quite the same way."

Iain adds that the farm may use a generic option if it makes sound business sense, although he always has in the back of his mind that there may be a subsequent trade-off. "We've been lucky as we can mostly afford to use branded active ingredients, but that's been a conscious choice and there'll be years such as this one, where we have to turn to the generics.

"Farming is a business and you have to make decisions based on return on investment, that said, we certainly wouldn't look to cost-save at T1 or T2, but may make sensible swaps at T0 and T3," he raises.

For those who've been using generics for a while in their plant protection programmes, Steve urges to avoid making assumptions. "Don't presume a new wave of product will continue to perform as you expect. Tread carefully when new generic chemistry appears, seek independent validation and scrutinise that more than the list price.

"Also ask to see trial work and tank-mix



Application test

Images from testing at BASF's Research Centre, Limburgerhof, with BASF Filan and generic boscalid formulations. The generic product shows significant residues on 45µm sieve.



Performance discrepancies

BASF's Comet (pyraclostrobin) (L) versus generic pyraclostrobin (R), indicating a reduction in performance. Photo: BASF, source: Independent trial in Germany

► compatibility information for the generic product itself, not the branded variant it's copying. If this isn't available, ask why; utilise your usual level of discernment when it comes to choosing products.

"Equally, if all of that information is available and appears

robust, using a generic alternative may be less of a concern," says Steve.

He stresses that with some actives nearing the end of their patents, and therefore being vulnerable to imitation, the subject of branded

R&D versus generic chemistry is gaining momentum. "We're also seeing broader sourcing of off-patent products and generic materials which in the past, have conventionally come from Europe."

And although not all post-patent chemistry is sub-par – some larger generic manufacturers and older actives are effective – certain products entering the market are highly concerning, he adds.

"We are aware that authorities in the EU have taken enforcement action against certain generic suppliers. Growers are often caught in the middle where this action is taken and may be left with more questions than answers on which products they should use. At the end of the day, all active ingredients have the potential to be made badly," he warns.

This isn't the case for an R&D formulation though, highlights Steve. "When we develop a product in the first place, we test a whole range of formulations to ensure we only take forward the best version

of that active that is possible.

"Then, as technology advances through the years, it's possible to take older chemistry and improve it by using updated formulation methodologies.

BASF takes pride in continuous development, which is demonstrated through the major upgrades to our F500 (pyraclostrobin) formulations in 2003 and 2020."

Conversely, BASF has tested generic pyraclostrobin which was shown to mirror the firm's 2003 formulation, not the current 2020+ version it adheres to. "When generic manufacturers imitate older formulations in this way, it means the chemistry isn't the best that it could be," says Steve.

There's also the investment that companies like BASF make to support the wider industry too, he comments.

"You can have the same ingredients as someone like Mary Berry, and even follow the same instructions, but I can guarantee you the end result won't be as good as theirs."



New technology

Many manufacturers are transitioning to the closed transfer system, which has benefits for both the operator and a product's performance.

"Whether it's shifts in resistance, understanding new pathogen threats, or general agricultural science, we're spending heavily on research to help the industry to make progress.

"However, there's a level of generic manufacturer out there that only wants to invest the absolute bare minimum into UK agriculture, and they're certainly unlikely to have the same quality assurance standards. They won't be regularly meeting with agronomy companies to brief agronomists, or have that boots-on-the-ground support."

Iain believes this can sometimes be taken for granted on-farm. "Many generic manufacturers copy an active at a certain point in time and that's that. You don't get the same level of evolution that you do from the R&D firms," he concludes. ●

Innovation Insight

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Putting nature to the test

“It’s early days and only a few biofungicide products are available for commercial UK wheat crops, but there’s a clear demand from levy payers for robust data.”

CATHERINE HARRIES

An independent pilot is taking place to help growers identify the value that different biofungicide products can add to winter wheat disease management programmes. *CPM* shares the details...

By Janine Adamson

Undoubtedly an emerging market, biopesticides are piquing interest as a means of both bolstering the agronomic toolbox, and, reducing the environmental impact of crop production.

And while derived from natural substances, unlike other non-synthetic inputs such as biostimulants, biopesticides are categorised as plant protection products, thus requiring an official authorisation for their use.

Just like conventional chemistry, this comes with a requirement for manufacturers to provide proof of efficacy, usually through the submission of trial data during a product’s registration. However, these trials are mostly commercially-driven, and not necessarily reflective of current agricultural practices at a regional level.

Equally, registration trials only have to indicate some activity against

a target disease, thus raising the question of how robust and variable the control is from a biofungicide.

NEW PROJECT

Recognising grower demand for more information on biopesticides – specifically independent UK trial data – has led AHDB to fund a new pilot that will investigate the potential of biofungicides in winter wheat for septoria control, explains AHDB project lead, Catherine Harries.

“The idea was first raised a few years ago within AHDB’s fungicide working group, which are the stakeholders behind our established fungicide performance work. Since then, it’s been finding a viable way to move the concept forward,” she says. “We also received comments through the Letterbox on our website – where levy payers are invited to tell AHDB where they believe knowledge gaps are.”

Catherine adds that insights

have been gleaned from the former AHDB Horticulture, which invested in biopesticide research through projects such as AMBER and SCEPTREplus.

“Although primarily horticultural crops, SCEPTREplus also considered



Levy payer demand

Recognising grower demand for information on biopesticides has led AHDB to fund a new pilot that’ll investigate their potential for septoria control, explains AHDB project lead, Catherine Harries.



Trial protocol

ADAS' Chloe Francis says up to seven biofungicides will be assessed, applied alone and in addition to the base fungicide programme at 50% field application rate.

field crops, for example, assessing the potential of *Bacillus amyloliquefaciens* (formerly *subtilis*) strain QST 713. This work has laid a foundation for the arable sector, not only by compiling products, but by developing initial trial approaches and improving understanding of biopesticide application."

Rather than fully integrate the biofungicide trials within the existing fungicide performance work, Catherine says the two will remain separate. "While both are classified as plant protection products, biofungicides and conventional fungicides are not the same.

"The work will, however, take place at the same sites. This means that the biofungicides will be tested against the same disease pressure as the fungicide performance trials so we can compare the results."

Looking at the pilot trial in more detail, AHDB has awarded a contract for its delivery to a consortium of organisations comprising SRUC, Niab and ADAS. The group also manages AHDB's extensive network of fungicide performance trials in wheat, barley and oilseed rape, says Catherine.

Researchers will conduct two years of winter wheat trials (2025/26 and 2026/27) to generate disease and yield data, which should then inform how best to integrate biofungicides within existing crop protection programmes.

Catherine points out that given its economic importance, the work is focusing on septoria control, and will be carried out at three trial sites –

Lothian, Hampshire and Herefordshire – based on their historically high rainfall and septoria pressure.

The trial in Lothian is being managed by SRUC, led by overall project lead, Neil Havis. He says the biofungicide products for the pilot have now been finalised, and are all either currently registered, or, near to their market launch so will be available on-farm soon.

"We've been working with manufacturers and specialist research companies to create a list of up to seven suitable products to include in the trial. This has included addressing specific criteria, such as the manufacturer being able to provide trial data for septoria control.

"As well as ensuring we're only trialling appropriate biofungicides, it will also prove an effective comparison point to hopefully validate those manufacturer claims," he adds.

STEERING GROUP

Neil stresses that absolutely no biostimulants or similar will be included in the trial. Equally, the project's steering group includes scientists, agronomists and farmers, which he believes is critical for ensuring the work will be on-farm applicable. "This work won't be controlled by academics alone," he comments.

The Hampshire trial is being managed

by Niab at their Sutton Scotney site, while Herefordshire will be overseen by ADAS at their centre of septoria research. ADAS' Chloe Francis says each site will feature two locally-relevant winter wheat varieties – one moderately susceptible to septoria, and the other moderately resistant.

For Harvest 2026, LG Astronomer and Graham are being grown at the sites in England, while LG Skyscraper and RGT Hexton have been sown in Scotland.

Then, in terms of conventional fungicides, five control treatments are being used: completely untreated plots (no fungicide at all; for a baseline disease pressure), a typical commercial programme for septoria applied at 25% field application rate, 50%, 75% and 100% rate. These are based on a programme with T1 and T2 timings.

With controls set, up to seven biofungicides will then be assessed, applied alone and in addition to the base fungicide programme at 50% field application rate, explains Chloe. "However, the biofungicides will be applied at the optimum rate and timing according to the manufacturer's guidance.

"With this trial design we should reveal the percentage control each biofungicide can achieve on its own, as well as understanding how much control each biofungicide adds to the 50% base programme, with the ability to compare

Types of biofungicides

FRAC classifies fungicides by their mode of action, which defines how and where a fungicide works

The Fungicide Resistance Action Committee (FRAC) classification process details four groups for biofungicides. Three of these are biological products with multiple modes of action (the **BM group**), which mainly have a direct impact on pathogen targets. The fourth is those that induce plant defence mechanisms.

Plant extracts (BM 01 group)

Plant-derived products associated with several pathogen target sites, which include the ability to disrupt fungal structures. This group includes several plant oils, such as tea tree oil.

Living microbes (BM 02 group)

These are living organisms that compete with, or disrupt, plant

diseases. This group covers fungal and bacterial organisms, including fungal competitors and antagonists.

Metabolites (BM 03 group)

Metabolites are associated with the substances that form following natural metabolic processes. This group mainly targets cellular processes, but currently, FRAC only lists cinnamaldehyde in this group.

Host plant defence induction (P group)

These are substances associated with triggering or amplifying natural defence responses, mainly having an indirect impact on pathogens. The group is relatively diverse, featuring 10 sub-groups: P 01 to P 10, which includes various elicitors.



Variety choice

Each trial site will feature two locally-relevant winter wheat varieties – one moderately susceptible to septoria, and the other moderately resistant.

- ▶ this with the 75% and 100% base fungicide programmes,” she continues. “This should give growers the confidence to look at incorporating any promising biofungicides into their own fungicide programmes.”

Neil adds that assessments will involve undertaking the same

disease protocol used for standard fungicides. “This includes in-field assessments and measuring green leaf area. Critically, all plots will be taken to yield, with the results presented during AHDB’s winter agronomy conference.”

However, each year of the trial won’t be an exact replication, highlights Neil. “With an August trial start date, we didn’t have the opportunity to consider solutions such as seed treatments. Therefore, we hope to integrate these into year two, which could also allow us to stack the biofungicides for further insights.

“Rather than a direct repeat year-on-year, this is a chance for us to dig deeper into the trial and expand learnings. Longer-term, there’s also potential to carry the project on, given there’s a real grower demand for this type of work,” he comments.

Catherine believes now is the optimum time to be conducting such research. “We’re at the point where there are enough viable biofungicides to screen, and, we should be able to deliver results that offer value to the industry.

“Yes it’s still early days and only a few

products are available for commercial UK wheat crops, but there’s a clear demand from levy payers for robust data that reflects realistic on-farm practice.”

She adds that in ways, she’s been surprised by the enthusiasm of the

“We’ve been working with manufacturers and specialist research companies to create a list of up to seven suitable products to include in the trial.”

steering group growers towards the pilot. “They’re really keen. However, this is encouraging given fungicide resistance management is a significant talking point, and growers are evidently already playing a proactive role

in that discussion.”

She stresses that rather than pitting chemistry versus biology, the pilot is aiming to assess the merit of using biofungicides alongside chemistry. “This should answer the question of whether it’s better to add a biofungicide, or, increase the rate of



Applied research

The project’s steering group includes scientists, agronomists and farmers, which SRUC’s Neil Havis believes is critical for ensuring the work will be on-farm applicable.

the standard fungicide programme.”

To conclude, Chloe adds that with EU countries under stricter pesticide regulations than the UK, she believes this is driving demand for biofungicides as growers look to maintain control of challenging plant pathogens.

“There’s much to learn regarding biofungicides, complicated further by some being based on living organisms. Understanding how to manage them within the constraints of conventional spray techniques and machinery will also be a critical factor,” she says.

For those interested in seeing the biofungicide trial pilots in-person, open days will take place during the summer. Information regarding these will be shared on the AHDB, SRUC, ADAS and Niab websites in due course. ●

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 this project, visit ahdb.org.uk/biofungicide-research



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Navigating risk when every decision counts

“If we’re going to grow a crop, let’s do it well.”

DAVID FELCE

After two demanding seasons that tested both confidence and cashflow, improved autumn conditions have offered a welcome reset for many growers. But with volatile markets, unpredictable weather and evolving disease pressure still very much in play, uncertainties remain. *CPM* explores for this month’s Common Ground.

By Charlotte Cunningham

For many growers, this season has arrived with a sense of cautious relief. After several campaigns marked by delayed drilling, disrupted harvests and fragile establishment, simply having winter crops in the ground on time and developing well has felt like a step in the right direction.

Drilling windows have been more forgiving, early development has been stronger, and in many cases crops are carrying more momentum coming out of winter than they have done for some time. That said, underlying pressures remain firmly in place: margins remain tight, input choices demand close attention, and every major decision

continues to feel finely balanced.

Against this backdrop, questions around risk, resilience and return on investment are once again front of mind. With fewer buffers in the system and less room for error, growers are having to think more carefully than ever about where to commit spend, where to hold back, and how best to protect the yield potential they’ve worked hard to establish.

To explore these issues, Cambridgeshire grower, Russ McKenzie; neighbouring farmer, David Felce; and BASF cereal fungicide technical specialist, Jared Bonner, came together at BASF’s Common Ground conference.

Between them, they represented three perspectives on the same challenge – how to protect yield and profitability in a climate where certainty is increasingly hard to come by.

BUILDING FROM A STRONGER START

Russ, who farms near Huntingdon, began by reflecting on how much difference the past few months have made to confidence and planning. He said after several disrupted autumns, this season has provided something many growers have been missing – a solid platform. “Everyone would say it’s been a lot easier this autumn than we’ve had for a couple of years; crops are well established.”

That stronger start has allowed him to focus more deliberately on quality and market positioning, particularly in milling wheat. Having increased the area of premium crops in recent seasons, Russ said he’s worked hard to secure contracts early and reduce exposure to volatile markets.

“We’ve grown more milling wheat the past couple of years and

locked into some good premium markets,” he explained. “Looking where milling markets are now, I’d be worried if I hadn’t done that.”

At the same time, he stressed that committing to premiums doesn’t mean abandoning flexibility. Maintaining a mix of outlets, including seed and specialist crops, has helped to spread risk and keep options open.

While David’s farming system looks rather different, the underlying principles are similar. Operating a small business that’s expanded through collaboration with neighbouring farms, he said he’s focused on building resilience through shared resources and careful land use.

Alongside arable production, David has also concentrated on making better use of areas that don’t justify high input spend. By balancing intensive cropping with habitat and environmental schemes, he aims to maximise overall return rather than pushing every hectare to its limit.

“If we’re going to grow a crop, let’s do it well,” he said. “Otherwise, it’s about finding a better use for that land.”

Jared agreed, acknowledging that many farming operations are rightly focused on maximising the early crop potential they’ve established. “Crops have gone in well, and growers are looking to make the most of that,” he noted.

LEARNING FROM HINDSIGHT

When discussion turned to risk management, Russ highlighted one of farming’s most familiar frustrations



Justifying spend

Alongside arable production, Cambridgeshire grower David Felce has also concentrated on making better use of areas that don’t justify high input spend this year.

– the clarity that only arrives once the season is over. “You review trial results in hindsight and think, ‘If only we’d known this at the time,’” he said. “We don’t have that power during the season.”

To close that gap, he’s invested heavily in on-farm trials, now in their fifth year. These compare untreated areas with different nutrition and fungicide strategies, helping to build a long-term picture of how crops and individual varieties respond under varying conditions.

“We have untreated plots, nutrition-only plots, half-field rate fungicide, full-field rate fungicide, and overlaid across each variety and cultivation method,” he explained. “It’s about building a library of knowledge.”

He said the aim isn’t to chase perfect answers, but to understand how different seasons demand varying responses. “We’re seeing something different every year as well as some consistent patterns.”

Disease pressure, particularly from rust, has been central to those learnings, he highlighted. “Yellow rust can spring out of nowhere; once it’s in and if you don’t control it early, you’re on the back foot.”

He added that yield responses in some seasons have been dramatic, underlining the value of timely intervention. “In some years we’ve seen 7t/ha purely from rust control on susceptible varieties.”

Jared seconded the importance of timeliness and a programmed approach when it comes to yellow rust control. “In the right conditions, yellow rust can cycle in 10 days or less, compared to septoria, which is cycling every 21-28 days.

“Thankfully we have tools available to keep yellow rust at bay but that as Russ suggests, it requires a different approach to septoria.”

Jared advises monitoring yellow rust susceptible varieties closely. Where active yellow rust is seen ahead of T0 or T1, he suggests growers consider including a yellow rust eradicator in the tank. T0.5 or T1.5 top ups can also be an option if conditions are particularly favourable for rusts.

FUNDAMENTALS AND KNOWLEDGE SHARING

David agreed that managing risk starts with strong foundations and disciplined spending. “For me, it’s about the building blocks,” he said. “Proven actives, proven strategies –



Critical protection

Having followed many actives from development through to commercial use, BASF’s Jared Bonner believes growers are increasingly aware that protecting chemistry is no longer optional.

actions that deliver year in, year out.”

He cautioned against spreading budgets too thinly across unproven inputs, particularly when margins are under pressure. “You can spend a lot on ‘other stuff’ and end up cutting back on what’s really doing the heavy lifting.”

Water availability is another limiting factor on his farm, which is situated in a rain shadow. “We can literally watch the rain split, so we often run out of moisture,” he explained.

Last season also highlighted the limits of crop protection under extreme stress. “We had two weeks of 30°C,” he said. “At that point, it doesn’t matter what fungicide you’ve used.”

As a result, he’s placed greater emphasis on realistic yield targets and long-term benchmarking. “You have to be honest about what your land can do.”

All three panellists emphasised the value of collaboration and open exchange. David noted that some of the scientific work that he’s been shown over his career lacks practical relevance. “I saw a lot of very clever work that had no real on-farm use. We have to stay grounded in what actually works.”

He added that context remains critical. “There isn’t one size fits all. Soil, climate and rotation all matter.”

Russ agreed, saying many of his best ideas have come from informal conversations rather than formal presentations. “Someone might say something over a coffee and you think, ‘Could that work here?’”

RESISTANCE AND RESPONSIBILITY

Fungicide resistance formed another key part of the conversation, particularly in light of recent shifts in sensitivity that have sharpened industry focus on long-term stewardship.

Having followed many actives from development through to commercial use, Jared believes growers are increasingly aware that protecting chemistry is no longer optional. “We’ve spent years bringing these products to market. If we don’t look after them properly, we lose them – and once they’re gone, they’re gone.”

For Jared, that starts with programme design rather than individual product choice. “It’s about building balanced programmes that use different modes of action, that protect key timings, and that don’t rely too heavily on any one group,” he explained. “That’s what gives you both performance now and longevity for the future.”

He pointed to the development of newer BASF actives as an example of how innovation is responding to these pressures. “With molecules like Revysol (mefentrifluconazole), we’ve been able to introduce something genuinely unique to the market – greater flexibility, strong performance on septoria (even resistant strains), and broad-spectrum disease control, all while helping to protect other higher resistance risk fungicides.”

“When you look at products like Revystar (mefentrifluconazole + fluxapyroxad), which combines Revysol with Xemium, you’re getting both curative and protective activity working together,” he added. “That gives growers a really strong platform at key timings, along with a key tool for resistance management.”

Russ agreed: “For me, there’s even more of an argument for using Revystar this year in the right position and right variety – harnessing its strengths and using its ability to protect other chemistry but also understanding what its weaknesses are.” He also acknowledged that thinking in terms of whole programmes has become more important than ever. “You can’t just look at each spray in isolation anymore. You have to think about what you’re doing across the season, and how that fits with the risks you’re facing.”

His own experience with shifting disease pressure has reinforced that message. “We’ve seen varieties change quite quickly in terms of their strengths

and weaknesses. One year yellow rust isn’t really an issue, the next it suddenly is. If you’re not building that into your programme, you can be caught out.”

For him, having access to robust chemistry provides confidence when conditions turn challenging. “Knowing you have something reliable in the tank makes a big difference,” he said. “It gives you breathing space when the weather or disease pressure doesn’t play ball.” David added that timing remains one of the most critical – and most misunderstood – aspects of fungicide performance. “We still talk a lot about T1 and T2 as fixed points,” he said. “But in reality, growth stages move, varieties behave differently, and seasons don’t follow neat rules.”

Protecting leaf area at the right moment is what really matters, he continued. “That’s where yield is built, and that’s where strong actives like Revysol really earn their keep.”

The panel agreed that timing, along with application technique were also critical for effective performance. “Nozzle choice, forward speed, water volume, coverage – that’s down to us” added Russ.

Jared believes this is where integrated thinking becomes essential.

REASONS FOR OPTIMISM

Looking ahead, Russ pointed to crop potential: “I just hope for balanced weather.” While David reflected on resilience. “You wouldn’t be here if you weren’t resilient,” he said. “But it’s stretching it.”

Meanwhile, Jared drew on long-term perspective. “I’ve been in agriculture for 30 years, through highs and lows, but we always seem to come through.”



A solid platform

Cambridgeshire farmer Russ McKenzie said after several disrupted autumns, this season has provided something many growers have been missing – a solid platform.

He also highlighted cultural change. “Farming is becoming more forward-thinking and more open to technology,” he said. “That’s encouraging.”

As the session closed, one message stood out – while uncertainty remains unavoidable, growers are becoming better equipped to navigate it through evidence, collaboration and realism.

Through detailed on-farm trials, careful programme design, honest yield assessment and open discussion with peers, the panel demonstrated that modern risk management is less about avoiding danger altogether, and more about understanding it clearly enough to make confident, informed decisions.

In an industry where margins are tight and pressure is constant, that shared learning may be one of the most valuable inputs of all. ●

COMMON GROUND

At BASF, we believe that progress in agriculture comes from open dialogue, diverse perspectives, and a willingness to challenge the status quo. We bring together farmers, industry leaders, and experts who are passionate about shaping the future of British farming - one rooted in practical experience and a desire to innovate.

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CPM would like to thank BASF for sponsoring this feature and for its support in making the connections to the experts and insights required to make it possible.

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Can lightning strike twice?



“2025 was one of the best yielding years of recent times for OSR.”

PETE BERRY

Last year bucked what had been a downward trend for oilseed rape. But was it simply a season where the stars aligned, or are growers getting better at stacking the odds in the crop’s favour? *CPM* finds out what drove the turnaround and whether it can be done again.

By Charlotte Cunningham

After years of false starts, flea beetle battles and dwindling confidence, oilseed rape finally delivered in 2025. Yields surprised even the most optimistic growers, margins stacked up, and for the first time in a while, the crop looked as though it belonged in the rotation again.

For Pete Berry, head of crop physiology at ADAS, the season wasn’t a fluke, but nor was it simple. “2025 was one of the best yielding years of recent times for OSR,” he says. “And that wasn’t down to one thing – it was a combination of factors lining up in the crop’s favour.”

