

For farmers and their agronomists

CPM

CROP PRODUCTION MAGAZINE

October 2026

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“Whatever the weather or the markets throw at us, it’s attention to detail”



POINT OF VIEW

The past three months have again underlined farming’s inherent exposure to world markets, affecting both sales and input costs. As we move into a new season, it’s clear this uncertainty is here to stay – and the question at the forefront of growers’ minds is how to best navigate this volatility.

While it may be tempting to hold out for the top of the market; get it right, and the rewards can be considerable. Get it wrong, however, and you’re left with nothing to show for the wait. Neither outcome represents a sound basis on which to build a business.

One thing that’s delivered positive results season after season is a little-and-often approach – selling in stages, backed by a proper budget for each farm enterprise. Instead of trying to guess the top of the market, make a series of smaller, planned decisions, putting you back in control rather than at the market’s mercy.

Whatever the weather or the markets throw at us, it’s attention

to detail – the small marginal gains, done well – that make the biggest difference to the bottom line.

Last autumn’s six steps to success are just as relevant now, maybe more so, given what last season has shown us. For one, spread your risk. Farms that built in some diversity, whether at crop level or across the whole business, have seen the benefit of hedged risk. Keep asking where else you could create enterprise diversity.

Check what actually worked; validate inputs against realistic yields. For example, if you cut back or swapped out your final nitrogen application during this spring’s dry spell, look at what that decision actually delivered. That’s real evidence to plan next spring’s programme properly, instead of guessing.

Pay attention to yield maps because variability was high again this year. Try to understand limiting factors and address these where possible, whether that’s a quick job or a longer-term one.

Stick to a forward budget. It might feel odd to plan ahead when

markets are this unpredictable, but a structured, staged approach gives you far more control than reacting to every market twist and turn.

Look after your soil. 2026 was the second year running where organic matter proved pivotal to yield. That’s not a blip – it’s a pattern. If you haven’t already, now is the time to invest in your soils.

Look after your people. There’s no rush of new entrants coming into farm workforces. The skilled operators who know your farm inside out are worth more than ever – invest in their careers and don’t let poor management cost you good people. It’s a cost that never shows up on a budget, but it’s real all the same.

None of this is complicated advice. But in a season defined by volatility, getting the basics right consistently is exactly what will set the strongest farm businesses apart as we head into 2027.

By Will Foyle, head of farm business consultancy for Hutchinsons.



**CROP PRODUCTION MAGAZINE –
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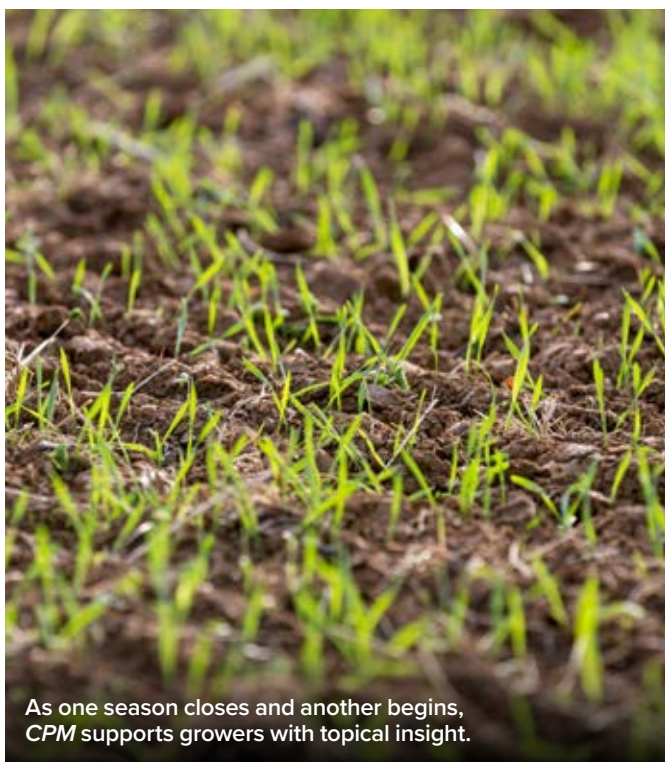
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About Crop Production Magazine

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.

A photograph of two men standing in a lush green field of tall grass or wheat. The man on the left is wearing a blue checkered shirt under a black vest with a small logo. He is gesturing with his hands as if explaining something. The man on the right is wearing a blue polo shirt and is holding a small plant stem, looking down at it intently. The background shows a vast field under a cloudy sky.