The question now is whether growers can engineer a repeat performance or whether last season was simply a perfect storm.

Pete believes the foundations were laid early. A relatively dry – or at least

not excessively wet – winter meant crops avoided prolonged waterlogging, something OSR is notoriously intolerant of. Roots functioned properly, soils breathed, and plants went into spring in good condition – and then came the sunshine.

“A very sunny April was critical,” explains Pete. “That’s the period when the crop is setting seed numbers. If you have a well-rooted crop that isn’t under stress, high radiation at that stage translates directly into more pods and more seeds.”

Summer followed suit with further bright conditions helping to fill those seeds, while just as importantly, cabbage stem flea beetle pressure was low and disease levels were modest.

“It was a year where establishment was good, plant populations were

strong, pest pressure was reduced and the weather supported the crop at the key physiological stages,” he adds. “There were a lot of positive signals.”

Not every field escaped unscathed, however. Crops on shallow or sandy soils struggled once drought conditions bit, particularly where rooting was compromised. But regionally, some areas excelled, he adds. “Scotland recorded one of its highest regional



Good foundations

Pete Berry, head of crop physiology at ADAS, says the foundations for such a successful OSR harvest last year were laid down early.



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To drill, or not to drill?

For years, conventional wisdom dictated OSR should be in by late August or very early September, but recent data suggests the window may be wider than once thought – with a number of the highest yielding YEN entries last year drilled in mid-September.

► yields on record – around 4.7t/ha on average.

“They had similar sunshine benefits but slightly cooler temperatures and a little more summer rainfall, which extended the grain fill period.”

In short, OSR was allowed to behave like OSR – and it rewarded growers accordingly. However, while climate undoubtedly set the tone, Pete says the success of 2025 wasn't purely a lucky roll of the dice.

“Years of pressure have forced change; establishment strategies have been rethought. Drilling dates have become more flexible, nutrition is more closely aligned to crop need and canopy management is no longer an afterthought.

“Essentially, we've improved our ability to establish crops more reliably,” he adds. “There's much more thought about matching drilling to soil moisture, ensuring good seed-to-soil contact and chasing early vigour.”

That early vigour remains central to resilience, particularly against cabbage stem flea beetle. This is because strong autumn growth enables plants to tolerate grazing and larval burden far better

than backward crops.

Warwickshire grower and agronomist, Will Oliver, is clear on the importance of spring nutrition in supporting that resilience. “By getting a first dose of nitrogen and sulphur on the crop as soon as conditions allow, you ensure the plant has the resources it requires to kickstart growth,” he says.

“A well-nourished OSR plant has a much better chance of withstanding any stress caused by challenging spring conditions and will be much better able to grow away from pest damage.”

Pete agrees: “Anything that supports early vigour and strong root development is going to improve resilience – nutrition absolutely contributes to that.”

But even before vigour comes into play, perhaps one of the more significant mindset shifts leading to OSR's success has been around drilling windows.

For years, conventional wisdom dictated OSR should be in by late August or very early September, but recent data suggests the window may be wider than once thought. “A number of the highest yielding Yield Enhancement Network (YEN) entries last year were drilled in mid-September,”

raises Pete. "That challenges the perception that you can't go later."

Even so, there are regional caveats – further north, the window remains tighter. But in more southerly regions, drilling well into September can still produce robust, competitive crops. "One of the challenges with drilling very early is producing a large canopy moving into winter," he explains. "That can be difficult to manage in the spring and doesn't necessarily set as many seeds."

An oversized canopy can reduce light penetration, complicate spring management and increase lodging risk, he raises, while a more moderate plant entering winter may actually be easier to optimise. "It's not about abandoning early drilling altogether, it's about understanding the flexibility available and using it strategically."

Fast forward to this season and if 2025 was characterised by a relatively kind winter, 2026 has so far told a different story. "It's been much wetter and there's no getting away from that."

"Waterlogging remains one of OSR's biggest vulnerabilities – roots deprived of oxygen struggle to function, nutrient uptake falters and plants become more

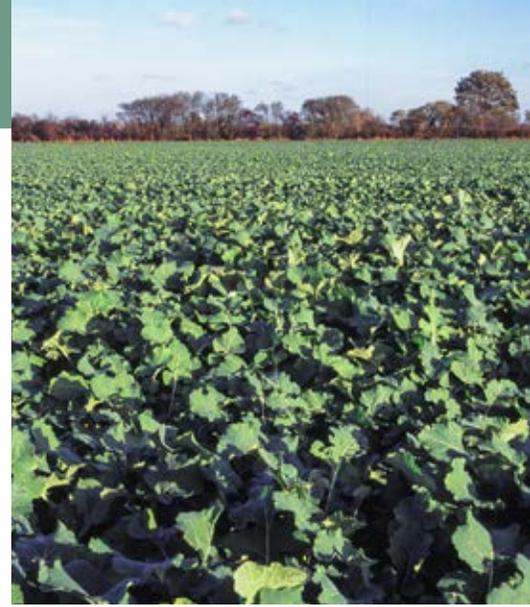
susceptible to stress," says Pete.

That said, context matters. Following a dry harvest period in 2025, many soils entered winter with moisture deficits, so it took time for profiles to recharge. "Some soils could take quite a lot of rainfall before they reached field capacity," notes Pete. "And structurally, they were in better condition because harvest wasn't wet."

Strong autumn establishment has also provided some buffer. "Well-rooted crops are inherently better equipped to tolerate short-term stress, but in fields where standing water has persisted, there's little to be done until conditions improve," he continues.

"With waterlogging, there's not a huge amount you can do while it's happening – the crop is under stress so the priority is to let it recover once conditions improve."

As attention turns to spring, and growers cross their fingers in hope of drier, sunnier days, canopy assessment should be the starting point, advises Pete. "The first job is to measure canopy size. That determines nitrogen requirement and whether growth regulation is required."



Odds in OSR's favour

2024/25 was a season where establishment was good, plant populations were strong, pest pressure was reduced and the weather supported the crop at the key physiological stages

A canopy with a GAI of 2 at the start of spring already contains around 100kgN/ha in its biomass which significantly alters fertiliser calculations, he adds. "There's a huge range of canopy sizes out there, many crops are very forward, but there are some smaller ones around."

Agrii agronomist Robin Nurse



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► has been urging growers to take a proactive approach to canopy manipulation this season. “Crops are well forward – they’ve benefited from a lack of pigeon grazing which we’ve seen in other years,” he says. “However, lush OSR crops can often flatter to deceive,” he warns, stressing the need to ensure canopy architecture is right and disease is kept at bay. The target remains a GAI of around 3.5 at flowering – enough to intercept

light efficiently without tipping into excessive vegetative growth – and nitrogen remains the primary lever.

In thicker areas, rates may require trimming while thinner patches may justify more support. Micronutrients such as magnesium, boron and molybdenum are also important during rapid spring growth, adds Robin.

Plant growth regulators and fungicides complete the spring picture, with Robin favouring a preventative approach,

particularly for light leaf spot. “With light leaf spot, no chemistry is truly eradicator, so we must keep it out,” he stresses.

Timing will be critical, however, because with strong rooting and advanced development, crops could move quickly once temperatures rise, warns Robin. “When things start moving, it’s likely to happen in a rush this year.”

With all of this in mind, what lies for the future of OSR? After several bruising seasons, 2025 has inevitably sparked renewed interest in the crop, following a time when the area had fallen sharply as growers questioned whether the risk justified the reward.

But following a very good performance in 2025 and relatively strong prices, OSR is firmly back in the conversation, believes Pete. “I think the area probably dropped lower than it should have, and I do think confidence will improve.”

Crucially, the industry hasn’t stood still and lessons learned during difficult years have sharpened management. Establishment strategies are more nuanced, drilling windows are better understood, and canopy and nitrogen management are increasingly data-led.

Going forward, ADAS is working with breeders and York University to identify varieties with deeper, more resilient root systems – traits that could prove invaluable as climate variability intensifies. “It’s a long-term project called OREGIN, funded by Defra,” explains Pete. “But the goal is to help breeders to select material that can cope better with climate variability.”

So the golden question is – can last year be replicated? Pete believes that while growers can’t order sunshine or dictate winter rainfall – and weather will always shape the outcome – what 2025 demonstrated is what OSR can deliver when it isn’t constrained. “It was a year where the crop wasn’t held back and when that happens, the yield potential is impressive.”

The challenge now is to stack as many controllable factors in the crop’s favour as possible – strong establishment, responsive nutrition, disciplined canopy management and vigilant disease control – so that when the weather does align, growers are ready to capitalise, he says.

So while lightning may not strike in quite the same way every year, OSR looks better equipped than it has in some time to make the most of whatever the season throws at it... ●



Precision breeding brings light leaf spot resistance to farm scale

A £2.5M, three-year farmer-led project is set to bring Europe’s first precision-bred oilseed rape varieties onto commercial farms to combat light leaf spot – now the crop’s most damaging disease.

The LLS-ERASED (Light Leaf Spot Enhancing Resistance And reducing Susceptibility with EDiting) initiative is led by BOFIN and funded through Defra’s Farming Innovation Programme via Innovate UK. It unites farmers, breeders, scientists and agronomists to deliver improved genetic resistance alongside practical, field-ready disease management tools.

LLS losses have escalated sharply, with UK yield impacts rising from £94M in 2017 to more than £300M in 2022. Azole efficacy is declining as pathogen populations evolve, while current varieties offer limited durable resistance.

The project aims to tackle this by ‘switching off’ a newly identified plant susceptibility gene using precision-breeding techniques. By removing a gene the pathogen exploits, infection is restricted. Unlike conventional resistance genes, which can be overcome, this approach is designed for greater durability and involves no foreign DNA.

Precision-bred lines will be tested in large-scale, farmer-led trials across England, supported by real-time forecasting and decision-support tools. Scientific leadership comes from the John Innes Centre and the University of Hertfordshire, with ADAS and Scottish Agronomy integrating the trait into IPM strategies.

Enabled by the Genetic Technology (Precision Breeding) Act, the project aims to strengthen resilience, rebuild grower confidence and lay foundations for future precision-bred traits in OSR.

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A bold new approach to nutrition



“You can’t necessarily rely on averages to know what a field actually requires.”

ANDREW SINCOCK

Rather than conform with conventional methods, there’s a disruptive player in town that’s keen to go against the grain and challenge how farmers approach crop nutrition. *CPM* gets the scoop on Triplex.

By Janine Adamson

If the loud, bold and disruptive marketing is anything to go by, Triplex is about to shake up the somewhat steady world of crop nutrition.

First revealed at LAMMA in January, Agro-Vital – the company behind the innovation – is striving to help farmers ‘break free’ from standardised fertiliser recommendations and ‘challenge the norms’ of soil nutrition.

Undoubtedly, the claims are strong, in fact, the firm’s marketing says it’s ignoring the nutritional rulebook to expose some ugly truths. But at a point where grain prices are perpetually depressed and production margins are squeezed to oblivion,

it could be argued that Triplex has come at precisely the right time.

That’s because it’s all about producing small batches of liquid and foliar fertilisers and fertigation products, tailored to a specific field’s requirements. Rather than a one-size-fits-all, formulas are based on precision, avoiding unnecessarily over-loading soils, or waste through leaching or volatilisation.

CREATING BALANCE

Managing director, Andrew Sincock, says the ultimate aim is to maximise crop yields while minimising negative effects on soil, crop health and the



Supply chain benefits

According to Andrew Sincock, utilising bespoke crop nutrition is one way to help processors reduce their environmental impact and carbon footprint.



Countless combinations

The Triplex machine is capable of producing thousands of different formulations – combinations of N, P, K, S and any trace element.

wider environment. “While RB209 provides a baseline for crop nutrition, you can’t necessarily rely on averages to know what a field actually requires.

“Instead, Triplex is a system centred around a fertiliser manufacturing machine which makes bespoke formulations. These formulations are based on larger, complex molecules with multiple binding points to make them more stable in the soil.

“Not only does this ensure maximum uptake of those nutrients by the plant, but it also reduces leaching and volatilisation – which are critical factors if we are to farm more responsibly,” he states.

Looking at the science in more detail, technical agronomist, Carl Gibbard, says Triplex builds nutritional complexes by using urea and acid-based manufacturing technology. “Similar to a group of linked skydivers, a complex descends more slowly while a single individual is gone in a flash.

“Triplex ‘smart fertilisers’ emulate the clay-humus complex – a highly stable soil aggregate,

formed by the binding of negatively charged clay particles and humus (decomposed organic matter). This attracts and adsorbs positively charged nutrients, which are then better protected from leaching while forming a crop-available reserve,” he explains.

PER-FIELD SOLUTIONS

Originally developed in the Netherlands, the Triplex machine is capable of producing thousands of different formulations – combinations of N, P, K, S and any trace element. Rather than a generic bulk solution, each formulation is manufactured based on the results of soil, tissue or SAP analysis, to ensure per-field accuracy.

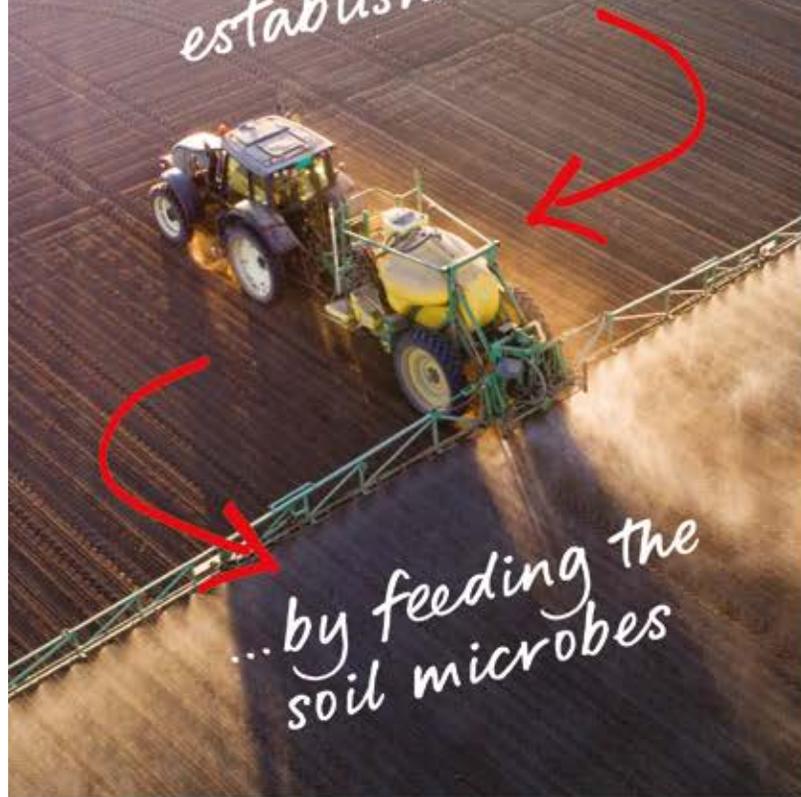
The machine produces a 2000kg batch every 20 minutes, which means a 2-3 day turn around for all existing formulations. New formulations that haven’t been made before will require additional testing, with a 7-10 day turn around. All product is delivered direct to the farm.

Product is then applied neat to soil through a conventional dribble

“For nitrogen, the average efficiency is just 30-50%; it’s a leaky nutrient yet is essential for all living organisms.”

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Complex compounds

Triplex 'smart fertilisers' emulate the clay-humus complex, says Agro-Vital's Carl Gibbard.

► bar, or for foliar applications, using standard sprayer nozzles. Andrew advises that Triplex should be applied to bare soil pre-emergence, although the formulations are safe for application to newly emerged crops through to tillering.

In terms of production capacity, a similar machine at Agro-Vital's factory in the Netherlands manufactures five batches (10t) per hour. While there's only one machine currently available in the UK, it's hoped as demand increases, further machines will be introduced across the country.

And although the system isn't breaking the boundaries of science, what it does do is use modern technology to enable its practical application, comments Andrew. "Triplex has been around seven years in the making after we saw a gap in our wider portfolio of nutritional products, which includes Effident-28, P-Focus and Splendour-K.

"We wanted to be a part of the crop nutrition conversation from the start, so we had to plug that gap and address the early establishment phase. Equally, we didn't want to do the same as everyone else, it had to complement our existing offer while challenging the norms."

Andrew adds that a conventional broad-brush approach to nutrition is no longer relevant. "Processors are looking to reduce their environmental impact

Fine-tuning crop nutrition at Trecorras Farm

A decade of change for long-term sustainability and profitability

With a focus on creating a fully functioning, biologically-rich soil, mixed farmer John Joseph says part of this has included re-thinking his approach to crop nutrition.

Having instigated a breadth of changes during the past 10 years at the farm in Ross-on-Wye, including reducing synthetic nitrogen applications, he adds that the goal is to be more targeted and efficient.

"By applying nutrition 'little and often', this helps to support a healthy plant and soils – a more holistic approach. We achieve this by applying a low rate of soil-applied nitrogen with a follow-up of a carbon source (molasses) plus micronutrients," explains John.

In maximising farm yard manures, compost and cover crops, he no longer uses inorganic soil-applied P or K. Then, once plants are established, John applies foliar nitrogen and micronutrients according to crop requirements.

"We also apply amino acids later in the crop to help achieve grain protein levels. Collectively, all of these actions are helping to increase our NUE while maintaining a thriving soil ecosystem."

The farm has a seven-year rotation based on arable seed crops, Wildfarmed wheat and grazing livestock, highlights John. "However, we don't have a single monoculture across the system due to maximising companion and cover crops; we want to keep a living root in the ground. This is part of how we feed soils – utilising brown, black and green."

Expanding on this further, he shares that brown is the residues from the previous crop, black is homemade compost,

and carbon footprint. Bespoke crop nutrition is one way to help achieve that.

"Equally, not all applied fertiliser has to be Triplex – a grower may opt to apply urea, for example, and then Triplex for additional bespoke micronutrients."



Little and often

Mixed farmer John Joseph says his goal is to be more targeted and efficient with crop nutrition.

and green is the living crop.

While the changes he's made have been with sustainability and profitability in mind, John is acutely aware of farming's potential impact on nature too. "Yes we've reduced our financial risk, but we've also eliminated erosion and nutrient loss, improved our drought tolerance and enhanced our relationship with nature. We want to create habitat, not deplete it," he concludes.

Read more about Trecorras Farm and John's story in August 2025 issue of CPM pages 62-64.

Taking a look at the return on investment, Andrew stresses that despite being a new innovation, the numbers should stack up. "For every £1 spent on existing fertiliser, that equates to around £0.80-1.20



A fresh take

The Triplex branding has been designed to stand out from the crowd.

of Triplex formulations, depending on the exact recipe. Some will be cheaper, some will be more expensive.

“But by being more precise, on average, growers can expect to see a 20-25% reduction in their crop nutrition requirements per year; less fertiliser, more profit.”

MORE-ON MARKETING

Perhaps curiously, Agro-Vital's marketing for Triplex includes the phrase, 'don't be a more-on'. Andrew believes this supports the theory of supercharging sustainability. “Triplex rethinks what sustainable farming looks like. It's making every nutrient count, cutting waste and keeping inputs where they belong – in the crop, not the wider environment. “It's a practical progress that delivers efficiency and

responsibility in equal measure. It's time to challenge the norm, change the game and farm smarter, not harder.”

Joel Williams of Integrated Soils believes there's undoubtedly scope to be much more efficient with fertiliser applications. “For nitrogen, the average efficiency is just 30-50%; it's a leaky nutrient yet is essential for all living organisms.

“Equally, if a plant has excess nitrogen, this undermines its health and creates an imbalance, rendering it vulnerable to pests and diseases,” he explains.

Nitrogen also plays a critical role in building soil organic matter, but again, if there's too much this can have negative implications. “Soil organisms feed on the excess, and due to the C:N ratio, have to then seek additional carbon to re-balance. In unlocking the carbon in the soil, this releases CO₂ into the atmosphere. This is why we must minimise nitrogen losses and excesses,” states Joel.

He believes the aim should be to create a slow release of nutrients to match the demand of the growing crop, while avoiding any leaking or leaching.

This is why Andrew believes Triplex is part of the solution. “We're about increasing NUE, reducing losses, improving crop performance and providing measurable environmental benefits for clean water, clear air and healthy soils. It's nutrition, done differently,” he concludes.

Having been well adopted by growers in the Netherlands, Triplex is now available in the UK. Growers interested in trialling Triplex should contact Agro-Vital, or strategic distribution partner, Agrii. ●

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Maximising the synergies of sulphur



“If sulphur is depleted, yield and grain quality are likely to suffer.”

ALLISON ARDEN

According to the Met Office, 2026 has seen parts of the UK endure the wettest start to a year on record. With concerns regarding nutrient losses increasing, growers are urged to prioritise sulphur as evidence builds around its role in boosting crop resilience. *CPM* reports...

By Rob Jones

While it's a given that when it rains soils lose nutrients, it doesn't mean it's time to panic and over-compensate through fertiliser applications, especially in these sustainability-sensitive times, suggests Allison Arden of Navigate Eco Solutions.

She believes it's more important to take stock of the individual farming picture and all-available farm resources, then develop a plan for how these can be best utilised to complement bought-in inputs and maximise NUE.

That's where a greater understanding of the interactions between nutrients and soil biology is key, in particular, the growing role of sulphur supply in the overall crop nutrition equation, adds Allison.

“There have been periods of very cold weather during last autumn and the start of the year in most

locations, so mineralisation of nitrogen effectively ceased, plants stopped growing and, on lighter textured soils, a large proportion of soil nutrients have likely been lost from the system in the relentless rain that followed.

“That said, many areas of the country had a good autumn and most crops established well, developing large, above-ground canopies. These crops have already captured a lot of nitrogen, with much of this likely to be carry-over from 2025 when it was so dry in early summer that much of what was applied didn't have the opportunity to get into the crop.”

Although there's no denying that nitrogen will have been lost from the system during the start of 2026, other major nutrients are likely to have been affected, too, she says.

“Nitrogen and sulphur behave

the same in the soil and are very mobile when conditions are wet. Calcium and potassium can also disappear, particularly in lighter textured soils where you can't actually build the index up easily.

“We know the correct balance between S and N is essential to increase and optimise NUE, and if sulphur is depleted, yield and grain quality are likely to suffer. Soil biology also has a demand for sulphur for its own viability, and there's complexity around how much becomes plant-available as organic matter, processed through the activity of soil microbes.”

While the national picture of the recent rainfall is well documented, there are significant regional variations and growers will have to understand their own individual situations as best as they can, she urges.

“If you haven't yet had a chance to sample for major nutrients and pH due to the weather, it's still worth doing in spring, providing you haven't applied recent manures or fertilisers, and the soil is moist, not wet.

“Get all organic material due to be applied tested too and you can then make an initial plan about how you're

going to approach nutrient applications.

“There’s no point chasing a production target that you’re unlikely or never going to achieve. You’ll waste money on inputs that won’t be used, and risk losses to the environment. Equally, don’t underestimate, or you won’t realise the full potential of your crops.”

With this in mind, growers can utilise the latest addition to the NavigatePro nutrient planning and management software – the Nutri-Smart module, suggests Allison.