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Listen • Learn • Deliver

Little wins for weed control

“Herbicide effectiveness improves the later crops are drilled.”

JOHN CUSSANS

Both short- and long-term wins are on the horizon for growers with grassweed problems, providing the fundamentals of resistance management are adhered to. **CPM** shares the news.

By Janine Adamson

After the past two seasons of immense challenge, any agronomic win, no matter how small, should be worthy of celebration.

And while some might struggle to get excited over a simple change in rate or dose split, with drilling continuing to err on the earlier side of proceedings for some, news from Bayer could help to mitigate risk when it comes to grassweed management.

Albeit it is a simple update for aclonifen (as in Proclus and Bandur) – whereas previously its total dose of 1.4 l/ha had to be applied in one

hit in winter wheat, it can now be split – 1 l/ha at pre-emergence timing followed by 0.4 l/ha at early post-emergence. There's also been an update for winter barley, with growers able to utilise a full 1.4 l/ha total dose compared with the previous 1 l/ha.

EXTENDED TIMINGS

Bayer Cropscience's Darren Adkins says it's a minor change but incurs advantages. “Splitting the dose means you can extend the timing of autumn-applied herbicides to protect against later germinating



Better risk management

Splitting the dose of aclonifen means the timing of autumn-applied herbicides can be extended to protect against later germinating weeds, says Bayer's Darren Adkins.

A new approach to tramline trials

How the Taguchi method is helping to progress on-farm research

While on-farm research can often start with a simple aim, the treatment combinations required to answer that question can quickly multiply, resulting in a trial that's too large to manage in a commercial field.

However, the Taguchi method – a concept widely used in engineering and manufacturing to optimise processes – allows researchers to trial selected treatment combinations and use the results to predict how untested options might perform. And now, researchers are exploring whether the same principle could be applied to on-farm tramline trials.

The method's route into agronomy first began when ADAS plant pathologist, Dr Faye Ritchie, discussed the limitations of an existing fungicide prediction method with her father James, a mechanical engineer.

"The method I was using at the time wasn't working properly and I was complaining about it. Dad said, 'What you've done there sounds really like the Taguchi method.' He gave me a book and I started investigating it."

As a result, Dr Laura Sapelli, then a PhD student on placement with ADAS, applied Taguchi to existing data where the performance of different treatment combinations was already known, to see whether comparable results could be produced from fewer combinations.

"It showed it was a transferable method," comments Laura. "So it has the potential to save time, money and resources while achieving the same, or at least comparable, outputs."

That potential is now being tested through the oilseed rape-focussed LLS-ERASED – the £2.5M Defra-funded project led by the British On-Farm Innovation Network (BOFIN). Its aim is to develop new approaches to managing light leaf spot in OSR.

This autumn, eight farmers will



Sharing challenges

The Taguchi's method's route into agronomy first began when Dr Faye Ritchie discussed the limitations of an existing fungicide prediction method with her father James.

host LLS-ERASED tramline trials investigating the influence of OSR variety and fungicide timing on light leaf spot and yield. The trial combines two OSR varieties with contrasting resistance to light leaf spot with autumn and spring fungicide treatments. Together, those factors create eight possible combinations.

But, rather than testing all eight, just four will be tested and replicated, and Taguchi used to predict the remaining four.

For ADAS principal research consultant Susie Roques who specialises in large-scale on-farm trials, the method could be particularly valuable at tramline scale, where work is generally limited to around four treatments compared with the 20 commonly accommodated in small-plot trials, she explains.

"Having this method to look at a

greater number of treatments is really valuable. In a small-plot trial, you're just saving money. In a tramline trial, you're moving from impossible to possible by cutting down the number of treatment combinations you review."

But predicting rather than physically testing some combinations does come with a trade-off. Susie stresses that researchers can't have the same confidence in a predicted result versus one physically tested, so promising findings will require further testing.

Hence rather than being a shortcut to definitive answers, Taguchi's potential lies in allowing farmers and researchers to ask more questions, identify those worth pursuing and make better use of the field space available to test them, note Susie. "People always want trials to answer more questions than they're able to," she concludes.

► weeds, which is useful in early drilling situations," he explains.

According to Darren, this is even more useful because of aclonifen's longevity and mode of action. "As an active ingredient, it's less reliant on soil moisture and sits on soil surface to be taken up by emerging weed shoots only. This is certainly

an advantage if drilling has taken place in September and it's dry.