“You have to effectively leverage the resources you have on farm within your overall fertiliser policy to get the best out of bought-in inputs. It’s all about balance, and using the right products to deliver the right nutrients in the right ratios, and that’s what Nutri-Smart can help with.”

Professor Jorgen Eriksen of the Department of Agroecology at Aarhus University, Denmark, says while growers are being encouraged to make greater use of organic sources of fertiliser, in reality, they contain very little plant-available sulphur. This means supplementation is essential.

“Animal manure isn’t a great source

of sulphur as a significant part of it is in the organic form which isn’t immediately available to the plant. When you apply fresh manure, there’s some content of plant-available sulphur but the longer it’s stored, the less of this there is and the more of the unavailable organic forms there are.

“These other non-sulphate forms will of course contribute in the longer-term when they become mineralised in the soil, but they aren’t immediate sources and it could take several years before plants are able to utilise the sulphur they contain,” he explains.

Agrii national fertiliser manager, Tom Land, says that while sulphur is important in boosting NUE, the role of potassium mustn’t be overlooked either. Put the two together, and there’s a real synergy, he highlights.

“Trials carried out by the International Potash Institute (IPI) have shown when N and K are applied separately, yield is increased with both elements. But when they are applied together, the increase in yield is greater than the sum of them independently.

“In some trials, this yield increase



Staying alive

Soil biology has a demand for sulphur for its own viability, comments Navigate Eco Solutions’ Allison Arden.

has been as much as 1.0t/ha compared with when the nutrients were applied in isolation. We know potassium improves fertiliser use by enabling better nitrogen uptake and utilisation, with NUE improvements typically in the region of 10-40%.”

The importance of sulphur in the NUE equation is also demonstrated through nitrogen not being able to be taken up

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Decoupling N and S

Farm manager Mark Atkin of Bourton Hill farm has been focused on optimising crop nutrition, with this season marking the start of a series of new trials

With 600ha of arable production at 800' above sea level, ensuring crops get away to the best start and maintaining momentum through what can be a challenging growing season is key, according to Gloucestershire-based Mark Atkin.

He believes the farm's fertiliser practice is playing a major role. "Although we're fairly central location-wise, we're about two weeks behind the average for the UK in terms of growing season.

"That shapes a lot of our decision making, as does the need to keep on top of blackgrass. Therefore, we're usually drilling into the middle of October, choosing varieties that we know have the vigour to establish well.

"Liquid fertilisers have been used for more than 10 years with improving NUE being a key goal. Use of the nitrification inhibitor Liqui-Safe has also

helped to improve this and simplify our fertiliser policy in recent years, but I'm always open to new ideas."

Mark adds that he's used two applications of 27-12 NS liquid fertiliser in cereal crops to deliver 220-240kgN/ha and the associated sulphur in recent years, but has started to use Polysulphate in peas, with a 0.5t/ha lift in yields.

"This year, the plan is to replace the NS fertiliser with straight liquid N and apply Polysulphate separately. This means our sulphur application rates are no longer tied to how much nitrogen we apply."

Mark's agronomist, Oliver Fairweather of Agrii, says the concept is to improve the precision and cost-effectiveness of fertiliser applications while lifting NUE further. "There's compelling evidence about the impact of Polysulphate on NUE. We've seen strong results in other crops on the farm, so this year all the



Total control

Separating nitrogen and sulphur applications gives total control over the rates used for both, says Agrii's Oliver Fairweather.

wheat and spring barley will receive it.

"Separating the nitrogen and sulphur applications gives us total control over rates used for both so we can match crop demands precisely, but by using Polysulphate, we can also benefit from getting some fresh potash into the light Cotswold brash soils on the farm," he concludes.



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► and used efficiently without it, but Yara tissue sampling suggests 85% of crops are now sulphur-deficient, raises Tom.

"In our own trials with winter wheat, we've seen appropriate sulphur applications producing yield gains of nearly 1.7t/ha compared with the control. Furthermore, an increase in the number of heads/ha approaching 20%, so 430/ha compared with 362/ha.

"The high sulphur mineral, polysulphate, is undoubtedly an increasingly popular way of addressing S deficiencies alongside K, while also allowing growers to benefit from the combined effect of both nutrients on N utilisation," he says.

Polysulphate's unique multi-nutrient analysis of 48% S₀₃ and 14% K₂O, alongside 17% CaO and 6% MgO, gives advantages, adds Tom. "For a start, there's its high sulphur

content, but the other nutrients help, particularly in years such as this.

"Not only can it help to replenish nutrients lost from waterlogged soils, it also releases its nutrients relatively slowly so they can always be available throughout the main growing periods."

Allison agrees, commenting that many people now use Polysulphate. "Another advantage is that you can separate sulphur applications from your nitrogen source, which you can't with nitrogen sulphur (NS) products, so S levels are no longer dictated by how much nitrogen you're applying.

"That's important in these more environmentally-focused times and when you are trying to get the most out of every kg of fertiliser applied."

Richard Ward of ICL

says as well as improved NUE and better root development, Polysulphate delivers significant other benefits too.

“It can be applied from February through to April at a recommended rate of 100-150kg/ha of product.

“University of Nottingham trials indicate that more than 50% of the sulphur contained in Polysulphate is available in the first 12 days after application, with the remainder released during the following 6-8 weeks.

“This matches nutrient availability precisely to crop demands through the growing cycle, which is in contrast to traditional NS products, where 100% of the sulphate is released within just 5-6 days after application.

“This sudden release not only means many of the applied nutrients will never be taken up by crops, it also increases the possibility of soil nutrient loss and potential environmental problems,” he explains.

A particular benefit of Polysulphate, is that it's a natural granule, which is why the release of the nutrients is more prolonged than from manufactured products, points out Richard. “It simply takes longer for the granule to dissolve into the soil than a re-constituted fertiliser. It's important to understand this, as the term solubility is often misused.

“Polysulphate is fully water soluble but with an extended release of nutrition that is ideal for UK agriculture, and is why farmers have seen such great results for more than a decade.”



A widespread problem

According to Agrii's Tom Land, tissue sampling suggests 85% of crops are sulphur-deficient.

According to Richard, an additional benefit of it being a natural product is that Polysulphate also has the lowest

carbon footprint of all equivalent fertilisers, at just 0.0029kg/CO₂e. This makes it virtually carbon free, he says.

“When it comes to getting the most from organic fertilisers, latest trials suggest adding Polysulphate to slurry applications can reduce ammonia emissions from the practice by 50%, as well as providing the vital sulphur nutrition such sources lack,” concludes Richard. ●



Plant availability

While growers are encouraged to make greater use of organic sources of fertiliser, in reality, they contain very little plant-available sulphur, points out Professor Jorgen Eriksen.

“When it comes to getting the most from organic fertilisers, latest trials suggest adding Polysulphate to slurry applications can reduce ammonia emissions by 50%.”

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“Most poor control isn’t down to one obvious mistake; it’s usually a series of small compromises.”

ROGER BRADBURY

In the wake of significant resistance concerns, growers are urged to revisit glyphosate stewardship guidelines to ensure the herbicide has a long-term, sustainable future. *CPM* explores the factors involved in maximising glyphosate’s performance.

By Janine Adamson

Glyphosate – an integral active that’s been in existence for around 50 years, and despite recent concerns regarding resistant Italian ryegrass, experts stress it continues to be a highly effective, non-selective herbicide.

That’s because in theory, every glyphosate application starts with high potential performance. However, in practical use, the potential for glyphosate to perform to a theoretical maximum is steadily influenced – and often reduced – by a series of decisions and conditions between filling the sprayer and hitting the target, suggests Bayer’s Roger Bradbury.

He says although each factor in

isolation may reduce performance only slightly, together, these small losses can accumulate, leaving applications underperforming despite appearing ‘correct’ on paper. “Most poor control isn’t down to one obvious mistake; it’s usually a series of small compromises. When they stack up, you don’t get the result you expected,” he comments.

While water quality is recognised as the foundation of performance, because glyphosate’s efficacy is shaped by multiple interacting factors, growers are being urged to consider the bigger picture when it comes to stewardship. These factors are categorised into three key areas:

- 1 Environmental:** weed growth stage, plant stress, canopy architecture, and prevailing weather
- 2 Chemical:** product choice, dose rate, surfactant loading, mix partners and rainfastness
- 3 Application:** timing, water volume, nozzle choice, boom height and water quality

Roger highlights that plant stress – whether that’s drought or waterlogging – will impact glyphosate’s uptake and mobilisation within the plant. “Once it’s in the target weed, it has to be mobilised to the site of action at the meristems and root tips in order to deliver efficacy. Plant stress affects this movement and therefore the accumulation of the active where it’s required.”

Grower, David Felce of Midloe Grange Farm in Cambridgeshire, is a sprayer operator and has been involved in writing spray application training for NROSo. He agrees with Roger and adds that target growth stage and spray delivery must align. “Small, actively growing



Avoiding extremes

Plant stress – whether that’s drought or waterlogging – will impact glyphosate’s uptake and mobilisation within the plant, highlights Bayer’s Roger Bradbury.

weeds are far more susceptible than stressed or stem-extending ones.

“Plants in stem extension won’t take glyphosate down to the roots where it’s required to work, so you’ll have poor results, even if everything else is right. That means timing is critical.”

According to David, cover crop destruction presents another conundrum. “Cover crops can be large and overwintered and there’s a strong likelihood that you have grassweeds underneath that canopy. The challenge here is not only taking out the cover crop species – which we know aren’t all equally susceptible to glyphosate – but also reaching those smaller grassweeds that are being shaded beneath.

“To overcome this, higher water volumes generally give a better chance of covering that depth of canopy. Conversely, if you’re coming in after a winter cultivation ahead of spring drilling, weeds may be smaller, so I’d go with a lower water volume to improve work rates and increase the loading of glyphosate versus the water in the tank.”

Segueing into application practice, David raises that nozzle choice also has a key role in glyphosate’s efficacy. “In a large canopy situation, a coarser droplet with more weight will help to carry the herbicide through the canopy’s depth. Then for smaller targets, it has to be a finer droplet to ensure adequate coverage.”

According to De Sangosse’s Rob Suckling, water quality, specifically water hardness is one of the most consistently overlooked risks to glyphosate performance. To explain further, he reminds that pH and water hardness are two distinct factors.

“pH is a measure of acidity, while water

Water quality: It’s not just about glyphosate

The same principles apply to many other susceptible herbicides used across arable and grassland systems

Glyphosate has helped to raise awareness, but it’s only part of the picture, explains De Sangosse’s Rob Suckling. “Performance of many systemic herbicides in hard water situations – particularly where the target weed expresses only a moderate level of susceptibility to the herbicide – can be improved if water hardness is mitigated.”

One way to help identify the herbicides most at risk is to look at their pKa – a measure of how acidic a herbicide is, adds Rob. “In simple terms, the lower the pKa, the greater the likelihood it will interact with calcium and magnesium ions in hard water. When this happens, the herbicide can form salts or complexes that are less biologically active and readily absorbed through the leaf.

“This is particularly relevant for

sulphonylureas, dimes, phenoxies, and other Group 4 herbicides, as well as glyphosate. While the impact may not always be visible, reduced uptake can lead to slower activity, less consistent control, and increased variability across fields.”

According to Rob, the challenge is that most of these losses are subtle. “The application can still be somewhat effective, but control may be sub-optimal.

“That’s why a consistent, water-first approach is becoming more important. Testing water, conditioning it before adding herbicides, and adjusting dose according to water quality can help to ensure that every application performs as intended.

“As pressure on herbicide performance increases, attention to detail matters more than ever. And increasingly, that starts with water,” he concludes.

hardness is the concentration of calcium and magnesium ions in the water which carry a positive charge, known as cations.”

Considering the national picture, Rob says there’s a strong correlation between the hard water areas and highly productive combinable cropping regions. “These are the locations where we’re using a greater amount of agro-chemicals, including glyphosate, to control weeds in arable crops. This means the effect of water hardness is linked to areas of high herbicide use.”

But, how hard is hard? How long is a piece of string, muses Rob. “Typically, it’s the point where the performance of agro-chemical products can be affected by hardness; which tends to be around 250-300ppp. As water gets harder, the greater the impact can be, with a reduction in efficacy by 20-30% if left unaddressed.”

However, adding a water conditioner to the tank ensures the herbicide active remains in a biologically-available form. In particular, ‘true’ water conditioners such as X-Change contain sequestrants and chelating agents, explains Rob.

“Add those into the spray tank



Large canopies shading weeds

According to grower David Felce, cover crop destruction presents another conundrum for ensuring glyphosate best practice.

before the herbicide and they act sacrificially, forming irreversible bonds with the calcium ions. This means when you add glyphosate to the spray water, it’s free to move through the spray solution unaffected; water conditioners are essentially very large magnets which attract calcium ions.”

This is different to how ammonium



Neglected factor

Water quality, specifically water hardness is one of the most consistently overlooked risks to glyphosate performance, stresses De Sangosse's Rob Suckling.

► sulphate works though, he adds. "This behaves more like a water softener to compete with the calcium ions; sometimes it wins, sometimes it doesn't. So rather than mitigate water hardness, you only reduce its impact."

Rob strongly advises against using high rates of pure citric acid, which has been gaining increasing media coverage. "Over-acidifying the solution will likely lead to worse efficacy than if you didn't treat the water at all. It's well-known that glyphosate uptake is reduced when the pH drops below pH 3, so don't fall into this trap. A formulated, true water conditioner is inexpensive and engineered to do the job correctly."

To test for water hardness, a TDS (total dissolved solids) meter can be used to provide a digital reading (available from De Sangosse). This also helps to indicate the required dose of water conditioner, which Rob stresses is another significant risk.

"Using a conditioner occasionally, or at a guessed rate, should be avoided. Because water hardness varies depending on the water source and how it's stored, testing is important to ensure conditioning is not only correct, but consistent. After all, you can't manage what you can't measure."

ADAS's John Cussans highlights the reality that despite glyphosate being available for decades, it's never been inevitable that there'd be a case of resistance in the UK. "It's not a matter of time or exposure, instead we're seeing the adoption of agronomy practices that are high risk across a series of individual farms.

"What you do on your farm in terms of managing weeds is what's driving the selection for resistance; it's not a

big picture of exposure. This means it's never been more important that we focus on coordinating the stewardship elements to cement the effectiveness of glyphosate for the future."

He adds that of the handful of cases reported, all share a combination of factors coming together to drive risk. "They're primarily systems where there's a high reliance on glyphosate for weed control in total. So where there's low or reduced cultivations, low disturbance crop establishment, and long durations of stubble post-harvest prior to spring cropping.

"If we want to make positive changes within our farming systems to embrace nature, we require a greater uptake of the basic glyphosate stewardship principles and bring those to the fore," stresses John.

This means minimising survivors and maximising efficacy, he urges. "Perhaps this means going back on with additional weed control methods that weren't planned, or using alternatives to glyphosate such as adopting mechanical weeding or reintroducing cultivations, also maximising the effectiveness of in-crop herbicides.

"For every field, the success of glyphosate applications must be monitored. If, despite undertaking best practice, there's a picture emerging of appropriate doses not having the effect they should have, you must respond and react. It's not too late to take action to prevent this from continuing."

The real impact is felt by the individual farmer once resistant ryegrass has been confirmed, he says. "This means a whole series of self-imposed restrictions to protect the industry,

which will come at a significant financial cost to the grower involved."

On those farms experiencing glyphosate-resistant ryegrass, the following actions are encouraged:

- Re-introduction of mechanical weeding
- Maximising in-crop herbicide effectiveness
- Preventing individual plants from growing too large between crops
- No straw movement off farm
- Ring-fencing harvest equipment to the individual farm
- Transparency with immediate neighbours is important

To conclude, Roger comments that although it's relatively easy to turn a weed brown in the field, the narrative is much bigger than that. "It's more difficult to deliver long-term and effective weed control, and that's what we're trying to achieve with glyphosate."

This content was originally shared during a seminar at CropTec. ●



Critical stewardship

ADAS's John Cussans says to make positive changes within farming systems and to embrace nature, there has to be a greater uptake of the basic glyphosate stewardship principles.

Championing best practice

'Clean Water. Clean Kill.' is an initiative launched by De Sangosse 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. was launched in direct response to increasing concern regarding inconsistent weed control, sub-lethal doses and growing resistance pressure.

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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“Effective disease control will be crucial in realising crop potential, but this shouldn’t come at the expense of weed control.”

DR PAUL FOGG

While this season’s winter wheat crops are packed with potential, left unchecked, weeds have the potential to reduce profitability at harvest. *CPM* finds out if there’s still time to gain control.

By Rob Jones and Janine Adamson

After what were coined ‘perfect drilling conditions’ last autumn, fast forward to current times and the weather has delivered the polar opposite – relentless rain. For many, early season weed control has fallen victim to this extreme, but is there still a window of opportunity?

Generally speaking, crop establishment was sound, supported by effective control from autumn herbicides. However, with inevitable survivors plus spring-germinating weeds, there’s no room for complacency, suggests Frontier’s Dr Paul Fogg.

“Residual herbicides performed well in the main and crops are currently in good condition with high yield potential. But, we’re acutely aware we’re moving into a new era for agriculture with much reduced support payments, so

good crop yields are essential.”

Hutchinsons’ Dick Neale adds that in many dry situations, lower-cost products were used initially, followed by more robust residual options once rainfall arrived. “That strategy, combined with wider use of mixtures containing cinmethylin, bixlozone, aclofen, metribuzin, flufenacet and diflufenican, has driven improved control.”

Sequencing has also played a key role, he believes. “Follow-up residual applications, applied when conditions allowed, significantly strengthened overall performance. Gradual wetting and mild weather supported active weed growth, aiding uptake without excessive leaching.”

Cultural control has further reduced blackgrass pressure, points out Dick. “Even where drilling dates were stretched, lower background populations meant

residual chemistry faced less pressure. In many cases, seed return in 2025 was minimal – something to bear in mind if pressure rises again in 2026.”

Paul agrees that the very dry spring and summer last year don’t appear to have affected residual performance. “Seedbeds were in very good condition and there was enough rainfall in October to support herbicide efficacy,” he says.

“The benefit of seedbed quality is still visible in early spring with fields able to cope reasonably well with the



A clean start

According to Frontier’s Dr Paul Fogg, the very dry spring and summer last year don’t appear to have affected residual performance.

wet weather in January and early February. However, it's been difficult or impossible to travel until recently, which puts pressure on fieldwork. Effective disease control will be crucial in realising crop potential, but this shouldn't come at the expense of weed control," he stresses.

Critical to getting on-top of weed pressure is knowing resistance status to ALS chemistry, says Paul. "Obviously, against anything RRR resistant you're better off investing in other parts of the programme. Where you can expect control of a main target weed – blackgrass, Italian ryegrass or brome – aim to apply a post-emergence contact spray as soon as possible.

"We know that mesosulfuron-based products are less dependent on temperature than other options, requiring a minimum of 5°C to perform. Then the addition of thiencazabone in products like Incelo (mesosulfuron+ thiencazabone) and Atlantis Star (mesosulfuron+ iodosulfuron+ thiencazabone) appears to support brome control," he adds.

This is useful, because an increase in conservation tillage appears to be linked with an uptick in brome populations. Equally, autumn residuals aren't as suited to controlling some brome species, meaning spring herbicide applications are becoming more of a priority in many fields, advises Paul.

From 1 March, Pacifica Plus (mesosulfuron+ iodosulfuron+ amidosulfuron) is another option for targeting mixed weeds, he says. "Wild oats, annual meadow and broadleaf weeds are often part of the target population in spring; they must be factored into the decision-making process around the post-em. Adding a residual partner to control subsequent germination is also something to consider

in certain situations.

"It's about farm economics – can you justify the return on investment from a post-em herbicide? Even a few plants can spread and tiller extensively affecting yield and causing higher seed return."

Paul stresses that attention to detail is a must when applying a contact-acting spray. "To get the best performance, it's best to apply as a standalone, not in a mixture with a T0. For crop safety, there has to be a minimum of 7 days between a mesosulfuron post-em and a tebuconazole application."

With little chance for fieldwork in February, workloads may inevitably be compressed. This could lead to hoping a spray will cover both grass and broadleaf weeds, suggests Bayer's Rachel Banks. "Whether it's possible really depends on the weed spectrum.

"Atlantis Star is effective for grassweed control and also combats many key broadleaf weed species such as cleavers, poppy, chickweed, mayweeds and speedwell. Hence, it offers a straightforward solution to many of the mixed weed problems we see in spring.

"If charlock and volunteer oilseed rape are key targets, then you may want to consider Pacifica Plus as an alternative."

According to Rachel, although controlling weeds protects yield for the coming harvest, long-term management must be considered too. "Cutting seed return means fewer potential weeds for future seasons; the smaller the seedbank, the more options a farmer has regarding aspects like crop choice and drilling date come autumn.

"It varies in-field, but 200 seeds/head is a reasonable benchmark for blackgrass and Italian ryegrass. Using a post-em to reduce head counts – in some cases possibly not ▶



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Why climate change is redefining agronomic risk

The impact of shifting conditions across all aspects of crop production, from yield potential to weeds, pests and diseases

Climate change is no longer a theoretical concern for UK agronomy, as evidenced by data presented at the recent Association of Independent Crop Consultants (AICC) conference.

ADAS senior crop research scientist, Christina Baxter, outlined how long-term trial data reveals a growing disconnect between genetic potential and on-farm performance. She said by comparing AHDB Recommended List trial yields with average farm wheat yields since 2002, a clear pattern emerges.

Both datasets show increasing seasonal volatility from around 2006 onwards, but while trial yields continue to rise, on-farm yields have remained static or declined slightly, creating a gap of around 2.5t/ha.

“The fact that both datasets show the same pattern of fluctuation tells us they’re dealing with the same limitations coming from the environment and changing weather patterns,” highlighted Christina.

Average temperatures in central England have risen by about 1°C, while rainfall is increasingly concentrated into heavier winter events, with drier summers becoming more common, she continued.

Yield Enhancement Network (YEN) data has helped to pinpoint how crops are responding, with one of the strongest associations being between wheat maturity and yield. Varieties maturing just two days earlier than the control yield around 1t/ha more, while later-maturing varieties show a similar yield penalty.

Christina said higher temperatures are accelerating crop development, shortening the grain fill period by around 10 days and reducing thousand grain weight. “What we believe is happening is that earlier varieties are flowering and filling grain earlier in the season, under cooler temperatures when more water is available.”

However, options remain limited, with few very early varieties entering the RL in recent years, placing greater emphasis on management, she

added. Furthermore, YEN data shows that spring rainfall strongly influences uptake of phosphorus, manganese and sulphur, while dry springs can severely limit nutrient availability.

Christina stressed that good establishment, timely drilling and flexible nutrient strategies will be essential as weather variability increases.

Also speaking was Professor Richard Pywell from the UK Centre for Ecology and Hydrology (UKCEH), who presented scenario modelling that explores how climate change could affect yield potential and crop suitability across the UK.