"With the split dose, it gives the flexibility to factor in different modes of action into early post-em sprays, and create greater diversity in the partner programme."

So from Darren's perspective, what could an autumn weed control

programme look like with this in mind? He says the fundamentals of herbicide planning won't really change. "That's thinking about what grassweeds or broadleaf weeds are being expected based on the farm's history, and the resistance status of those weeds.

"Then it's considering the timing of drilling and understanding how the

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Exercising discernment

Agrovista's Mark Hemmant believes there may be a misconception of what a successful stale seedbed actually means and the impact on subsequent herbicide use.

different modes of action behave in the soil and their persistency. Those are the variables that really inform programme choice," he comments.

When drilling earlier, it's likely two if not three autumn applied sprays will be required, whereas planting later will increase the chance of having to apply all products in one go, notes Darren.

LAYER OF CONTROL

Thinking again about aclonifen, because the product doesn't enter the soil profile, it forms a layer on the soil surface, he says. "This is useful because if conditions are dry but with enough moisture for weed seed to germinate, then there'll be activity from aclonifen before more soluble actives get down to the roots.

"It's pretty much insoluble in water – it doesn't go into soil and sticks to surface incredibly well. Once bound, it won't move."

A bonus is that it isn't broken down by UV activity either, adds Darren. "A lot of chemistry will break down in sunlight, but aclonifen has been used widely in tropical regions purely because it's so good at remaining stable in dry conditions. It also has a useful half-life of around 80 days for long-lasting activity."

Considering all of the benefits of aclonifen, he doesn't shy away from the need to protect it. "If we look at the cereal herbicide modes of action available to play with, we have a good range. In fact, there are 10 if you include glyphosate and the post-emergence options.

"We don't struggle, but products should be chosen wisely to ensure diversity in programmes and longevity of the chemistry," he urges.

As for this year specifically, in high pressure situations, Darren raises that Bayer is supporting the use of

Drought, resilience and the search for harmony

Introducing the theme for Oxford Farming Conference 2027

As another prolonged dry spell has gripped much of the UK, farmers across the country are once again facing the realities of a changing climate, highlights Ben Makowiecki, agriculture sustainability director at Lloyds Banking Group, and Oxford Farming Conference director.

Brown grasslands, stunted crops, depleted water supplies and growing concerns over livestock feed have become familiar sights, he adds. "While drought has always been part of farming, the frequency, intensity and unpredictability of these events are becoming harder to ignore.

"For many businesses, this year's drought means more than lower yields, squeezed margins, difficult management decisions, and increasing weather volatility that places pressure on farming businesses across the country.

"Whether it's cereal growers watching crops shut down under heat stress, or livestock farmers trying to stretch grazing for another week, resilience is being tested across every sector and prompting renewed questions about how farming systems can better withstand increasingly difficult conditions."

He believes that while it's not the sole solution, regenerative approaches

can help to reduce vulnerability by improving the health and function of soils. "Farmers who have invested in soil health often report crops holding on for longer during drought, showing better root development and maintaining productivity when neighbouring fields begin to struggle.

"Regenerative farming shouldn't be presented as a silver bullet, but it does offer a practical pathway towards greater resilience in an increasingly uncertain climate, particularly where improvements in soil health can help businesses make better use of the water available to them," suggests Ben.

Taking this to a higher level is Oxford Farming Conference's 2027 theme – 'harmony'. According to Ben, this isn't about the absence of challenge. "Farming has never been free from risk. Rather, it's about finding balance between food production and the environment, short-term pressures and long-term resilience, innovation and tradition.

"Drought reminds us that farming operates within natural systems, not separate from them. The businesses best placed to thrive in the future are likely to be those that work with those systems, building healthier soils, more diverse landscapes and stronger economic foundations that can



Harmony theme

Perhaps the challenge isn't how to respond to drought, but how to create harmony between farming and nature, suggests Ben Makowiecki.

withstand periods of greater volatility.

"As the sector reflects on another difficult season, perhaps the challenge isn't simply how we respond to drought, but how we create harmony between farming and nature so that both can prosper in the decades ahead," he concludes.

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AGRONOMY Cereal crop management



A task for a lifetime

ADAS' John Cussans warns that there's much more to weed management than 'getting away with it' for a year or two.

cinmethylin plus aclonifen at 1.0 l/ha.

With so much talk about drilling date, ADAS' John Cussans agrees that it doesn't just have an impact on the success of stale seedbeds and weed seed germination. "In the past, we perhaps hadn't appreciated what an effect drilling date has on herbicide performance.