Under a +2°C warming scenario – expected by 2050 – wheat yield potential is projected to increase in northern regions but decline in parts of southern England. Then, under a +4°C scenario, wheat becomes more questionable in the South, with oilseed rape also beginning to suffer.

To support decision-making, UKCEH has developed the Farm Health Check tool, allowing farmers to assess climate risks and future crop suitability at a local scale. Modelling suggests that while crops such as wheat and oats may decline in suitability in some regions, alternatives including durum wheat, chickpeas, lentils and soybean could become more viable.

“Although some of these crops are marginal today, we have to start testing them now,” urged Richard, citing recent rice trials in the Cambridgeshire Fens.

To follow, Dr Helen Fones from the University of Exeter highlighted how pests and pathogens are adapting. She said yellow rust populations are evolving to tolerate warmer conditions, while shifts in fusarium species composition are being observed, with implications for fungicide sensitivity and management.

New threats may also emerge, with milder winters increasing the risk of pests such as Colorado potato beetle and diseases like xylella in grapevines. “Septoria leaf blotch thrives in warm, wet conditions and is therefore expected to become more problematic



Weather extremes

While the UK is still getting the same rainfall, it’s coming in more intense periods, suggested AICC member, Ben Boothman.

in parts of the UK,” warned Helen.

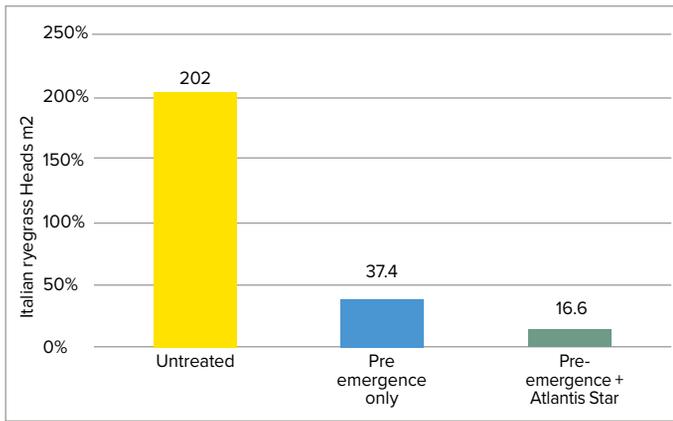
Her research also shows that pathogens like septoria can form biofilms under stress, increasing tolerance to heat, drying and fungicides, and this may be a new area to target disease control strategies.

Reflecting on the evidence, independent agronomist and AICC member Ben Boothman said the science reflects what’s already in-field. “We’re seeing wetter, milder winters and drier, warmer spring summers, but we’re still getting the same rainfall – it’s just coming in more intense periods.”

Earlier-maturing varieties are already proving more resilient on lighter soils, while dry springs are increasingly compromising residual herbicide performance. “Five years ago, drought probably never really entered our heads.

“Now it’s not just about whether the crop will reach its potential, but whether the herbicides we’re applying will to work.”

He believes climate change will demand more flexible rotations, cultivation strategies and crop choices, while also creating opportunities for protein crops such as soya. Crucially, Ben stressed that navigating this uncertainty requires independent, field-specific advice. “You can’t just go off a playbook; everything must be tailored for a specific field or farm,” he concluded.



Controlling Italian ryegrass heads with Atlantis Star

Source: Bayer

- ▶ eliminating the whole plant but reducing its vigour – will have benefits at harvest and beyond,” she comments.

Trials also suggest that using post-em herbicides can reduce the size of blackgrass heads even when the weed isn't killed entirely. “A smaller head size is likely to mean less seed return. Bayer is currently looking at this in more detail this season to

understand exactly how products like Atlantis Star interact with seed production on surviving weeds.”

Looking at what Atlantis Star can offer, Rachel says trials indicate 11% control of Italian ryegrass heads across a programme (see graph). “This equates to 20.8 fewer ryegrass heads/m2. Standalone, the Atlantis Star application provides 56% control; so

within a programme, this makes a valuable contribution to reducing seed return.”

Then, there's the role of adjuvant choice on herbicide efficacy, highlights Dick, as demonstrated in recent Hutchinsons trials. “Increasing Phase II (95% MSO oil) from 0.5% to 1% with Broadway Star (florasulam+ pyroxulam) or Broadway Ultra (mesosulfuron-methyl+ pyroxulam) improves brome control by up to 20%.”

However, ryegrass responds differently, he says. “Adding Phase II alongside Biopower or Probe reduces control from mesosulfuron+ iodosulfuron products, whereas including 0.5% Validate improved ryegrass control by up to 30%. For these mixtures, Biopower or Probe must be included as per the label, with Validate used additionally where appropriate.”

Dick notes that leaf drying within 3-4 hours is essential for contact products. “With



Keeping it simple

Atlantis Star offers a straightforward solution to many of the mixed weed problems seen in spring, proposes Bayer's Rachel Banks.

crops and weeds continuing to grow, applications should be made promptly when conditions allow; water quality is also critical. ALS graminicides respond well to conditioning, and most water supplies will benefit from treatment,” he concludes. ●

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WITH GUY SMITH

Spinning the wheel

On the other, I've seldom returned with a clearer idea as to what the future holds, especially when it comes to those to key variables of farm profitability – namely the weather and the markets.

Regarding the wheat market, analysts tell me there's too much good weather in the key wheat growing areas of the world to offer hope of a significant rally in prices, but this forecast is subject to the possibility of change. So that's about as useful as a chocolate teapot. However, it does concentrate the mind on the need for accurate long-term weather forecasts, not just for my little patch, but also for the American/Canadian mid-west and vast fertile but embattled plains around the Black Sea.

Climate change predictions suggest global weather patterns will generally become less helpful to arable cropping. Yet the trouble seems to be that given the local droughts and floods of the past few years, this mainly applies to our little island but not where it really matters, hence the global glut hanging over the markets.

So as we get the fertiliser spinners out for their March duties, the question we ask ourselves is, with wheat prices closer to £150 rather than £200, where do we place the roulette board chip for how much nitrogen to apply?

Last year we cut back to 180kgN/ha, down from our usual 220kgN/ha. The result was a disastrous harvest of low yielding, low protein milling wheat. Whether the low yield was due to the spring drought or my poor fertiliser management, I'll probably never know. As for the low protein, that was definitely my cock-up as I completely miscalculated the nitrogen available to the crop after GS39.

So this year, no matter how dry we get by late spring, I won't miss out on a late season milling wheat spray of 30kgN/ha. There's just no point growing milling wheat that doesn't make the 13% spec.

As for oilseed rape on the farm, these crops excite a lot more management positivity than the wheat; the world seems a lot shorter of vegetable oil than cereals. So I'm feeling more gung-ho when it comes to spending money on those crops.

But as ever with farming there's always a little devil of doubt sitting on your shoulder. My concern is the crop looks disconcertingly forward with plenty of buds and flowers despite the late-August drilling



Defra secretary of state Emma Reynolds announcing to the NFU AGM that for those already in SFI schemes, we should expect radical change. It made me nostalgic for the days when CAP reform came round on a routine 10-year schedule.

date. The nightmare scenario is hard frosts as it comes into full flower in late-April. The other concern is keeping the canopy reasonably open during pod-set when the crop is already looking very vigorous, even if the plant count is less than 20 plants/m².

Last summer I chose a hybrid variety in the hope it'd grow away from any flea beetle pressure, but in the absence of CSFB, it's looking prematurely over-vigorous for my liking. I have to remind myself that this is a lot better than a patchy crop that looks like a moth-eaten carpet from a drones eye view.

So after all the excessive over-thinking, OSR will get the same nitrogen as the wheat – 220kgN/ha. Harvest will leave me either hindsight wise, or hindsight foolish. ●

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

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Adapting to shifting resistance scores



“Virtually all varieties are expected to be reclassified as susceptible to yellow rust at young-plant stage when the next RL is published.”

JOHN MILES

Early sowing, forward growth and the almost complete breakdown in yellow rust resistance mean that growers will have to be on their toes with disease control this season. *CPM* gathers variety experts and plant breeder advice on how to keep crops clean.

By Mike Saull

While there are some exceptions, breeders agree that a T0 could be a prerequisite across most varieties and that keeping ahead of disease as the season unravels will be critical to maximise harvest potential.

Looking at C2 seed sales, six established varieties make up almost half of the UK wheat area. Leading the way is Bamford – a barn-filling Group 3 that takes 14% of the wheat area after

two years on the Recommended List.

Group 4s LG Beowulf and KWS Dawsum take a further 18% combined, while the quality wheat sector is dominated by Group 2 KWS Extase and Group 1s Skyfall and KWS Vibe; all three with a 6% market share.

According to John Miles, seed technical manager at Agrii, there are some ‘very big’ wheat crops that were sown early and which are growing strongly. Without a significant and

prolonged late winter period, they’ll likely require yellow rust and early septoria protection, he says.

This is because RL figures from December suggest 43% of the UK’s C2 wheat area now has a score lower than 5 for adult resistance to yellow rust. An even higher percentage is seedling susceptible, with just 13 out of 38 winter wheat having resistance at the young plant stage.

“As this resistance is likely to



Not all bad news

Agrii's John Miles highlights that of the six most widely grown wheat varieties, KWS Vibe and Bamford seem safer when it comes to yellow rust resistance.

▶ be associated with the *Yr15* gene, virtually all varieties are expected to be reclassified as susceptible to yellow rust at the young-plant stage when the 2026/27 RL is published," highlights John.

"This means we're back to the days when the yellow rust susceptible Robigus and Oakley were dominant and a T0 became a necessary start to the spray season."

With a significant area at risk and a clear springboard for the disease to develop, growers in the East who've tended to focus on PGRs and nutrition at this stage of the season may have to consider fungicides as well, believes John.

The plus side is, that it doesn't take much to control yellow rust with actives such as tebuconazole or azoxystrobin.

"Looking at the six mainstay varieties, Extase was always seedling-susceptible to yellow rust, and even in its early days, we saw isolated incidences of the disease at the adult stage of the plant. Now though, with an identified Extase race for yellow rust out there, the disease will have to be factored in across the complete fungicide programme," he adds.

"We know Skyfall well with its 3 for yellow rust and appreciate it'll require a belt-and-braces approach, but fellow Group 1 Vibe, despite its good adult resistance (8), may also want a T0 start because it's seedling susceptible."

John highlights that of the six most widely grown wheat varieties, Vibe and Bamford are safer when it comes to the disease. "Bamford can

also get yellow rust, but currently not at levels that cause concern.

"Fellow barn-fillers Beowulf and Dawsum used to have seedling resistance, but this was also based on the *Yr15* gene and so they now require treating like a 2-3 rated yellow rust variety with little margin for error."

SEPTORIA SCORES

On septoria, John says breeders have done well to improve resistance year-on-year and differences of 0.7 or so are quite significant. However, all six of the most popular wheats are just 0.3 apart, so there's little between them.

More of an issue this year is whether growers have drilled early or not, he suggests. This is because Agrii data

backs ADHB trials that suggest a 0.3 reduction in septoria rating for every week a crop is sown earlier than the typical drill dates for RL trials.

So, with the RL trials usually sown the second week of October, crops planted in mid-September will

have a 0.9 reduction in their expected septoria score. "Remember, these septoria scores refer to adult plant resistance, not seedling resistance, so what we see for disease levels early season may not reflect the scores on the RL," comments John.

"Those drilling in the higher risk septoria regions of the South and Southwest are already facing the prospects of a belt-and-braces fungicide programme. While Eastern County crops are much more exposed on yellow rust, given a big biomass in the field, there's high risk of septoria across all popular varieties here as well."

John raises that when Extase came onto the RL in 2019, it was the first 8-rated wheat for septoria, but now, its resistance has reduced. "Given its Continental growth habit and the fact it can motor through stem extension, it can catch you out so I hope growers haven't drilled it too early.

"If you have, then you could be at T0 10 days earlier in Extase than other varieties. Equally, Bamford is quite a vigorous, voluptuous variety so watch this too. In fact, all popular types are quite punchy when it comes to speed of development, and the winter thus far will have done little to check disease."

"I did feel last year that Skyfall's yellow rust wasn't as bad as previously, but there's no doubt that the right fungicide at T0 puts you in charge."

Forward growth could also have repercussions on PGR use and John suggests risks could be greater than they have been for some time. "Varieties haven't been truly tested for a while and yield potential is higher; this season could be different. There's also been good nitrogen mineralisation alongside strong growth, so don't ignore a PGR at T0."

Elsoms head of agriculture, Toby Reich, agrees that early yellow rust control will be important this spring to get the most from Bamford. "That's even more the case given the higher disease pressure due to the new race."

He puts Bamford's market leading position – at 14% of certified seed sales – down to its consistency across three

contrasting years and suitability across a wide drilling window.

"While we saw rust last year, Bamford was robust and still delivered, and a 6.3 rating for septoria certainly helps.

"It's one of the first varieties to

come to ear so is fast-developing, thus it can be early to harvest offering security for those looking at securing higher value Group 3 markets," says Toby.

Beowulf should also remain reliable provided crops are actively managed suggests Limagrain's Ron



Consistent performer

Despite the rust shift last year, Bamford was robust and still delivered, says Elsoms' Toby Reich.



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Front-runner

KWS Vibe has the best yellow rust resistance rating of all RL Group 1 varieties alongside best-in-class protein yield, raises the firm's Matt Bull.

- ▶ Granger. "While it's now susceptible to the YR15 strain, careful monitoring and timely fungicide use should allow it to continue to perform.

"Early disease control is critical as part of a robust, protective fungicide programme using a range of actives throughout the season."

A T0, or even pre-T0, spray is recommended as a security measure, with tebuconazole providing a cost-effective option either alone or in combination, believes Ron. "Where yellow rust is detected, rates should be increased to eradicate infection quickly. It's a case of monitoring crops closely, tracking weather conditions, and making full use of spray windows to stay ahead of disease," he says.

MIDDLE PERFORMER

Like several Group 4s, where many varieties share similar background resistance genes, Dawsum's yellow rust score was downgraded last year, points out KWS's Matt Bull. "It's also lost its seedling yellow rust resistance rating, but its adult plant yellow rust rating is still better than six other hard Group 4s, sitting right in the middle of the group.

"Compared with previous seasons, it may require a shift in approach to fungicide management, with a greater focus on early

season rust management."

He adds that Dawsum has been the UK's most popular wheat in recent years, so is a proven performer with its high yield potential, exceptional specific weight and good septoria resistance.

Over at RAGT, Andrew Creasy says Skyfall sits in an odd position compared with most other varieties. "Its yellow rust hasn't been great for some time, but after 10 years or so experience, growers know how to grow it and will be geared up to go with a T0. Skyfall, however, unlike others, isn't relying on the YR15 gene and we don't really know how those varieties which broke down to the new race will perform this year.

"I did feel last year that Skyfall's yellow rust wasn't as bad as previously, but there's no doubt that the right fungicide at T0 puts you in charge. Combine this with an 8 for brown rust and a 6.2 for septoria that hasn't really changed since 2014, and Skyfall looks relatively robust."

Matt adds that fellow Group 1 variety Vibe maintained excellent resistance to yellow rust last year, in what was an exceptionally challenging season. "In 2025 AHDB one-year harvest results, it had the third lowest level of yellow rust infection of all RL varieties with an average of just 0.8% across 20 sites," he says.

"Only two RL varieties were marginally better, and the highest level of yellow rust seen in the variety across all locations was just 3.5%. Vibe isn't rated as resistant to yellow rust at the

seedling stage and never has been, so our advice is the same as last year – keep aware, monitor crops, and adopt a 'see it-spray it' approach."

Matt points out that the variety still has excellent adult plant resistance. "But if last year showed us anything, yellow rust is a dynamic pathogen and adult plant resistance can't be solely relied upon for yellow rust control. That said, Vibe has the best yellow rust resistance rating of all RL Group 1 varieties, alongside best-in-class protein yield so should prove popular with both growers and end users."

As for Extase, he believes the variety has served growers well and is the only variety on the current RL with the same yellow rust score as it had last year (6.7). "It's has a good level of adult yellow rust resistance, but like Vibe, it's never had seedling yellow rust resistance.

"Extase's performance in last year's AHDB one-year harvest results underlines the sporadic and challenging nature of yellow rust. At only four out of the 20 sites did the variety have yellow rust levels above 5%, but these were spread out around the UK.

"So don't just base decisions on an average RL score – it's a much more complex process than that. Yellow rust populations are diverse and the virulence profile of the disease can vary from site to site. Start monitoring your own situation early in the season and be prepared to control if you see signs of the disease," he concludes. ●



Known entity

RAGT's Andrew Creasy says while Skyfall's yellow rust score hasn't been great for some time, after 10 years or so experience, growers will be geared up to go with a T0.

Rewriting the role of pulses



“What we’re seeing now is farmers, researchers and feed companies starting to move in the same direction.”

ROGER VICKERS

From feed formulation to field management, pulses are gaining new momentum as part of climate-smart farming systems. But can the industry convert scientific progress into lasting market confidence? CPM finds out.

By Charlotte Cunningham

For many arable growers, peas and beans have long occupied an awkward middle ground in the rotation. Useful, certainly; valuable for soil structure and nitrogen fixation, and helpful for meeting environmental scheme requirements. But too often, pulses have been viewed as a ‘good for the system’ crop, rather than ‘good for the balance sheet’.

Margins have been unpredictable, markets have felt fragile, yields have been variable – and when cereal prices are strong, it’s been tempting to squeeze pulses out altogether.

Yet, quietly, that picture is beginning to change. Across research sites, commercial farms and feed mills, a growing body of evidence is pointing in the same direction: home-grown protein crops are starting to stack up – agronomically, economically and environmentally. The technical case is strengthening. The commercial case is emerging. The question now is whether the industry can turn that potential into something permanent.

That shift isn’t happening by accident.

Much of it is being driven by the Nitrogen Efficient Plants for Climate Smart Arable Cropping Systems (NCS) project, which is examining how pulses can play a larger role in UK food and feed supply chains.

At its heart is a simple question: can peas and beans realistically replace a significant proportion of imported soya? Early findings suggest so, but not without structural change.

FEED DEMAND

The project aims to displace half of the soyabean meal used in livestock feed, currently 2.5M tonnes. Data generated through the project and presented at the recent ‘From Soya to Sustainability’ conference indicates that around 1.6M tonnes of bean demand could be generated through poultry rations alone, if inclusion rates reached those trialled by SRUC. That would represent a step-change in UK pulse production, in both area and output.

For arable businesses, this implies more than simply ‘growing a few more beans’. It points towards pulses becoming

a core commercial crop, underpinned by consistent demand, clearer specifications and stronger market signals.

James Webster-Rusk of The Andersons Centre, who’s been analysing the economics behind that shift, believes the opportunity is real but fragile. “We’re seeing what’s possible in terms of volume and impact,” he explains. “But we won’t get there unless the value created further down the supply chain is shared back with growers. Without that, it’s very difficult to justify expanding area.”



Shift in opportunity

James Webster-Rusk of The Andersons Centre has been analysing the economics of the pulse market.

▶ In practice, this means pulses must compete financially with cereals and oilseeds, not just environmentally. Gross margin modelling suggests that with reliable yields in the 4.5-5.5t/ha range for beans, combined with modest price premiums for specification crops, pulses can match second wheat returns on many soil types – particularly once nitrogen savings and rotational benefits are factored in. However, achieving that consistency remains the key challenge.

And that's precisely where the project's practical work begins to matter. That's why the work of the NCS 'Pulse Pioneers' is so important, explains PGRO's Roger Vickers. This is a group of 30 growers running structured on-farm trials – testing establishment methods, nutrition strategies, disease control and harvest management in real-world conditions.

"The focus isn't just on headline yield, but on reducing variability," notes Roger. "Establishment remains one of the most critical factors and trials have shown that early drilling into good soil structure, combined with accurate seed placement and robust seedbed preparation, can significantly improve plant populations and early vigour."

Attention is also being paid to seed quality and inoculation. While most UK soils contain background rhizobia, inoculated seed has delivered more reliable nodulation in some regions, particularly on lighter land or in longer pulse rotations.

Nutrition strategies are also evolving as a result of the project. Although pulses fix nitrogen, they remain sensitive to deficiencies in phosphate, potash, sulphur and trace elements, particularly manganese and molybdenum. Targeted tissue testing has helped fine-tune programmes and reduce hidden yield losses, explains Roger.



Poultry nutrition

Research led by SRUC's Professor Jos Houdijk has found that when beans are de-hulled or de-hulled and toasted, the historical dent in poultry performance is removed.



Productivity = sustainability

Farmer John McArthur says boosting productivity from home-grown feed is key to improving sustainability.

Disease control remains another priority. Ascochyta, chocolate spot and downy mildew continue to limit performance in many crops, particularly in wetter seasons. Pioneer trials have highlighted the importance of early, preventative fungicide programmes, variety resistance ratings and canopy management.

INTEGRATED WEED CONTROL

Weed control, especially in spring beans, is also under scrutiny. Integrated approaches combining stale seedbeds, competitive varieties and timely residuals are proving more reliable than reliance on post-emergence chemistry alone.

Individually, none of these refinements is revolutionary. Taken together, however, they are steadily improving resilience. The cumulative effect isn't necessarily dramatic yield gains in any one year, but improved consistency across seasons – which is what growers require to justify larger pulse areas, believes Roger.

While much of the early work has focused on crop performance, some of the most persuasive evidence is now emerging further down the supply chain. In mixed farming systems, pulses are already being fully integrated into home-grown feed rations. One example from the project is a beef enterprise in South Yorkshire, where home-grown faba beans have been trialled as a substitute for bought-in protein. By roasting the beans on farm, the business has improved protein availability and animal performance.

Supporting analysis shows that roasting increases bypass protein and starch availability, improving rumen efficiency. In sacco testing confirmed higher small intestine digestibility, translating into improved feed conversion.

Although processing increases feed costs per tonne, cattle achieved higher daily liveweight gains. As a result, overall production costs per kilogram of output fell, while emissions intensity also improved.

Farmer John McArthur describes it as a relatively simple change with far-reaching consequences. "Boosting productivity from home-grown feed is key to improving sustainability," he says. "So it's encouraging to see that a small adjustment to our routine can support both performance and profitability."

For arable growers, this matters because once livestock performance improves, market confidence tends to follow. It demonstrates that pulses are increasingly valued not simply as a raw commodity, but as a functional ingredient, says Roger. "Their worth is being judged by how they perform in livestock systems – and that creates opportunities for growers who can supply consistent, high-quality crops."

It also highlights the importance of physical and chemical quality. Protein content, starch availability, moisture levels and contamination thresholds are all becoming more commercially relevant, he adds.

If beef systems are helping to build confidence, perhaps the most significant breakthrough has come in poultry nutrition. Historically, poultry has been a difficult market for beans – anti-nutritional factors and high fibre content have limited digestibility, restricting inclusion rates and undermining feed efficiency.

But research led by SRUC's Professor Jos Houdijk is suggesting otherwise. "When we feed more beans, we tend to see a dent in performance because the bird can't digest them properly,"

he explains. “But when we de-hull or de-hull and toast beans, that dent is taken away. The animal performs as if that detriment was never there.”

Trials involving whole, de-hulled and processed beans have shown that inclusion rates can be pushed far higher than previously thought possible, without compromising feed conversion ratio or output.

From a practical perspective, Jos says de-hulling has delivered the biggest gains. “The largest win is from removing the hull,” he notes. “Toasting may offer some additional benefit, but at the moment the data suggests that effect is relatively modest.”

Removing the fibrous hull increases metabolisable energy and protein availability, allowing formulators to replace more soya while maintaining ration balance. Commercial feed specialists are now translating those findings into large-scale systems, and ABN poultry nutritionist Brian Kenyon says confidence in beans is steadily growing.

“We’re getting more comfortable using higher levels,” he explains. “Even increasing inclusion from 5 to 10% has a significant impact on carbon emissions across the industry.”

Large-scale broiler trials using de-hulled beans have delivered soya reductions of up to 27%, alongside double-digit emissions savings. Layer trials have achieved similar proportional reductions, with minimal impact on egg size and quality.

One notable observation has been darker yolk pigmentation when beans are included – a trait that may carry added consumer value in some markets. For pulse growers, this is potentially transformative, notes Roger.

“Poultry feed represents a large, stable, year-round market. If processors and integrators commit to UK beans as a core ingredient, it could underpin long-term demand in a way few other outlets can.”

But unlocking that demand depends on something beyond the field. A recurring theme across livestock sectors is the importance of post-harvest processing. Whether through de-hulling, toasting, extrusion or micronisation, processing is increasingly seen as the link between crop production and feed value.

At present, processing capacity remains somewhat patchy and regionally uneven. Some growers have invested in on-farm equipment, while others rely on third-party facilities. The economics vary widely – capital investment can be

significant, but scale and throughput quickly improve returns. Where processors are integrated into supply chains, growers benefit from more stable demand and clearer specifications.

As pulse markets mature, further investment in regional processing hubs is likely to be required – particularly if poultry demand expands, notes Roger.

As efforts to reduce imported soya gather pace, pulses are also becoming increasingly relevant to wider policy and sustainability debates. Reliance on imported soya carries environmental, political and economic risks, while climate change is disrupting global supply chains. Equally, carbon accounting is becoming more rigorous and farm businesses are being asked to demonstrate measurable progress on emissions.

At the conference, supply chain specialist Nicola Brennan of WWF-UK linked domestic protein production to national resilience. “Accelerating nature loss isn’t just an environmental issue,” she warned. “It’s a foundational threat to global stability and food security. The private sector has a major role to play in supporting farmers to produce food with positive environmental impacts.”

Within arable rotations, pulses offer multiple benefits: nitrogen fixation, improved soil structure, enhanced microbial activity and reduced fertiliser demand. Nitrogen savings alone can reach 30kgN/ha for following cereals, improving margins and lowering exposure to volatile fertiliser markets.

POSITIVE IMPACTS

Critically, when pulses displace imported protein in livestock diets, they also deliver system-wide emissions savings – a factor that’s increasingly reflected in corporate sustainability targets. Professor Neil Ward of the University of East Anglia believes this makes pulses central to future food policy.

“Climate change is already affecting supply chains and driving food price inflation,” he says. “Adaptation is non-negotiable. We have to think about resilience in a way we haven’t for decades.”

For all the technical progress, one question continues to surface: will the supply chain follow through?

Research can demonstrate what’s possible and farmers can show what works in practice. But scaling up requires confidence – and confidence depends on contracts, pricing and long-term commitment.

Roger believes momentum is building,



Climate-smart rotations

PGRO's Roger Vickers says if growers, processors and end users can move forward together, peas and beans could finally step out of their supporting role and become central players in profitable, climate-smart rotations.

but accepts collaboration remains critical. “There’s huge potential. What we’re seeing now is farmers, researchers and feed companies starting to move in the same direction. The challenge is maintaining that alignment.”

Processing capacity, logistics and quality assurance must develop in parallel; without them, inconsistent demand or short-term buying patterns quickly undermine grower confidence. Many growers remain wary of committing land without forward visibility on pricing and movement. In simple terms, pulses will only become mainstream when they are treated as such.

For arable producers, the current moment feels like a crossroads. On one side lies the familiar pattern – modest pulse areas, volatile markets and cautious adoption. On the other is the possibility of pulses becoming fully embedded in UK farming systems – linked to domestic feed supply, climate objectives and long-term resilience. The technical barriers are steadily being dismantled, agronomy is improving, processing is unlocking value and livestock sectors are engaging more seriously than ever before.

What remains is alignment, comments Roger. “If growers, processors and end users can move forward together, peas and beans could finally step out of their supporting role and become central players in profitable, climate-smart rotations.

“For many farms, that could mark the beginning of a very different relationship with pulses – one built not on obligation, but on opportunity.” ●

Momentum builds for maize



“In maize, early vigour sets the trajectory for final biomass.”

STUART SUTHERLAND

With maize margins attracting attention and AD demand strengthening, CPM explores how soil structure, drilling conditions and early nutrition are proving decisive in converting potential into profit.

By Charlotte Cunningham

With continued demand from anaerobic digestion (AD) plants, significant grain import volumes and steady breeding progress delivering earlier-maturing hybrids, maize is becoming an increasingly influential part of arable rotations.

Gross margin comparisons are understandably turning heads – in some scenarios, maize can deliver 2-3 times the margin of alternative spring break crops such as spring oats or spring beans. Add to that its value in spreading workload and its alternative herbicide chemistry – particularly where grassweeds such as blackgrass are under pressure – and the case begins to stack up.

Speaking in a recent Limagrain webinar, The Andersons Centre’s James Webster-Rusk says the market for maize is being driven by growing demand for AD feedstocks, with many plants looking to replenish depleted stocks.

“With regard to grain maize, we currently import around 2.5M tonnes a year, so there are opportunities to replace at least some of this with homegrown crops.”

Alongside the commercial drivers, rotational benefits strengthen the argument, he adds. “The different herbicide chemistry used in maize can help with the control of grassweeds including blackgrass. Being spring drilled with a relatively late harvest, it also provides a useful spread of workload.”

On paper, maize looks compelling, but it’s not a forgiving crop – it doesn’t hide establishment errors and rarely compensates for early stress. Where it performs in arable systems, it does so because the fundamentals – particularly in the first six weeks after drilling – have been handled correctly, explains Jim Clark, agronomist at Hutchinsons.

So ahead of the 2026 drilling campaign, how can growers maximise their maize

potential this coming season? The starting point is soil structure, says Jim.

Maize has relatively slow early root development compared with cereals, and limited ability to compensate for early restrictions. “Maize is a poor rooter



Compelling, but not forgiving

Where maize performs in arable systems, it does so because the fundamentals, particularly in the first six weeks after drilling, have been handled correctly, says Hutchinsons’ Jim Clark.



Fundamental phosphate

Phosphate in particular is critical for maize, yet it is one of the least mobile nutrients in soil, says Stuart Sutherland, technical business manager at De Sangosse.

initially. If there's compaction, whether from livestock, trafficking or previous crops, it requires addressing before drilling. You can't correct it afterwards."

Compacted layers restrict vertical rooting, limit access to moisture and reduce nutrient capture. In dry springs, shallow root systems struggle quickly, while in cool conditions, nutrient uptake – particularly phosphate – becomes further constrained.

Targeted subsoiling or soil loosening ahead of drilling can markedly improve early root architecture, suggests Jim, but the aim is structural integrity, not excessive cultivation.

Then once soil structure is right, drilling conditions become critical. Maize germination and early growth are strongly temperature dependent, so while mid-April is often used as a guide for open-grown crops, soil temperature is a far more reliable indicator than the calendar.

"In open ground, we're looking for soils at 10°C for three consecutive days before drilling," comments Jim. "Planting into cold soils leads to uneven emergence and weak early vigour."

Uneven emergence inevitably creates uneven competition within the crop, with later plants rarely catching up. This results in variable cob size and inconsistent maturity – affecting both yield and harvest efficiency.

Cold soils also restrict nutrient availability, particularly phosphate. Where roots are slow and nutrient mobility limited, early biomass accumulation is compromised, says Jim.

In some scenarios, film systems have helped to extend maize into cooler regions by raising soil temperature along the

seed row and accelerating emergence. These allow earlier drilling and potentially earlier harvest, but demand precision – consistent depth, accurate placement and firm seed-to-soil contact remain essential. "It's a system approach," adds Jim. "Film gives you security, but only if the fundamentals are right."

As well as the good conditions, nutrient availability is fundamental in the crop's establishment. Phosphate in particular is critical for maize, yet it is one of the least mobile nutrients in soil.

It's the key driver of early growth from germination through to the six-leaf stage, says Stuart Sutherland, technical business manager at De Sangosse. "It underpins cell division, root development and energy transfer in the plant. As the core component of ATP – the plant's energy supply – phosphate is essential for converting sunlight into growth at a stage when demand is high, but uptake is often limited.

"The problem is, phosphate moves only millimetres in soil and become chemically fixed," Stuart explains. "Up to 80% of applied phosphate can become unavailable within days of application through fixation with calcium, iron or aluminium, meaning total soil phosphate levels rarely reflect what is actually accessible to the crop at emergence.

"Early P stress slows rooting and canopy development. That directly affects final biomass and starch. This is particularly critical as the number of kernels per cob is determined early in the crop's development. Any phosphate deficiency at this stage creates an unrecoverable yield penalty.

Microgranular starter fertiliser placed within the seed zone delivers phosphate directly to the emerging root. Products such as Primary-P, from De Sangosse, combine phosphate with supporting nutrients including nitrogen, sulphur, zinc and magnesium.

"Applied in furrow at a low dose of around 20kg/ha, Primary-P delivers a highly concentrated, targeted nutrient supply directly to the root zone, ensuring immediate uptake at the point of germination, adds Stuart.

Its protected phosphate technology is designed to reduce fixation, improving bioavailability and increasing phosphate use efficiency during the critical early growth stages. "Primary-P is applied in the seed zone at drilling, it provides young plants the nutrients they require exactly where they need them," says Jim. "The result is faster emergence, stronger roots,

and higher biomass, and it aligns with the Environment Agency nutrient guidance.

"Trials have shown improvements in root length, leaf number and early biomass, translating into higher silage yields and increased methane output in AD systems."

Many contractors now combine drilling, film application, and Primary-P placement in a single pass, improving efficiency, reducing wheelings, and supporting consistent early growth. Hutchinsons demonstration trials across Cumbria have shown visible differences – faster emergence, more vigorous early growth, and measurable step-changes in biomass.

"In our trials this year, plots with Primary-P averaged 2t/ha more dry matter, so a £300-£350/ha margin over cost," highlights Jim. "For dairy farmers growing maize, that translates to more feed per hectare and higher milk yields of 14%, worth around £1605/ha in 2025. For AD growers, gas yields increased by an average of 18%."

Turning focus to weeds, and maize brings rotational value through alternative herbicide chemistry and a spring drilling window. In grassweed-challenged systems, that flexibility is significant, suggests Jim. However, maize itself is intolerant of early competition – even modest weed pressure during establishment can reduce biomass and final yield.

Pre-emergence programmes form the foundation of control, particularly in open-grown crops, says Jim. Under film, warm and moist conditions can heighten weed pressure, making robust chemistry essential and post-emergence treatments often required. ▶



Demand for maize

Speaking in a recent Limagrain webinar, The Andersons Centre's James Webster-Rusk says the market for maize is being driven by growing demand for AD feedstocks, with many plants looking to replenish depleted stocks.

► But, post-emergence herbicides can impose temporary crop stress and growth checks, warns Jim. Although crops may appear to recover, the pause itself carries a cost. “Maize doesn’t compensate for lost time. If it sits still for a week after spraying, that shows up later,” he adds.

To mitigate the impact of herbicide stress, some growers are incorporating safeners designed to support crop metabolism during the post-emergence period.

Lepton, also from De Sangosse, is based on a zinc-complexed technology and is formulated to stimulate auxin production, support chlorophyll formation, and enhance nutrient translocation following herbicide application.

As Stuart explains, many post-emergence maize herbicides, particularly ALS inhibitors, work by blocking the synthesis of key amino acids required for growth. While maize can normally metabolise these actives, this process is slowed under stress conditions

such as cold nights, wet soils or wide temperature fluctuations.

“When metabolism slows, the herbicide remains active in the plant for longer than intended, leading to visible crop effects such as yellowing, purpling and stunting,” he says.

Lepton’s ZC-based technology is designed to support these metabolic process, helping the plant maintain growth by stimulating auxin production, improving nutrient translocation and supporting chlorophyll formation. This helps the crop process the herbicide load more efficiently and reduced the risk of prolonged growth check.

The objective is to maintain photosynthetic activity and root development during what can be a vulnerable growth stage, explains Stuart. “In maize, early vigour sets the trajectory for final biomass. If we reduce the metabolic stress associated with herbicide applications, we

help protect to yield potential.”

Field observations suggest that supported crops maintain forward growth rather than entering a visible pause. Agronomically, the principle aligns with the broader establishment strategy of protecting momentum.

As growers start to think about spring and the hope of warmer days, Jim concludes that for those planting maize in the coming months, attention to detail will be key to success. “Maize is sometimes described as straightforward – drill in spring, feed it, control weeds and harvest it. In reality, it magnifies detail.

“Soil structure must allow unrestricted rooting and drilling must coincide with sufficient warmth. Phosphate must be accessible, not simply present in analysis, while weed control must be robust without compromising growth.

“The key is to get it up and away quickly. If early growth is strong and uninterrupted, everything else becomes easier.”●

Breeding for better maize

As maize cements its place within UK arable rotations, breeding priorities are shifting to prioritise earlier maturity, stronger early vigour and improved standing power

Breeders are responding to the growing demand for maize by focusing not only on yield, but on reliability across variable seasons and soil types.

Subsequently, DSV is among those expanding its breeding programme in line with this shift. Known in the UK for its wheat portfolio, the company is now applying similar principles around yield stability and disease resilience to maize.

“Growers are looking for varieties that fit their system – not just on paper, but in the field,” says Sarah Hawthorne of DSV. “That means dependable early growth, consistent biomass production and the ability to cope with UK conditions, whether that’s a cooler spring or a challenging back-end.”

Alongside genetics, there’s increasing recognition that variety performance is closely linked to establishment support. In maize especially, early vigour and uninterrupted growth are fundamental to achieving yield potential.

To reflect this, DSV is working closely with industry partners such as De Sangosse to better align varietal development with crop nutrition strategies. The aim is to ensure that genetics and agronomy complement

one another – particularly around early phosphate availability and stress mitigation during establishment.

“It’s about integration,” explains Sarah. “The synergy between our maize genetics and De Sangosse’s fertiliser products supports the sustainable intensification of maize production, particularly for biogas, where consistent yield and high energy content are paramount.”

One hybrid from the DSV stable which currently demonstrates that approach is Aroldo (FAO 210). Sarah says the variety combines rapid early growth with high biomass and cob weight potential, making it suitable for grain, forage and AD markets.

Across European trials, Aroldo has consistently performed strongly within its maturity group for total dry matter and cob development. Early canopy closure supports resource capture in cooler conditions, while a substantial root mass contributes to standing power and late-season resilience, she adds.

Importantly for UK systems, the hybrid offers a clean ripening pattern and reliable disease tolerance – factors that underpin harvest flexibility and dry matter consistency.



Consistent performer

Across European trials, Aroldo has consistently performed strongly within its maturity group for total dry matter and cob development.

While Aroldo represents one option within the portfolio, DSV indicates that further material is progressing through the pipeline, with continued emphasis on adaptability, yield stability and suitability for both energy and feed markets.

“As maize becomes more integrated into arable systems, it’s essential that breeding keeps pace with those changing demands,” concludes Sarah. “By combining genetics, nutrition and agronomy, we’re aiming to support growers in delivering consistent performance from what remains a management-sensitive crop.”

Farming by algorithm



“In a world of full autonomy, we’re early doors in agriculture.”

KIT FRANKLIN

As spray windows tighten and margins narrow, growers are being asked to balance chemistry, cost and climate risk with ever greater precision. *CPM* explores how data, robotics and intelligent systems could redefine weed and disease control for the next decade.

By Charlotte Cunningham

There’s a particular kind of tension that builds in a wet season... It starts quietly – a couple of missed spray days, a forecast that refuses to settle. Then leaf three emerges under grey skies, septoria begins its slow climb through the canopy, and suddenly the margin for error feels razor thin. Go too early and question longevity, go too late and chase disease, or wait for perfect conditions and risk missing the window entirely.

For UK arable growers, weed and disease control has always been about timing. But increasingly, it’s also about precision.

Herbicide resistance continues to test cereal systems, blackgrass populations evolve faster than programmes adapt, and fungicide strategies have to balance cost against increasingly unpredictable disease pressure. This is amid a backdrop of tightening regulatory scrutiny, and an ever-narrowing number of available actives. Then, layered over all of this is climate

volatility – prolonged leaf wetness, warmer winters and compressed spray windows reshaping pathogen cycles in ways that feel anything but stable.

It’s in this context that smart technology stops sounding futuristic and starts looking like infrastructure. So what does – or could – the future look like? The recently launched UK Agri-Tech Centre report, *The Future of Arable and Horticulture Innovation: Shaping the Next 10 Years*, positions intelligent and data-driven systems as central to agricultural resilience during the coming decade.

While the document spans biotechnology, diversification and climate adaptation, its implications for weed and disease management are particularly striking. It believes the direction of travel is clear – away from blanket treatment and towards targeted, risk-based intervention.

For decades, crop protection has relied heavily on broadacre programmes – whole-field sprays timed around growth stages and historic threat levels. Although that approach functioned when

chemistry was plentiful and seasons were more predictable, today, the margin for inefficiency has narrowed dramatically.

The report highlights how artificial intelligence, sensing technologies and predictive modelling can shift decision-making from reactive to predictive. In disease management terms, that means integrating real-time weather data, leaf



Central to resilience

The recently launched UK Agri-Tech Centre report, *The Future of Arable and Horticulture Innovation: Shaping the Next 10 Years*, positions intelligent and data-driven systems as central to agricultural resilience during the coming decade.

► wetness duration and canopy humidity into forecasting models. Rather than relying solely on growth stage triggers, septoria or rust risk can be refined according to microclimate conditions and actual infection pressure.

In practical terms, that could translate into more confident fungicide timing, fewer insurance sprays and tighter alignment between product choice and genuine threat level. In seasons where rainfall repeatedly disrupts field access, identifying a true risk window rather than a perceived one becomes commercially significant.

The same principle applies to weeds. Herbicide resistance – particularly in blackgrass-dominant regions – has forced a re-evaluation of long-standing strategies. Cultural controls have strengthened their role, but in-crop management remains critical. Here, the report’s emphasis on robotics, automation and AI-driven sensing intersects directly with one of the sector’s most persistent challenges.

Machine vision systems capable of distinguishing crop from weed at plant level are no longer confined to research plots. Whether through spot spraying or physical destruction, the principle is consistent: intervene only where intervention is required. As such, reducing blanket herbicide use can lower selection pressure and build spatial intelligence over time, reframing weed management as a data challenge as much as a chemical one.

The report also speaks to convergence – the blending of biological, digital and mechanical innovation. Resistant varieties supported by disease modelling; biological fungicides deployed with greater spatial precision; variable-rate systems refining dose according to canopy density.

The future of crop protection isn’t about abandoning chemistry, it’s about making every intervention more informed.

If the report outlines the direction of travel, Kit Franklin, senior engagement fellow at Harper Adams

University brings it back to farm reality. “In a world of full autonomy, we’re early doors in agriculture,” he says. “We’re seeing some early adopters of on-farm commercial autonomous machines.”

Yet weed control is one of the first

areas where autonomy has delivered tangible commercial results. One example is the Danish-built FarmDroid robot, now operating on a number of UK farms, says Kit. Solar powered and operating without cameras, it drills using ultra-high-precision RTK GPS, recording the exact position of every seed as it plants. It then returns to mechanically weed between those recorded coordinates. “It’s weeding using position rather than cameras,” he explains. “It remembers where every seed is planted, and then it weeds between the location of the seed using very high precision GPS. Critically this enables pre-emergence weed control over the camera-based systems that were pioneered here in the UK.”

The distinction is important – rather than relying on machine vision to distinguish crop from weed in real time, the system operates on positional memory at centimetre accuracy. In high-value crops, that approach has proven commercially viable. “There are 18 or so machines in the UK,” he says. “And they’re starting to really add value commercially.”

Conversely, laser weeding has followed a longer path, with Kit being part of the original team at Harper Adams University that explored laser-based weed destruction more than a decade ago. “We certainly saw it was technically viable. We could kill weeds with lasers, but the main consideration was cost,” he says.

Early modelling suggested a commercially viable system would require capital investment of more than £1M – a figure that proved accurate when commercial machines such as the Carbon Robotics systems later entered the US market, he adds. “The technology works, but the pace of adoption depends on economics.

“I think ultimately, investment is always based on a business case. Farmers aren’t going to make decisions on a hunch, they’re going to do things based upon confidence that it’s going to save them time, effort or money – or at least one of the above.”

Precision agriculture has long wrestled with this challenge – year-on-year variability makes attribution difficult. Was the yield uplift due to the technology, or simply a different season? By contrast, technologies such as auto-steer and section control



Reducing production costs

Kit Franklin, senior engagement fellow at Harper Adams University (centre) says the modelling indicates that, under certain assumptions, autonomy can reduce total production costs sufficiently to offset capital investment.

succeeded because the savings were tangible, notes Kit. “People see 5-10% savings on inputs, so you can easily work out a return on investment.”

The same clarity will be required for robotics and AI-led weed control – and it’s not just the big players who look set to benefit...

Published economic modelling carried out by Harper Adams University, including peer-reviewed analysis of autonomous systems in UK farming contexts, suggests there are scenarios in which smaller farms adopting automation could improve profitability by reducing labour and machinery overheads.

By substituting conventional machinery fleets and labour hours with autonomous systems, Kit says cost structures shift. “The modelling indicates that, under certain assumptions, autonomy can reduce total production costs sufficiently to offset capital investment.”

While real-world uptake will always depend on individual business structure, the research reinforces Kit’s central point – where the numbers stack up, adoption follows. But there are other barriers too, and they’re not purely technical.

Recognising that regulation could either enable or restrict progress, Kit and colleagues were involved in developing a Code of Practice for the Use of Robots in Agriculture and Horticulture – a British Standard designed to demonstrate responsible deployment of autonomous systems.

“We wanted to show that as an industry, we were going to be responsible,” he explains. “If you’re going to employ a robot, do a decent risk assessment and do some training.”

The aim was to get ahead of potential legislative barriers, because in other sectors, rapid innovation without clear

“It’s not taking farmers away from farming, it’s about getting bums off seats driving in straight lines and getting them digging soil pits and doing more agronomy.”

standards has resulted in restrictive regulation – as seen with drones, for example. “By proactively developing guidance, the intention was to show policymakers that the sector could manage risk responsibly,” comments Kit.

Work also took place with insurers to ensure autonomous machines could be covered appropriately. “Farmers aren’t going to take on a £100,000 machine if they can’t get insurance for it,” he adds.

For growers considering automation in weed or disease management, his advice is practical – analyse your system, identify where labour is high, repetitive or

physically demanding, and start where the business case is strongest.

“The long-term vision remains optimistic. It’s not taking farmers away from farming, it’s about getting bums off seats driving in straight lines and getting them digging soil pits and doing more agronomy,” argues Kit.

Weed and disease management is becoming less about blanket response and more about informed intervention, he concludes. “From AI-driven weeding systems to DNA-based pathogen detection, the tools now emerging are capable of working at plant-level rather than field-level.” ●

What’s new in smart tech?

With smart tech looking increasingly set to play a more prevalent role in modern day farming, a particular strength of the emerging technology is in weed and disease management

DNA AUTO SPORE SAMPLER

Decorated at last year’s LAMMA event for its innovation in arable crop care, the DNA Auto Spore Sampler is a novel automated air-sampling and pathogen detection system designed to give growers early warning of crop disease risk before infections become visible in the field.

It continuously draws up to 300 litres of air per minute, capturing airborne fungal spores, bacteria and other pathogen particles for DNA analysis directly within the instrument.

Sampling periods can be user-defined, and collected spores are broken open so their DNA can be accessed and prepared for testing. After processing with

a stabilising solution, the DNA sample is tested using pathogen-specific assays, enabling detection of up to four different disease threats simultaneously including pathogens such as septoria, brown rust, yellow rust, sclerotinia and potato late blight.

Delivered by Agri Samplers, the system features its own onboard weather station and 4G connectivity, which sends data to a portal and can trigger email or SMS alerts when pathogen levels reach thresholds that indicate elevated infection risk. Growers can use this information to fine-tune spray timing and potentially reduce unnecessary fungicide applications, supporting more targeted and cost-effective disease management. ►



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LASERWEEDER G2

The LaserWeeder G2 from Carbon Robotics is built around a tightly integrated AI and laser control system designed for plant-by-plant weed elimination. As the tractor-mounted unit moves through the field, an array of high-resolution cameras continuously captures images of the crop row.

These images are then processed in real time by Carbon Robotics' proprietary Carbon AI platform, which



uses deep-learning computer vision models trained on millions of labelled plant images to distinguish crops from weeds with sub-millimetre precision.

Once a weed is identified, the system activates high-powered 240W diode lasers housed within independent weeding modules. Each laser delivers concentrated thermal energy directly to the plant's meristem – the central growing point responsible for new cell development. By disrupting this tissue at a cellular level, the weed is prevented from regrowing, without any soil disturbance or damage to adjacent crop plants.

High-performance onboard

computing enables rapid image processing and laser firing at field-operating speeds, allowing detection and elimination to happen almost instantaneously. The result is a fully integrated, camera-guided, AI-driven system that replaces chemical or mechanical control with precise, targeted energy delivery, says the firm.

FARMDROID

The FarmDroid system has recently received an upgrade to increase sowing capacity, as well as facilitating the handling of larger seeds such as maize, beans and peas. Read the full details in this month's drills feature on page 69.

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WITH MARTIN LINES

Nature **NATTERS**

Using our senses

“

In last month's issue, editor Janine Adamson in her Last

Word talked about the move towards digitisation, rather than reading a physical copy of this magazine.

For me, reading online is great when you're out and about or want to check something in a past issue. But you can't beat sitting down, having a break and flicking through the pages. There's something relaxing about opening a freshly printed magazine – it has a certain smell about it – and creates an opportunity to slow down and focus on reading whether that's at the kitchen table, on the tractor seat, or in the truck.

To me, having something physical is more engaging than something read on the screen; it brings your senses together from what you see, hear, smell and feel.

Many of our supermarkets are particularly good at triggering our senses – from the smell of freshly baked goods wafting over the entrance doors to the relaxing music being played, or, that dazzling special offer in your eyeline.

Farmers in particular are, I feel, very sensory beings, particularly those used to working with nature. Smelling the soil, spying signs of pests or disease, listening to new species

of birds joining the dawn chorus on their farms.

I often think about farmers of the past who were far more connected to their soil and the environment than we are today. Following the horse-drawn plough, seeing the soil move and smelling it, manually trimming and laying hedges and cleaning out drains and ditches by hand gave them very different experiences and connections.

I'm not suggesting we should go back to those times, but farmers of days gone by were far more in tune with their soils, the wider environment and seasons. Many farmers today spend much of their time in a tractor cab or the office, and are likely to miss out on the subtle cues nature offers to help steer the management of our farms.

Last month, I hosted a hedge-laying training day for a group of farmers and members of the public who have an interest in hedge management. Putting farmers in a classroom and talking at them will only



Last month, I hosted a hedge-laying training day for a group of farmers and members of the public.

particularly for us farmers, who are often neurodiverse – has clear benefits.

It was great to see them get stuck in, thinning out the hedge and preparing to lay it. I was pleased to get rid of the plastic guards we've failed to remove since we planted it some 20 years ago! It was surprising to see how many old birds' nests were in the short section that we worked on, and the number of mice and voles that were running around in the grass as we worked.

After three hours' work, we ended up with a very neatly laid section of hedge and a satisfied group of people who learnt new skills and connected to the farmed landscape in a new way – seeing the fruits of their labour, listening to scuttling rodents in leaf litter, smelling the freshly cut wood.

Hopefully, during the next few years and with the government's grant support, we'll be able to lay the majority of our hedges to thicken them

up for wildlife habitat; it'll also help to prevent unwelcome visitors driving through the thin patches...

Everybody connects to things differently and has a unique learning style. As farmers transitioning our approaches to build resilient businesses, now is the time to capitalise on sharing practical knowledge, attending local farm walks and knowledge-exchange events. Seeing, hearing and feeling things we might like to experience on our own farms. ●

“Having something physical is more engaging than something read on the screen; it brings your senses together from what you see, hear, smell and feel.”

ever have a limited impact. Put them in the field or on a machine to immerse their senses, and connection and understanding will follow. Everyone has different learning styles, but engaging in a multidimensional way –

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.

How Kenyan farmers are collaborating to compete



"I required a system that's like a Kenyan marathon runner, who can run in snow, wind or rain and still beat everyone else in the world."

BRYN LLEWELYN

From battling falling wheat prices to pioneering no-till farming and crop rotations, Agventure's farmer-led co-operative is finding a way through economic uncertainty. *CPM* reports from Kenya.

By Mike Abram

David Jones has just climbed over the gate from a field of emerging oilseed rape, when a truck stops suddenly by the side of the road. The driver, a farmer, hurries over to where he's standing, keen to speak to David – a British-born agronomist working at the time for Agventure, a farmer-owned co-operative consisting of 10 farms covering 12,000ha in Kenya.

The conversation that follows is remarkably familiar, with the farmer, John Magiti, bemoaning a rise in costs alongside a concurrent decline or stagnation in crop prices.

By Kenyan standards, John's farm is reasonably large – approximately 100ha

of rented land, although nothing like the scale of the farmers in the Agventure co-operative. "We even have VAT on agricultural machinery," he complains. "I don't know how we're going to survive – the economy is tough."

This year, he'll grow malting barley on more than 90% of his land. "I only have 4ha of wheat," he tells David. "Wheat is a big problem; the last time I asked for a wheat price it was initially about KES 5300 per 90kg bag (£345/t)."

That price is set by the Agriculture and Food Authority (AFA) in Kenya, following discussions with stakeholders including the Cereal Millers Association and the Cereals Growers Association.



Strong proposition

Agventure's strength is being able to market to various clients within East Africa, rather than just one customer in Kenya, explains David Jones.

Photo: Mike Abram

It's typically based off the effective cost of imported wheat delivered to Nairobi, plus approximately 10% duty.

But the price set last year was much more expensive than imported wheat was arriving for, and the local wheat failed to sell until the price reduced. And, John isn't impressed with the reduced price of KES 4750 / 90kg bag (£309/t) set by AFA in July.

"What's made the price of wheat come down?" he asks David. "Annual land rent has become more expensive. I was paying KES 15,000/ac (£88/ac), now it's KES 18,000-20,000/ac (£105-117/ac)."

Growing costs are also increasing with seed, fertiliser and sprays in the region of KES 25,000/ha (£147/ha).

In comparison, malting barley with its higher yields and lower growing costs is more profitable. Even so, there's variation of around KES 12/kg (£70/t) between Kenya, Uganda and Tanzania prices for malting barley, with Kenyan growers receiving the lowest on-farm price at KES 54/kg (£320/t).

"The Ugandans are aggressively buying barley from Kenya," explains David in his truck. "The difference will likely rebalance next year as Uganda responds to an issue with its current barley crop.

"It's those kind of shenanigans that Agventure was set up to deal with," says David, explaining that Agventure's strength is being able to market to various clients within East Africa, rather than just one customer in Kenya.

Set up in 2010, Agventure buys all its members' inputs together, like a buying group, and negotiates sales of what it produces.

But the group is much more than simply procurement and marketing, important pillars though they are. In fact, the group was forged as much as a response to a failing agricultural model, which was reliant on even more intensive monoculture than found in the UK.

The result is a business that enables its farmer members to weather the economic challenges explained by John, while helping other growers with advice and opportunities to strengthen their own farm businesses.

Most of the farms in the group are owned by families who arrived from Europe sometime between the first and second World Wars. Back then, the farms were built on Merino sheep and wool. Over time, this was joined and ultimately gave way to an intensive monoculture of wheat and barley that persisted for more than 70 years.



Break crop importance

Having shifted to include more break crops in rotations, Agventure now presses just under 10,000t of canola annually. *Photo: Mike Abram*

But that reliance on a narrow rotation created a fragile system, suggests Bryn Llewelyn, a founding member and chairman of Agventure, who farms just under 1000ha in the foothills of Mount Kenya. "If you had the perfect run, you could get the perfect crop. If you didn't, at the first sign of a problem, the crop would collapse.

"I required a system that's like a Kenyan marathon runner, who can run in snow, wind or rain and still beat everyone else in the world."

LEARNING FROM OTHERS

A 2008 trip to the Liverpool Plains region in New South Wales in Australia provided inspiration, he adds. "They had similar rainfall, soils, challenges and a government that wasn't supporting them, so they had to do their own research and development."

From the trip, the founding farmers identified three aspects for a new, more robust system: no-till, crop rotation and controlled traffic farming.

Some of the group, including Bryn, implemented the ideas on their return, without much, if any, transition. "We tried no-till using an old seeder with soft 220lb springs – it was like putting a rake on tarmac," he recalls. "We went through five or six years of hell financially."

While the initial period was difficult, he drew on his stepfather-in-law's knowledge of no-till pioneers from the Cotswolds in the 1980s, and had faith that sticking with no-till would eventually reap rewards.

"This year, we tried that old seeder again and it was like going through butter," he says. The main drills on the farm are now a 9m Novag disc drill and an identical 2.5m version for pollination strips, reseeding permanent pastures and trials work, imported from Europe with two

Claas tractors at a cost of around £1.15M.

"The necessary finance was raised through sale of some land, with loan interest rates running at 12-17%. Two other farms in the group have opted for Horizon disc drills, while also running tine drills."

Having both tine and disc drills helps with flexibility, depending on conditions, he adds. "My definition is zero-till is the disc drill, while no-till is with the tine," says Bryn. "We'd never go back now. Our ability to operate in the wet is amazing, as is our ability in very dry conditions."

Implementing controlled traffic farming has helped – providing tramlines that can be used after just two weeks in a wet period compared with months previously. "They're like concrete but go 30cm off them and you bury the machine."

If moving to no-till was challenging, just as difficult was implementing rotational break crops, initially canola (OSR) and peas, although now the farm grows nine commercial crops. "We had no seed, zero knowledge of agronomy or whether we had the right chemicals cleared in Kenya, harvest or storage techniques," recalls Bryn. "There was no market, and we had no idea what we were going to sell it for."

That was where the other two cornerstones of Agventure have been crucial – the R&D team led by David (see panel), and a move into processing or finding ways to add value.

That strategy to move beyond selling commodities is best exemplified with their work with canola. The group invested quickly in a cold press to produce a premium 'Pure Mountain' canola oil sold in supermarkets and the firm's own shops. A second processing unit, established in 2013, uses a hot press.

"That's branded as MegaFry," shares David, while walking a field of canola. "Hot pressing changes the



Driving change

A reliance on a narrow rotation had created a fragile farming system, suggests Bryn Llewelyn, founding member and chairman of Agventure, who farms in the foothills of Mount Kenya. *Photo: Mike Abram*

► properties of the oil, but it improves the extraction rate, producing a higher volume, lower value product.”

As a business, Agventure presses just under 10,000t of canola annually, which is split around 50:50 between being produced on Agventure member farms and out-growers. “We have several thousand growers ranging from farms

of maybe 5ha up to ones with several hundred,” explains David. “They’d typically grow maize, wheat or barley, but wouldn’t have a lot of break crops.”

IMPROVING ROTATIONS

The firm’s Center of Excellence has provided training for more than 700 small- and medium-sized farmers to encourage them to adopt and integrate rotational crops, such as canola, supporting soil health improvements. Agventure’s field officers provide one-to-one support on everything from planting rates, crop protection advice and how to set up harvesters, points out David.

In return, the firm’s canola seed out-growers receive a guaranteed price, currently around KES 60/kg (£350/t) for the seed, with the opportunity to buy back canola cake for use as an animal feed.

At that price, the current economics for growers like John, who was an early out-grower pioneer, is a challenge, admits David. “Farmers always say they can see an agronomic benefit after growing canola for their cereal crops, but are struggling to make a net margin by the time they factor in fixed costs. But after you’ve paid everyone in the supply chain a margin, it’s tough to pay more.”

Markets for other crops are being developed, albeit with much more

progress required. Linseed and sunflower oil can be processed using similar equipment as canola oil, says Bryn, with the potential to produce similar branded products. “We have to develop these markets. Currently, linseed goes into Rwanda to an NGO that mixes it with soil as an economic substitute for concrete flooring in housing.”

Lupins is another crop that potentially could be interesting, with a market as a protein compound in animal feed. However, field trials have shown difficulties establishing the crop due to millipedes and, despite good nodulation, a disappointingly low protein content of around 27%, which reduces its value in animal feed.

Setting up its own animal feed business is a planned future development, comments Bryn. “That’ll be hugely exciting because it enables us to grow the diversity we require and to add value rather than selling commodities.”

But first, the business is developing its own certified seed business for the varieties David’s team selects as being suitable for Kenyan conditions (see panel).

“We want to grow as much seed on our farms as possible,” stresses Bryn. “Having local seed available helps East African, and particularly, Kenyan farmers, whether they’re large, medium or small scale.” ●

Research focus fills knowledge gaps

Research and development team is integral to driving Agventure’s farms forward

A team of eight individuals operating a trials programme consisting of four sites and 6ha or 2000 plots each season supports Agventure, explains David Jones, with variety work a core focus.

He says the farms within the group vary in terms of rainfall and elevation, so a key aim is to find varieties resilient to different climatic conditions, as well as resistance to diseases such as stem rust in wheat and sclerotinia or stem canker in canola.

Wheat is particularly challenging, highlights David. Unlike malting barley varieties, which seem to travel well from international markets – RGT Planet, for example, has been hugely successful on the Mount Kenya farms – international wheat varieties don’t adapt well, possibly due to day-length dependence.

“You have to sift through a lot of material,” comments David. Most comes from CIMMYT’s sub-Saharan

wheat breeding programme, from which David chooses 100 varieties in stage one, with 20 going through to stage two trials with the hope of providing one or two new options a year.

Other trials aim to help improve the agronomy of newer crops being grown – for example, seed rates, fungicide responses and phosphate use in chickpeas, or inoculant sources to improve protein content in lupins.

David is also leveraging data analysis to drive decision-making. He explains that a spreadsheet containing virtually every conceivable field parameter collected from growing peas was fed into Gemini AI to identify performance patterns, which revealed that late planting led to more stable yields, and a strong correlation between more residue cover and lower levels of *Ascochyta*.

Other research is investigating how to implement regenerative



Exploring new options

Trials are taking place to help improve the agronomy of crops such as lupins, specifically to improve their protein content. *Photo: Mike Abram*

farming practices, such as cover cropping, compost extracts and companion cropping, he adds.

How direct drilling is delivering lasting gains



*“At harvest
the results spoke
for themselves.”*

RICK DAVIES

Moving from traditional plough-based crop establishment to direct drilling has brought major agronomic and economic benefits to a North Buckinghamshire business. *CPM* finds out more.

By Charlotte Cunningham

During the past decade, direct drilling has become an increasingly important tool for arable businesses seeking to reduce establishment costs, protect soil structure and improve resilience to increasingly variable weather. While interest in low-disturbance systems continues to grow, many growers remain cautious about changing long-established cultivation practices, particularly where consistent yields and soil workability are priorities.

At Newton Lodge Farms in North

Buckinghamshire, the move away from traditional plough-based establishment has evolved into a long-term strategy that now underpins agronomic, operational and machinery decisions. What began as a trial of an alternative drilling system has developed into a whole-farm approach focused on consistency, efficiency and soil improvement.

CRITICAL KIT

More than 10 years on from first making the change, direct drilling

is now central to how the business operates. Farmer, Rick Davies, says the system has become firmly embedded in day-to-day management.

Rick farms 550ha in partnership with his father, Mike, and mother, Christine. Cropping on the farm is predominantly wheat, with 85% going for milling. Spring beans are also part of the rotation, with spring barley and spring oats included to help manage blackgrass.

Soils are predominantly sandy clay loam, running to gravel with limestone over outcrops and heavy silt on the flood plain. Rick says this variation in soil type presents both opportunities and challenges for establishment, making consistency and trafficability key considerations when planning cultivations and drilling.

The business first moved toward direct drilling in 2012, following the

MACHINERY Drills

► purchase of a 3m Claydon Hybrid drill from Claydon Drills. At the time, the primary aim was to establish oilseed rape, but interest soon grew in using the system more widely. “That year we thought we’d have a go at drilling some wheat in a field with the same soil types throughout,” he explains.

To assess the system fairly, the field was divided in two. “On one half we used our old system, Flat-Lift, plough, press, power harrow and then drill with a Massey 30. The other half we drilled straight into stubble with the Claydon, then rolled.”

The difference in establishment was quickly apparent, he reflects. “The Claydon-drilled crop emerged within a week and looked really well; at harvest the results spoke for themselves. The Claydon achieved 12.1t/ha, the conventional system did 12.04t/ha, so literally the same yield.”

With no yield penalty and clear operational advantages, confidence in the system grew rapidly, he adds. “From that point I thought ‘this is for us; this is going to work.’ The next year we Claydon-drilled the whole farm and have never looked back.”

In the early stages of the transition, direct drilling placed greater demands on available power. Rick was operating a 200hp John Deere 7530 with the 3m Hybrid. “When we began direct drilling, our 200hp John Deere 7530

“All our crops are in great shape, and I’m looking forward to seeing how they progress.”



Central operation

More than 10 years on from first making the change, direct drilling is now central to how the Newton Lodge Farms operates. Farmer, Rick Davies, says the system has become firmly embedded in day-to-day management.

sometimes struggled to pull the Hybrid uphill at 7.5-8km/h,” he recalls.

Over time, however, improvements in soil structure reduced draft

requirements and improved work rates. By 2017, Rick had moved to a wider Hybrid and noticed a significant change on the same land.

“In 2017 when I was using the John Deere

with a new 4.8m Hybrid, on that same field I remember going up it and thinking I’m doing 9km/h here, pulling

a drill that’s 1.8m wider, with the same tractor. I thought ‘this is incredible’ – the way the soil’s changed, we’re not bringing up big lumps or aggregates, the soil is structuring itself.”

The Claydon system works by cultivating narrow strips using leading tines, into which following A-shares place the seed. Wider uncultivated areas between the rows remain undisturbed, helping to support machinery and maintain surface strength.

“The wider uncultivated areas between the rows provide excellent support for following machinery,” explains Rick. “When it comes to trafficking, in the spring the ground’s firm because the soil isn’t being moved to depth and it travels a lot earlier.”

Another feature of the establishment system at Newton Lodge Farms is the decision to not operate fixed tramlines. “I drill at an angle every year. Alternately, one year 20° one way, the next year 20° the other.”

This approach helps to level previous wheelings and spread traffic pressure more evenly across the field, he adds. “So we level the tramlines and end up with a green tramline which traffics better in the spring, the wheels are cleaner, I don’t get the rutting.”

Rick believes this has contributed to more consistent establishment, particularly on headlands. “Headlands account for 17% of our fields – 78ha across the farm – so it’s imperative to achieve wall-to-wall cropping.”



Changing direction

Fields are drilled at a different angle every year, one year 20° one way, the next year 20° the other.



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MACHINERY Drills

After several seasons working successfully with mounted drills, Rick began considering toolbar systems and front-mounted hoppers. The opportunity came in 2024, when Claydon introduced the Evolution Twin Front Hopper and Evolution Drill Toolbar. Visibility, residue handling and ease of calibration were key attractions.

“There’s no hopper so you can see everything under the drill, the leading disc works well in cover crops or trash, the front hopper is easy to fill, and calibration is easier. But it’s the balance of the tractor that I really like.”

The business is now in its second season using a 2200-litre Twin Front Hopper and 6m Drill Toolbar on a 280hp John Deere 6250R, fitted

with 800-section rear and 710 front tyres. “Because it’s almost 2t lighter, I can then let the tyres down and run them at a more even pressure.”

Rick adds that the front-mounted hopper provides additional options when establishing crops and companion species. “Its 55/45 split allows me to drill wheat at 160hg/ha from one side and peas at 10kg/ha as an SFI companion crop from the other side, down the same pipe. It’s great having that flexibility.”

In spring 2025, the system was used to place seed at different depths and positions. Rick drilled barley at around 6cm and SAM3 grass cover on the surface through different pipes onto splash plates; additional applications

have included slug pellets alongside seed and fertiliser, he comments.

After more than a decade of operating the Claydon system, Rick is clear about the advantages it’s delivered across the business. “The Claydon System provides so many benefits. We’re really impressed with the output of the machine, the workability of the soil, the increase in organic matter, no yield drop, reduction in labour units and fuel savings and general crop output.”

Fuel use has been reduced significantly compared with the previous plough-based system. “Compared with 33-35 l/ha of fuel for our old plough-based system, we’re using just 10 l/ha to establish and roll the crop.”

Soil organic matter levels have also increased substantially, he explains. “I conducted a blanket organic matter testing across the whole farm in 2016, which was roughly 4.5%, and in 2025, it was up to 6.2%.”

Rick attributes this improvement to a combination of residue retention and organic inputs. “Except for 2025, we haven’t baled any straw so we’ve been putting organic matter back in. We also apply cattle manure, sewage sludge goes on every three years, a significant tonnage of compost has been spread on the home farm, and gypsum has been used on our stiffer soils.”

These practices have contributed to improved soil workability and biological activity, he believes. “They’ve led to easier to work soils, worm numbers are up, headlands are more productive and consistent, and even in an extremely dry year like 2025, we’ve had some okay yields where in the neighbouring area it’s been poor.”

Improvements in soil structure and organic matter have also enhanced the farm’s ability to cope with heavy rainfall. “After a run of wet autumns, 2025 was much better. I couldn’t be happier with how our crops established and look now.”

Despite receiving around 200mm of rain between early October and early December, infiltration remained strong. “We didn’t have a single drain running, because all of the water was absorbed into the soil profile, another benefit of the Claydon System.”

Rick believes this reflects the cumulative impact of long-term soil management. “All our crops are in great shape, and I’m looking forward to seeing how they progress.” ●

KRM

Klinea



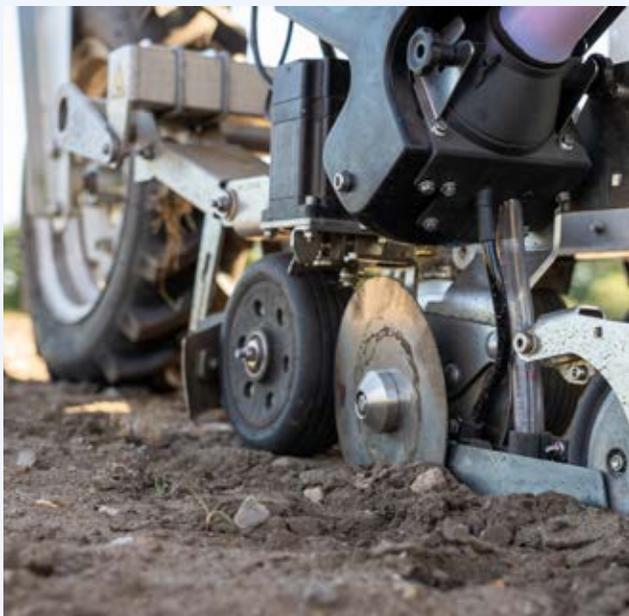
The Klinea is the latest innovation in cereals hoeing. It features central tine angle adjustment (without tools) to improve penetration in hard conditions and utilises the new Kipline camera system for automatic guidance. The shares are followed by harrow tines to remove soil from weed roots and prevent re-growth. Optional section control lifts each element independently at the headland for the ultimate in accuracy and efficiency.

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What's new in drills?

With establishment strategies becoming more varied, manufacturers are refining drill design to improve placement accuracy, coulter control and operational flexibility



FARMDROID

FarmDroid's autonomous 'seed, weed and spray' robot has recently received a significant capability boost for 2026 with the introduction of the +Seed 14 mm precision sowing system, as unveiled at LAMMA. Following field trials across Europe, the upgraded unit is designed to handle a broader crop spectrum, enabling the solar-powered robot to drill larger and more irregularly shaped seeds including maize, beans, peas and chickpeas.

The new seeding system accommodates seeds from 0.8mm up to 14mm in diameter, while retaining placement precision of 8mm, matching the accuracy of the previous 6mm configuration. Seeding

capacity is increased by up to 20%, supported by a larger 7-litre hopper to reduce refill frequency and forward speeds of between 720-900 m/hr, crop dependent. Row spacings from 25cm to 90cm allow adaptation to different crop architectures.

Beyond drilling, the upgrade enhances in-row mechanical weeding, with tools able to operate closer to the crop and an expanded choice of shares and blades to suit specific applications. Compatible with 111 seed types and capable of individual, row or clustered placement, the +Seed 14mm system broadens the robot's relevance for both organic arable and high-value vegetable systems seeking precise, low-input establishment.

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MACHINERY Drills

HE-VA

Debuted at LAMMA, HE-VA's new 3m G-Drill is positioned as a low-disturbance establishment option for growers looking to integrate drilling with minimal cultivation input. The design centres on two rows of 400mm Vector scalloped discs, set at a shallow 4° angle, which lightly open the soil surface to create a consistent, narrow slot while preserving soil structure and residue cover.

Each disc is mounted on a rubber-damped torsion arm, allowing individual contour following and obstacle protection, with hydraulic weight transfer providing consistent



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penetration in firmer conditions. The drill can be specified with 32 openers at 9.4cm spacing for intensive grass reseeds, or 24 openers at 12.5cm for mixed grass and arable applications, enabling flexibility across cultivation systems.

Rear consolidation is handled by either 450/500mm Star Ring rollers to fracture surface tilth and manage trash, or a 600mm flat roller where smoother finishes are required. Optional levelling paddles and a following harrow allow the G-Drill to complement existing shallow cultivation passes or operate as a standalone pass in reduced tillage systems, offering an alternative route to establishment without increasing soil movement.

HORSCH

Horsch has strengthened its large-scale drilling line-up with updates across the Pronto, Avatar and Versa ranges, focusing on higher output and increased product capacity for broad-acre systems.

The new-generation Pronto 9 DC features a revised, more robust frame and retains a 9m working width, while hopper capacity increases to up to 6000 litres. Designed for high forward speeds, the drill can be specified with either the TurboDisc or ParaDisc seed coulters systems, supporting consistent seed placement across varying soil conditions and cultivation regimes. The increased tank volume is intended to reduce refill frequency and improve daily



work rates on larger units.

Within the direct drilling segment, the new Avatar 12 LC extends the range to 12m and is equipped as standard with a 9400-litre triple tank, split 50:15:35, enabling up to four separate components to be metered. Row spacing options of 25cm or a new 20cm configuration provide flexibility to suit crop and residue levels.

Completing the updates, the 7.2m Versa 7 SW combination drill is aligned with a 36m spraying system and features a 6300-litre double hopper for grain and fertiliser, targeting high-output establishment within conventional power harrow-based systems.

LEMKEN

Lemken has expanded its mounted drill range with the Solitair MF, a folding pneumatic seed drill combining active seedbed preparation with a rear-

mounted seed hopper.

Designed as a higher-output counterpart to the Solitair MR, the machine is available in 4m, 4.5m and 6m working widths and is intended to maximise drilling capacity within short sowing windows.

As standard, the Solitair MF is equipped with two electrically driven metering units, each supplying a separate distributor head, enabling half-width shut-off and section control. On the 6m model, this can be extended to four sections. Application rates from 0.5 to 500kg/ha can be set from the cab, while tool-free metering wheel changes and integrated shut-off gates simplify calibration and crop changes.

A 2000-litre hopper is standard, with optional 60:40 split tank and compatibility with the Solitair F front tank for multi-product applications.



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Seed placement is handled by the OptiDisc coulters bar with parallelogram-mounted double disc coulters, offering mechanically adjustable pressure up to 45kg and central depth adjustment. Row spacings of 12.5cm or 15cm are available, with optional following harrows for surface levelling.

ISOBUS compatibility and Lemken's iQblue operating system support automated section control, task management and mobile-based calibration. For transport, the 6m model features an automatic support wheel to enhance stability when folded.

Also from Lemken, the firm has expanded its precision drilling portfolio with the introduction of the Faya MF, a single-row precision seed drill designed to complement the Azurit's DeltaRow concept.

Available initially as a pre-series machine ahead of full production in 2027, the Faya MF targets growers and contractors seeking high placement accuracy combined with increased work rates across a broader crop mix.

The drill is built around a modular 6m frame with two-section folding and is offered in 8-, 9- or 12-row configurations. Row spacings can be set between 45cm and 80cm, with rapid conversion possible between 12x50cm and 8x75cm layouts, allowing adaptation to crops from sugar beet to

maize and improving seasonal utilisation.

Seed singling is handled via an overpressure metering system housed in die-cast aluminium, designed to reduce energy demand while maintaining consistent singulation. Scraper control can be mechanical, electric or sensor-automated, supporting accurate placement at forward speeds of up to 16km/h.

An offset double disc coulters with a narrow opening angle, capable of up to 350kg coulters pressure, minimises soil disturbance and supports precise depth control.

VÄDERSTAD

Väderstad has updated its Spirit 400-900C/S and Inspire 1200C/S seed drills with a series of developments aimed at improving depth accuracy, coulters stability and operational control across a wider range of soil conditions. Central to the next-generation machines is a new seed coulters featuring the patented TriForce II suspension system, designed to enhance contour following and maintain consistent seed placement at higher forward speeds.

The revised coulters arm uses a rubber-mounted triangular beam layout to manage vertical and lateral movement, allowing each unit to respond independently to surface undulations and variable soil resistance.

As a result, maximum coulters pressure has been increased from 80kg to 120kg, improving penetration and slot formation in firmer seedbeds and higher-residue situations. According to Väderstad, this delivers greater seed depth precision compared with conventional double-disc systems.

Further updates include a new following harrow option for improved seedbed finishing and residue management, alongside extended coulters pressure adjustment. A new hydraulic depth setting system is also available, enabling working depth to be adjusted directly from the cab, reducing setup time and improving in-field responsiveness.

Together, the upgrades position the latest Spirit and Inspire models as higher-output, precision-focused drills for both conventional and reduced tillage establishment systems.

Alongside the drill updates, Väderstad has introduced E-Connect, a telematics platform designed to provide real-time machine data, field progress monitoring and operational analysis. Compatible with major farm management systems, E-Connect will be available on seed drills, planters and tillage equipment fitted with a connected gateway, with roll-out beginning in early 2026, following its public debut at Agritechnica 2025.

A Fastrac to productivity



“Following five years of development – the largest single investment in tractors ever made by JCB – we’ve launched the 6000 Series.”

GREG FITTON

JCB recently unveiled the newest addition to its Fastrac fleet – the 6000 Series – said to take productivity to the next level. *CPM* takes a closer look at the new design.

By Janine Adamson

According to JCB’s Greg Fitton, there was an obvious gap in what the Fastrac could previously offer. Up until autumn last year, which coincided with the firm’s 80th birthday, the tractor came in two ranges – the 4000 series catering for 160-240hp requirements, and the 8000 series for 300+ hp.

But with challenges across the industry such as consolidation, pressures on profit margins, shorter weather windows and labour retention issues, the demand for a tractor to fill that void had become ever more necessary, he says.

“And that machine had to be our most versatile, multi-use tractor. One that was fast, safe, comfortable and productive.”

“So following five years of development – the largest single investment in tractors ever made by JCB – we’ve launched the 6000 Series. This not only fills the gap in the Fastrac range, but is a true year-round, high-speed tractor aimed at professional users.”

While the firm has entered a new power and performance category, JCB Agriculture’s managing director, John Smith, adds that the new 6000 Series stays true to company’s innovative and ground-breaking Fastrac

concept. “The result is an exceptional combination of productivity, efficiency, versatility and operator comfort.

“It should meet the requirements of farmers and contractors through features that create a highly-productive machine with unique capabilities in the field and on the road.”

PRODUCTIVITY AND PERFORMANCE

In fact, with customisable options for a range of applications, the 6000 Series aims to deliver 365 days of productivity without compromise on performance, he adds. This is important, given the firm believes there’s a move towards fewer tractor purchases, but with the expectation that those machines will work more.

So how has the Fastrac developed to culminate in the 6000 Series? Firstly, two new models are available – the 6260 and 6300 – offering power outputs of 284hp and 335hp, respectively. The maximum top speed is 66km/h (41mph), which the firm says is achieved through responsive and efficient power delivery.

Both models run on 600-710mm-wide tyres, with selectable two- and multi-mode four-wheel steering as standard.

Then, housed in a new heavy-duty chassis concept that brings together a front casting and fabricated steel rear section, a 6.7-litre FPT six-cylinder engine delivers peak power at 1850rpm alongside a flat torque curve that rises under heavy load to 1400rpm, generating 1275Nm torque for the Fastrac 6260 and 1400Nm for the 6300.

At least 95% of the maximum torque output is delivered across a 600rpm band from 1200-1800rpm, providing plenty of back-up ‘grunt’ when ploughing or cultivating tougher ground, or when pulling up an on-road incline, proposes the firm.

The chassis casting has also been sculpted to allow the tightest possible front axle steer angle, and is pre-prepared to easily fit front loader brackets.



New additions

Two new Fastrac models are available – the 6260 and 6300 – offering power outputs of 284hp and 335hp, respectively.

MACHINERY Fastrac 6000

► High output variable-flow hydraulics cater for modern implements with a 205-litre/min pump as standard, plus a second pump option for a total of 410-litre/min for the Fastrac 6300, supplied through a new hydraulic valve block with lever-operated push-in, pull-out couplings. The firm says this should mean quicker and easier hydraulic connection for the operator.

At the rear, an 11,000kg three-point linkage – attached to the back axle to retain full suspension movement under load – and four-speed power take-off cater for all implement types, while the optional 5000kg lift front linkage is complemented by a 1000rpm power take-off with the new feature of a six-spline and 21-spline reversible shaft.

The Fastrac's unique rear load deck of 5000kg capacity provides a third mounting location for equipment such as sprayers or liquid tanks supplying fertiliser.

When it comes to suspension, the Fastrac's unique self-levelling advanced suspension for both axles maintains 50:50 weight distribution. Not only does this give the new 6000 Series the highest level of driver comfort and well-being, but also helps to maintain favourable weight distribution and full suspension travel under heavy load.

JCB's chief engineer, Robin Carter, highlights that this is a USP (unique selling point) of the Fastrac – being the only tractor on the market with full suspension. "The ride comfort is fabulous," he says.

Another benefit of this is when operating demountable equipment on the rear deck – the hydro-pneumatic system enables the tractor to 'squat' as it



Cab comforts

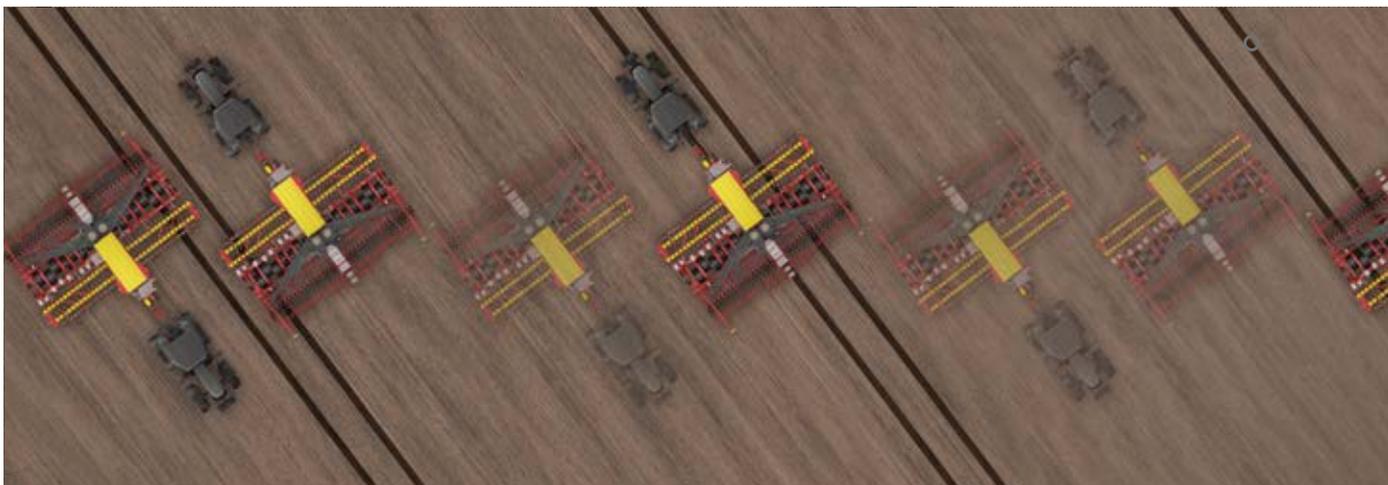
Being centrally-mounted, the cab offers 360° visibility with a premium heated and ventilated driver's seat option.

reverses beneath a parked sprayer or spreader, for easy, effort-free coupling, suggests the firm.

BRAKE POWER

In terms of stopping, the tractor's large externally-mounted brake discs and four-piston-driven single callipers provide exceptional braking power, with ABS as standard.

"As for maintenance, there's a new brake pad wear sensor and indicator; it's all been designed for maximum efficiency," says Robin. Plus, the new hub-mounted discs are quicker and



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easier to replace – taking around 3-4 hours, compared with the 3-4 days often required to change a conventional tractor's internal brake discs.

In the cab, the 12" JCB iCON display can now be complemented by a second 12" unit so more information is visible at any time. There's also greater flexibility for operators to populate displays with customisable content such as guidance, camera view, ISOBUS and section control, for example.

To save further time, operators can store multiple profiles of control set-ups and tractor and implement settings ready for quick recall when they undertake the same operation again.

JCB LiveLink telematics for remote tractor monitoring and records, and optional ISOBUS electronic implement control, are available. However, a factory-installed satellite guidance option is unique to the Fastrac 6000 Series – providing two NovAtel satellite signal receivers as standard.

The firm's engineers claim this is an 'industry-first' set-up that provides highly accurate low-speed guidance, increased accuracy over undulating terrain, and quicker, more precise acquisition of pre-set waylines. In addition to straight-line and curve guidance, the system now provides a choice of headland turn pathways to increase ease of use through automation, and boost overall productivity.

There's then optional satellite guidance installation, comprising two receivers for quicker and more precise line acquisition, more accurate tracking over undulating field surfaces, and enabling Twin Steer ultra-precision guidance that steers both axles individually.

The Twin Steer system means the tractor can move crab-wise directly to a field guidance wayline at a headland, or if a correction is required to keep an implement on track, especially across sloping ground.

PRESERVING VALUE

JCB says this is highly effective at maintaining accurately spaced and positioned rows when sowing high-value crops grown in beds, and at eliminating damage during multi-pass operations.

As for the cab in general, being centrally-mounted it offers 360° visibility with a premium heated and ventilated driver's seat option. There's also an optional audio pro package for improved sound quality, comprising four speakers and a sub-woofer. The ignition is

controlled by a stop-start push button, with the added benefit of auto stop to reduce idle time for improved efficiency.

But, in terms of 'big ticket' optional features, these include the central tyre inflation system (CTIS) that provides quick access to optimal field and road pressures at the touch of a button. This enables operators to switch between the most appropriate tyre pressures for field work (maximum traction and flotation) and road travel (slightly higher pressures to cope with high loads and fast speeds, adding stability while minimising wear and tear).

JCB engineers claim CTIS offers reliability, minimal maintenance and a long service life for key components, with the added benefits of optimum



Keeping track

The 12" JCB iCON display can now be complemented by a second 12" unit so more information is visible at any time.

tractive performance, soil preservation and improved fuel economy. ●



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Talking TATIES

Managing frustrations



WITH ANDREW WILSON

“

Frustration in farming can take many forms – weather

and politics are a given on that score. As I write this, we've just heard the next tranche of SFI is to have lower rewards. All we can hope is there's some common sense thinking to align stewardship with legislation, and support for aspects like grass margins by watercourses is set at realistic levels.

The tap is slowly being turned off it would appear, particularly on wall-to-wall measures, which is a good thing in my opinion. I'm a farmer, not a park keeper.

The frustration that has more of real effect on us is markets. Pretty much every commodity that we produce has prices in the doldrums, both currently and in the medium and longer term – a significant demotivator when it comes to going the extra mile.

Movement is late and slow, cashflow not exactly flush, and crop state in store deteriorating. The unseen consequence of this looks like a very busy March for us.

We have an odd field or two slowly drying up, but many that won't take a wheel for a while yet which is impacting things like cover crop desiccation, muck spreading and base fertiliser applications. We set our contracts up to facilitate workload, cashflow and achieving the objective, but managing the inevitable snowball of work all these

delays create isn't much fun.

We'd normally crate up about 40% of our potato sets in February for chitting, but the high physiological age of seed tells me to hold off this time to avoid sprouts getting away, which all adds to the work peak. That fridge idea I mentioned last time may get implemented yet!

There's always a positive if you look hard enough, and always a better way to do everything. Cereals might be uninspiring to say the least but we keep tweaking how we do what we do and even after a very wet winter crops look well, even if prices don't.

Undoubtedly this is in part to surprisingly high SNS readings, which are probably due to the under-utilised fertiliser applied last year, despite me cutting rates back. This leads me to consider our nutrition programme and the value extracted for the cost of fertiliser. Are we correctly utilising muck to best effect? Can we tweak timings, methods or products to better effect?

A wise man told me 30 years ago to get out of the farm gate and learn something, and his words haven't left me. I'm quite a social animal and enjoy interacting with others with similar missions, having been part of various farming groups over the years. This started with YFC but in more recent times, has encompassed AHDB Monitor and Strategic Farms, ag discussion groups and more environmentally-based things like Sustainable Landscapes.

While on the subject of being social, the 29 January marked the end of 'Thursday night club' as we've known

it for 30-odd years, when Tony the proprietor of a local hostelry retired. A diverse group of us from all walks of life meet for a pint and natter and to escape from the realities of life for an hour or two. The value of talking nonsense and taking the mickey isn't to be underestimated in these times, and there's no better place to keep such skills polished than in the pub. I recommend such therapy to anyone.

In recent years we've begun to import more nutrition in the form of broiler muck mostly, but also cattle FYM and new to us this time, compost. Some of this is motivated by a will to continue to maintain or increase production, but mostly to increase soil resilience via organic matter and its role in crop health. It's a work in progress, and as ever there's more than one way to skin the proverbial cat, but it's quite exciting trying new things.

Of late, many carbon-based schemes seem to have come to my attention. Most require large amounts of our data but only reward sequestration or change to our practices in some way. Invariably it's easier to show perceived improvements from a low baseline than an already high one – it seems there's no reward for being ahead of the curve. Most of these platforms are 10 years late to the party to actually benefit farmers to a decent level, in my opinion.

The merry go round of machinery never seems to stop turning. There are a lot of policy changing auctions on at the moment, and no doubt we all face similar

but different conundrums. My tractor fleet has seen expansion rather than replacements in recent years, but we're at a point where average age and hours are elevated to where we need to tweak things, before the ability to keep up diminishes too much.

New prices are in the telephone number category, but we're looking at changing two 20-year-old machines for one three-year-old currently, alongside a few role changes to keep things fluid and workable for us all. I find that it's best to not calculate the cost in terms of how many tonnes of wheat it equates to.

Back to being social – I've been a part of the ploughing match scene in these parts for more than 30 years now. In an increasingly non-inversion world I think it's important to maintain and pass on traditional skills, and so to that end I'm having a class change. I've bought a 1940s trailer plough and look forward to learning how best to work it from some of the most experienced hands at our match on 22 March. ●

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.

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Spraying for success



“There’s a strong chance that very fine sprays actually deliver a less good result.”

TOM ROBINSON

Following a difficult year for weed control in sugar beet, could there be incremental gains to be had from revisiting spray application techniques? CPM tackles the topic of beet spraying...

By Janine Adamson

Weed control in sugar beet is a non-negotiable, yet is something that’s become increasingly challenging in recent years. From the loss of several valuable herbicide actives to newly emerging weed threats, plus the extreme drought of last season, growers will likely be feeling the pressure to get on top of crop competition.

While there are tools such as the Conviso Smart system, and new chemistry is in the pipeline in the guise of Corteva’s Rinskor active (florpyrauxifen-benzyl), could it be time to rethink the sprayer itself? Independent spray application consultant, Tom Robinson, believes so.

“The application methods currently used in sugar beet are old – established

around 50 years ago when spraying speeds were just 4-6km/h. The goal was to create very fine sprays. However, my research, albeit in other crops, suggests that very fine droplets are difficult to control,” he explains.

OUT WITH THE OLD

Tom adds that traditionally, high-pressure low-volume has been the ethos, using small fan jet or hollow cone nozzles. “This advice is so imprinted that it’ll be difficult to move away from, but if growers are struggling with weed control, evidently it’s time to reassess. The quality of modern nozzles, particularly patterning, has greatly improved in the past 20 years.

“Ultimately, there’s a strong chance that very fine sprays actually deliver a

less good result. This is because small droplets are so light that they don’t follow the trajectory of the nozzles and migrate in the air. Not as many droplets land on target, moving around the plant in the boundary layer of air,” he says.

British Sugar’s Pamela Chambers agrees that now is a prudent time to shine a spotlight on the topic of better beet spraying. “When weed control



Angled nozzles

For small targets in sugar beet, attacking the weed at an angle from the side presents a larger surface area for the herbicide to land on, advises Tom Robinson.



Spread too thin

UPL's Stuart Jackson says with time often short, finer application details can sometimes be lost.

hasn't been as good as expected, it's easy to blame the herbicide, but it is possible that application methods are not as effective as they could be.

"A lot of work has been done in the past suggesting a flat fan nozzle is optimum, and while these can be effective, there are other methods which haven't been adequately trialled which could be better. We desperately require new replicated data to support their adoption," she says.

Based on Tom's research, 3D angled nozzles such as the Syngenta Hypro 3D and medium-sized droplets should prove more effective. A 38° incline in an alternating spray pattern, the nozzles have proven to increase spray deposition on small weeds, and improve penetration into dense, complex canopies, he notes.

"For small targets as in sugar beet, if you attack the weed at an angle from the side they present a much larger surface area for the herbicide to land on. Equally, having alternating nozzles on the boom helps to overcome shading from clods in the seedbed, and from the growing sugar beet crop."

The Hypro 3D are also designed for performance within a 0.7-3 bar pressure range, with 2-2.5 bar recommended for best results. Tom raises that this is half the pressure of conventional methods offering a significant reduction in spray drift.

However, he advises considering nozzles on a per crop basis, possibly even per weed. Then for marginal spraying conditions, he recommends a 75% drift reduction nozzle with a small drop size, such as a Hypro Guardian air.

"AHDB guidance on air inclusion

nozzles is a useful tool to aid decision-making; select a nozzle that's further down the chart as you want as many drops per litre as possible, without the product drifting. There's considerable difference between the nozzle options available, so make an informed decision," he urges.

SLOWING DOWN

According to Tom, while his trial work has been mostly conducted in combinable cereal and vegetable crops, he hopes parallels can be drawn for application in sugar beet. This includes the importance of maintaining a modest speed when applying herbicides.

"Research suggests that when applying herbicides pre- and post-em in wheat,

when comparing 12km/hr with 16km/hr, the results are poorer at the higher speed. I wouldn't advise travelling above 12km/hr – that's still a reasonable speed."

He also urges paying greater attention to detail when setting up a sprayer in the first place, well before embarking on an application. "This is critical to achieving optimum results.

"The boom must be straight along its entire length and parallel to the ground, with all nozzle bodies vertical when viewed end on and from behind. Set the nozzle tip height to 50cm above the ground or crop – research has shown that if this is 60cm, drift increases by 50%, while at 70cm, it's 150% more drift."

"This is mostly down to workload pressure across all crops in the rotation



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– subsequently, the temptation can be to go too fast with the boom too high, in compromised weather conditions.

“The result is a large proportion of product doesn’t even hit the target. Rather than acknowledge potential application errors, it’s often assumed the product isn’t as good as it used to be.”

However, what goes into the tank does have an impact, highlights Tom. “Although increasing the water volume increases coverage, it also reduces the amount of active ingredient retained on the target, and reduces work rate. You may require an additional wetter in the spray mix to recover some of the lost spray retention.

“Where a water conditioner such as X-change is necessary, this must be added and mixed with all of the water before adding the herbicide chemical. The tank should then be agitated for at least 10 minutes before spraying,” explains Tom.

CUT BACKS

A current concern for Stuart is that growers may hope to get away with reducing their spend on beet herbicides full stop this year, thus negating any potential gains from refined application methods.

“There’s talk of it being hard to justify a pre-em spray this season following 2025’s experience, but this is the classic mentality of growing the current crop based on last year. We must move away from this approach collectively as an industry, and focus on the crop in the ground, not what it was 12 months ago,” he stresses.

For the future, Tom hopes BBRO will invest in trials to formally transfer his research into sugar beet. “This would validate a new framework for better beet spraying. Anything not done right is an incremental loss, it all has an impact,” he says.

Pam adds that with innovative agri-tech solutions on the horizon, such as the Ecorobotix AI-driven ARA spot sprayer, there’s an opportunity to completely revolutionise how weeds are controlled in sugar beet. “ARA is already gaining momentum in high-value horticultural crops, we just have to properly understand its abilities, and whether it’s therefore a practical tool for UK sugar beet.

“At the moment, factoring in the spend required and subsequent return on investment, the conventional sprayer still seems to win. But as technology develops apace, this could soon change,” she concludes. ●

Key weed learnings from BeetTech26

The cost of sugar beet weed control in the face of seasonal extremes and emerging weeds

When tackling a scenario such as last season’s extreme drought, even the experts don’t always get weed control right – that was the candid message from British Sugar’s Pamela Chambers during a break-out session at BBRO’s BeetTech26.

Having overseen BBRO’s replicated herbicide trials, she said protocols were finalised early in the season without adjustment, and therefore spraying concluded too early at one site. “With no canopy closure and then some rain, the weeds came through after having spent around £140/ha. In the best treatment we had 15.3 fat hen plants/m², while in the untreated, we counted more than 160 plants/m² – I’ve never seen anything like it.

“It’s likely that a further one or even two sprays were required to give adequate control, which would have increased the costs by around £55-60/ha. So my lesson there was that I stopped spraying too early.”

She stressed that every scenario is different and she wouldn’t want to advise a set herbicide programme and therefore spend for sugar beet, although the situation fared better at other trial locations.

“We achieved good control at another site having spent around £120-140/ha on a programme that was based on phenmedipham, metamitron and ethofumesate. We also included lenacil at T2 and T3, which I believe gave additional control for weeds like knotgrass. At this site, black-bindweed was the dominant weed with more than 60 plants/m².”

However, Pam warned that she believes the cost of weed control could increase in the future as different species begin to emerge. One example she highlighted was velvetleaf (*Abutilon theophrasti*), which has been identified in Norfolk and Suffolk.

“This is a highly competitive, invasive weed that grows very tall; I’m surprised to see it in the UK. Where has it come from? I’m not sure, although we’re introducing more cover crops on-farm, so it may have come in through that channel.

“So what to do about it? Always



Newly emerging species

British Sugar’s Pamela Chambers warns that the cost of weed control will likely increase in the future as different species begin to emerge.

retain a small cover crop seed sample, including the label, so you can go back and check for purity. If you see a weed in the field that you don’t recognise, don’t ignore it, send a photo or specimen to BBRO to get it identified. Importantly, hand rogue and fully remove the weed,” she advised.

Pam also highlighted mugwort (*Artemisia vulgaris*), a native weed which she believes is becoming a greater problem in the UK. “It’s very difficult to control. In sugar beet, you can use something like Debut (triflurosulfuron-methyl) plus Shield Pro (clopyralid). This twists the weed and suppresses growth, although that doesn’t completely kill it.”

To conclude, Pam raised that she’s been trialling new herbicide Rinskor Active (florpyrauxifen-benzyl) for the past two years. “It belongs to the same mode of action as Shield Pro but will have a much lower use rate (26ml/ha) and will target different weed species.

“Rinskor Active has useful activity on fat-hen as well as some of the more difficult weed species such as annual mercury, ALS-resistant poppies and velvet leaf. However, you must follow all tank mix and stewardship guidance, including the dose rate.”



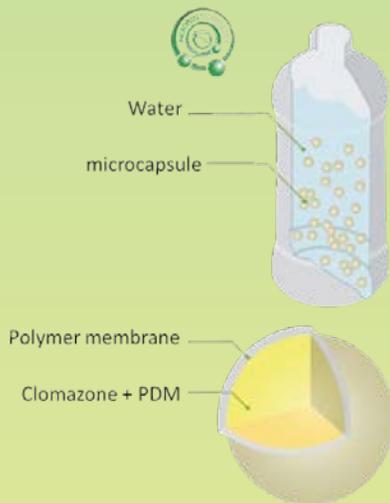
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Problem solving in potatoes



“Some of the mancozeb alternatives lack the persistency required for a seven-day interval, so the issue is performance, not managing resistance.”

ERIC ANDERSON

Increased costs, complexity and market risk combine to deliver a triple treat for UK potato growers. CPM weighs up current industry concerns.

By Rob Jones

After a tumultuous season where market prices fell by more than half on the previous year, irrigation demand and virus pressure were high but late blight pressure was low, many growers may find themselves at a metaphorical crossroads, believes Scottish Agronomy’s Eric Anderson.

As ever, decisions regarding what to do this season depend on money and attitude to risk, says Eric. He adds that the greatest challenge facing growers is the soaring capital requirement – for example, applying 150mm of water is now more than £900/ha.

“A typical 120ha ware crop enterprise represents an annual investment in the region of £1.4M. For those reliant on surface water to meet their irrigation requirements, or with ageing machinery and stores, this represents a considerable risk.

“Virus too is a greater threat than just five years ago – there’s no guarantee that seed is virus-free, so even a ware crop could be subject to a compulsory burn down if infection is assessed as beyond the statutory limit,” he says.

For growers in England, the statutory limit is 10% (of crop infected) while Scotland’s status as a seed producer means the limit is just 4%. Although the potato sector isn’t alone in facing such woes – all fresh produce growers face similar challenges – some have made progress on aspects where potato growers have struggled.

“We desperately require longer term contracts like the five-year arrangements available to carrot growers. These would go a long way in overcoming the greatest barriers to progress: a lack of business confidence and a reluctance to invest,” suggests Eric.

Arguably, falling prices make the increase in growing costs hard to accommodate, but of greater concern is the impact prolonged drought has on access to water, he highlights. By mid-summer 2025, dry weather across much of England resulted in 814 hands off flow restrictions in force. These are in-built conditions that require abstractors to either reduce or stop abstraction when flows fall below a predetermined level set out in the

licence, thereby limiting crop irrigation.

The situation reveals a wider problem facing growers – poor water resilience, believes Eric. “This is a problem more growers have to face up to, but many can’t afford the investment in a bore hole or reservoir.”

Then, in weeds, pests and diseases,



Alternaria control

For fields with a history of alternaria, Scottish Agronomy’s Eric Anderson advises using products with specific activity such as Caligula (fluopyram+ prothioconazole) or Belanty (mefentrifluconazole).

developments are likely to shape crop protection strategies, and influence both yield potential and quality. The most significant being the spread of oxathiapiprolin-resistant EU46_A1, and the implications for fungicide programmes following the end of mancozeb, explains Eric.

EU46 was the second most prevalent strain (23%) identified in Fight Against Blight (FAB) monitoring in 2025, although sampling was biased towards the West and Midlands where it was first detected.

Eric says finding a suitable replacement for mancozeb poses several questions – what to use in its place as suitable tank-mix partner? Then what level of threat, if any, should be ascribed to alternaria, and if so, how to respond?

Finding answers will take time, he believes. “Some of the possible mancozeb alternatives lack the persistency required for a seven-day interval, so the issue is one of performance rather than ensuring compliance with resistance management guidelines.”

A specific concern, raises Eric, is how to protect the efficacy of oxathiapiprolin given it’s available in a mixture with amisulbrom, meaning a third, non-CAA

mode of action is required. The worry is that in the presence of EU46, and without a third mode of action, Qil amisulbrom (FRAC Group 21), will be fully exposed.

Qils such as amisulbrom and cyazofamid are single-site, so if the efficacy of Ranman Top (cyazofamid) and Shinkon (amisulbrom) is to be preserved, another partner is required. Eric says fluazinam is an obvious choice given it’s reasonably inexpensive.

Equally, the prevalence of EU41 in Scotland also requires monitoring given reports of reduced sensitivity to low doses of cyazofamid.

One positive from the past few years – during which strains resistant to either oxathiapiprolin or mandipropamid have emerged in northwest Europe – is that the performance of Infinito (fluopicolide+ propamocarb) remains unaffected, highlights Eric.

“Given the situation with oxathiapiprolin, only fluopicolide and propamocarb offer any meaningful activity as an anti-sporulant, while the systemic and protectant properties of fluopicolide mean the two combine to deliver excellent foliar protection and tuber blight control.

“As there’s no need to add another

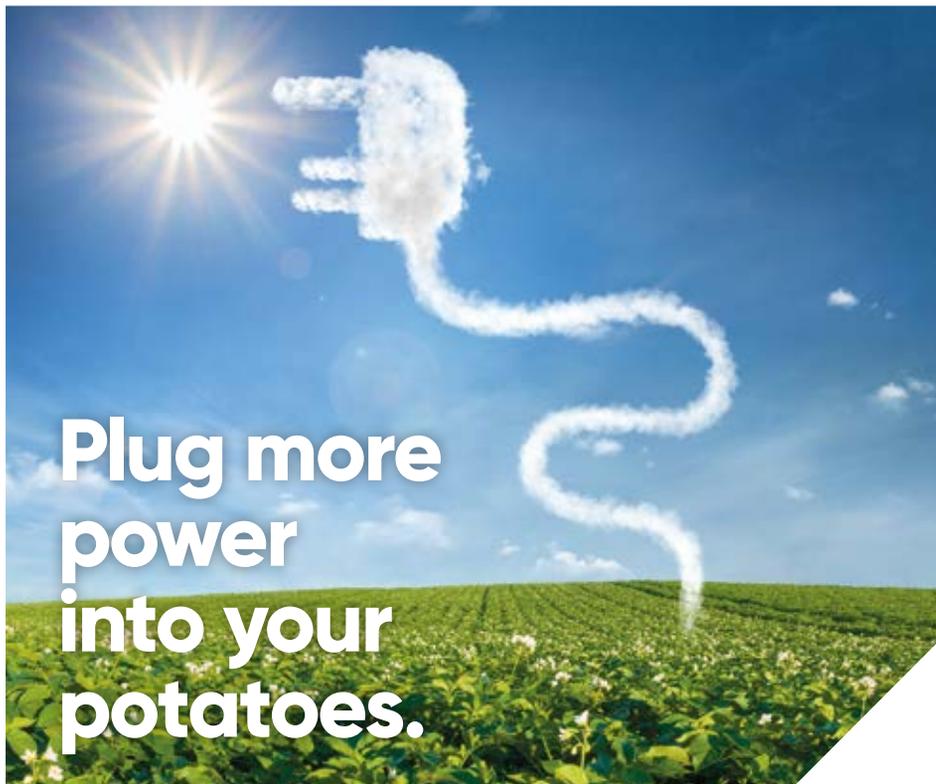
tank-mix partner, it’s often less expensive to apply than Ranman Top plus a mixer,” he says.

As for alternaria, the truth is currently unknown, warns Eric. For many growers, mancozeb provided incidental control, and while it may take several years before alternaria represents a widespread threat, where a field has a known history of the disease, it should be monitored closely, he says.

“Should symptoms appear, a suitable fungicide should be applied, but growers have to be mindful of strobilurin- and SDHI-resistant strains of *A.solani* [to date, SDHI resistance has only been confirmed with boscalid]. Ideally, samples should be sent for testing,” comments Eric.

In fields with a history of alternaria, he advises using a product with specific activity such as Caligula (fluopyram+ prothioconazole) or Belanty (mefentrifluconazole). “These are the best means of protection. Caligula gives marginally better alternaria protection and has the advantage of not requiring a tank-mix partner if applying alone,” he explains.

According to Eric, alternaria control differs from that for late blight, in that it’s often easier to achieve. However,



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Finding a route forward

Overcoming fungicide challenges in Norfolk

At the Wicken Estate – a 950ha privately-owned farm in north Norfolk – potatoes are grown in a one-in-nine rotation, covering about 80ha in a typical year, explains farm manager, Toby Hogsbjerg.

The area is split equally across processing and chipping, with all output on contract. For processing, varieties are Premiere and Desiree, while King Russet and Royal are grown for chipping. According to Toby, growing such established varieties means weaknesses are widely recognised.

“Premiere can be susceptible to

black-leg but otherwise it’s a proven second-early suited to processing; it has the problems expected of an older variety but they’re manageable. Desiree, in contrast, can cause any number of problems but again, if you know how to grow it, then it’s manageable and yields well. Conversely, King Russet and Royal are solid varieties with few surprises.”

However, the loss of mancozeb forced a review of blight programmes – the outcome of which was to make use of products known to give good control, such as Infinito (fluopicolide+ propamocarb), adds Toby.



Instigating change

The loss of mancozeb forced a review of blight programmes at the Wicken Estate, says Toby Hogsbjerg.

According to Bayer, Infinito is best used mid-season after tuber initiation, when the anti-sporulant properties of propamocarb act on the sporangia, and fluopicolide on zoospores washed down from the leaves and stems by rainfall and irrigation. It can be applied up to four times per crop.

To comply with resistance management guidelines, applications should be alternated with a fungicide belonging to a different mode of action group. In most situations, growers opt for cyazofamid, but mixing this with a suitable partner to protect against resistance can increase the complexity of the programme.

Toby says there are several tank-mix partners available that suit cyazofamid at this stage in the season, including propamocarb. “We just have to be mindful of the advised propamocarb limit of 6060g/ha per season.”

Looking in further detail, four applications of Infinito at 1.6 l/ha is equivalent to 4000g/ha propamocarb, leaving 2060g of propamocarb available for use elsewhere in the programme if required.

“Previcur Flex (propamocarb), a useful mix partner for cyazofamid, contains 722g/l of active ingredient. At the recommended application rate of 1.4 l/ha, this is equivalent to 1010g/ha of propamocarb,” explains Toby.

Per crop, this equates to applying two applications of Previcur Flex when applying four applications of Infinito at the full rate of 1.6 l/ha, he concludes.



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Fungicides for alternaria control					
Product (FRAC Group Code)	Max no applications	Recommended dose/ha	Comments	EuroBlight efficacy rating (14-day interval)*	EuroBlight efficacy rating (7-day interval)*
Vendetta (fluazinam+ azoxystrobin) (29+11)	3	0.5 l	Also have activity against late blight; use as part of a late blight programme.	-	3.6
Carial Star (difenconazole+ mandipropamid) (40+3)	3	0.6 l		3.3	-
Belanty (mefentrifluconazole) (3)	3	1.25 l	Specific alternaria product to tank-mix with blight programme.	4.3	-
Caligula (fluopyram+ prothioconazole) (7+3)	3	0.5 l		4.5	-
Signum (boscalid+ pyraclostrobin) (7+11)	4	0.25 kg		Not described	Not described

* EuroBlight assessments published 31 May 2022

▶ as with late blight, modes of action must to be interchanged (see table).
 “Fungicide treatments should commence when symptoms are first observed or there’s a high risk of infection from early canopy development. Two to three treatments applied at fortnightly intervals are typical, but it can be more when the risk is high,” he adds.

Finally, virus protection remains a challenge; Scotland recorded its highest vector pressure for 10 years in 2025, led largely by Peach-potato aphid (*Myzus persicae*). Given the pest’s significance in transmitting persistent viruses such as Potato Leaf Roll Virus (PLRV), this has led to fears that the virus epidemics of the 1970s and early 1990s might be repeated, suggests Eric.

As groundkeepers often emerge before planted seed-potatoes, it’s believed these are the most important virus sources in early spring. Because aphid flights occur earlier in the year, and aphids occur in higher numbers due to milder winters, the chance of early infection of the young and susceptible potato plants before roguing is considerable, he warns.

“Mild conditions enable aphid populations to overwinter in larger numbers leading to early migration and colonisation. This raises the risk of PLRV transmission from groundkeepers or infected tubers before symptoms appear, makes roguing less effective and potentially increasing the proportion of infected seed planted the following season.

“Without planting as clean a seed as possible, combined with implementation of multiple layers of mitigation, an epidemic is increasingly likely,” concludes Eric. ●

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LASTWORD

Jumping on that trend



WITH JANINE ADAMSON

“ Well I must say, I didn't expect to receive anywhere near as much feedback on last month's column as I have – it would appear my fellow stegosauruses (stegosauri?) and I are not yet extinct! Thank you to everyone who passed on positive comments or even merely thought them, it proves that in some instances, it pays for me to stand firm.

However, it also suggests that February's column will be a hard act to follow. Cue the tumble weed... I jest.

Anyway, I shall move

swiftly onto my next indulgent rant – AI-generated imagery. A few weeks ago, my social media channels were flooded with cartoonish caricatures depicting individuals at work, accompanied with the phrase 'jumping on the latest trend' (or words to that effect).

I hope you can hear my eyes roll. Now, I'm not personally criticising anyone who partook in this digital craze, I simply question how harmless such activities can be.

Having hatched in 1987, I quite literally 'boomed' alongside the internet – I remember 'Ask Jeeves' fondly, I was an early adopter of Myspace, I recall when Facebook had a predetermined 'is...' before every status update.

And while I'm undoubtedly too jaded for TikTok or Snapchat – one has to type the line somewhere – I'm broadly accepting of

the direction of travel.

However, all of these 'same but different' AI images make me feel a little, well, dead inside. I can spot an AI-generated poster or advert a mile off – and they are everywhere. Even our local common plot has one as part of its recruitment campaign for volunteers.

Firstly, there's zero creativity in any of it, because surprise surprise, they've been created by a computer not a human. There's no flair or individuality, it's all very one-dimensional. I'd actually rather see the digital equivalent of a child's hand-crafted Easter bonnet, if it means Gerald from the common plot has made it himself in Publisher. I understand not everyone has the skills, but hopefully you take my point.

Secondly, I cringe at the quantity of finite resources we're wasting through recreational AI.

For useful purposes as we're increasingly seeing in agriculture, fine. Using AI simply so Karen at number 43 can depict herself cutting someone's hair, no.

There's a blog on gov.uk explaining it in detail, but essentially AI uses an inordinate quantity of water to cool computers at the data centres, as well as indirectly for electricity generation and during hardware manufacturing. And we're doing this for the sake of a viral cartoon?

Thirdly, and maybe I'm overthinking this one, is it not all just a data mining exercise? Willingly handing over information about ourselves, as well photographs revealing our physical appearance, to feed powerhouse AI? Something inside me says this won't necessarily end well.

AI will likely revolutionise our existence and I'll look very stupid in 10 years' time, but as with everything in life, I just think we should manage excess where we can. Ultimately, there's always a cost. ●

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YOUR EDITOR

Janine Adamson began her journalistic career writing obituaries for a local newspaper but fast found her stride within agricultural communications. Now, more than 15 years later, she finds herself at the helm of CPM. A proud Staffordshire girl from the Moorlands, Janine takes pride in tackling subjects which although aren't exclusively farming, affect everyone.

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