"Bigger picture data suggests that later drilled crops have a lower requirement for herbicides and follow-up contact sprays. Simply, herbicide effectiveness improves the later crops are drilled," he raises.

SEED-BANK CONTROL

He also highlights that there's much more to weed management than 'getting away with it' for a year or two. "You must proactively manage the weed seed-bank in the background all of the time.

"Okay, in some situations in some years, drilling later doesn't give you the results you want due to less competitive plants undermining what you're trying to achieve. And then, cultural strategies stop working well if weed numbers are really

high. But in the long-term, usually, delayed drilling will yield results."

For Agrovista's Mark Hemmant, it's been another difficult year to hold off. "With the spring droughts we've been experiencing, we know early drilled crops are more resilient to arid conditions. Consequently, this will mean advising the use of more herbicides, but if cultural controls really fail, it'll be applying glyphosate and starting again."

John highlights the reasons behind why stale seedbeds may not be effective. "The true benefit of a stale seedbed with shallow cultivation isn't seen for 3-4 weeks after that initial cultivation; you have to allow time and for glyphosate to work, and two weeks isn't enough. Time is our most valuable currency.

"Equally, what's required is different between dry and wet conditions. In wet conditions you want to get the blackgrass seedlings to chit and reduce return in the following crop. But in dry situations it's far better to leave the freshly shed seeds on the surface so they're vulnerable to predation."

Mark raises that there may be a



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Cereal crop management **AGRONOMY**

misconception of what a successful stale seedbed actually means. “Growers achieve a good weed flush and could assume there’s the potential to then reduce spend on a herbicide programme, particularly when evidence shows there’s no benefit beyond two stale seedbeds – a third or fourth doesn’t increase control.”

In agreement, John says it’s easy to over-estimate what can be achieved with a stale seedbed. “Remember, the flush is only 5% of the seed-bank that’s waiting dormant below the soil surface.”

Returning to the conundrum of how to devise an effective herbicide programme, John proposes that the order of application is variable depending on conditions. “If you’re sequencing it’s best to do that with a 10-14 day gap, apply the best herbicide actives first followed by the less effective ones. Always prioritise controlling the early

“We have to make sure we have herbicide active in the soil from 1 October through to the middle of November.”

germinating weeds as these are the ones that produce the most seeds, certainly don’t let those individuals come up in the crop.

“Then in drier conditions or where there’s a possible crop safety risk, always apply the safer material first (aclonifen, bixlozone, tri-allate etc) and the less safe options later. However, whatever you do, do not skip the pre-emergence stage.”

Hutchinsons’ Dick Neal agrees that a sequence of actives rather than a single, large pre-em stack should offer the best blackgrass control.

“The aim of the sequence is to overlap herbicide active dose with blackgrass emergence.

“We have to make sure we have herbicide active in the soil from

1 October through to the middle of November,” he urges.

With blackgrass emergence increasingly protracted, he suggests

the focus should also shift towards building a competitive crop from the outset. “This could include placing phosphate where roots can access it, using variety blends to strengthen crop competition and sequencing herbicides to match the weed’s emergence pattern, with the aim of leaving as little opportunity as possible for survivors to replenish the seed-bank.”

Casting much further ahead, Bayer’s Richard Phillips says there’s another new herbicide mode of action due on the horizon. “Icafolin-methyl will arrive next – a new mode of action from HRAC Group 23 for post-emergence control of grassweeds and broadleaf weeds, including blackgrass and oats.

“How it works is treated weeds stop competing but keep their structure, forming a mulch layer. Its EU launch is due at end of the decade for potatoes, pulses and veg, and we’re currently looking at how authorisation can be achieved for the UK following EU alignment next year. For use in cereal crops, we’re aiming for authorisation in the early 2030s,” he comments. ●

Pioneering product innovation in the fight against weeds

The fight against arable weeds is constantly evolving. Resistance and changing farming practices mean that new herbicides are essential to protect crops and secure yields.

With a global research team and UK trials and technical expertise Bayer Crop Science UK continues to develop innovative herbicides that help farmers stay one step ahead.

Subject to registration, two new Bayer co-formulations are planned for 2027 and 2028. In 2027 a co-formulation of aclonifen + diflufenican, in 2028 a co-formulation containing bixlozone +

diflufenican + mefenpyr, is anticipated. Both offer a versatile component for robust and reliable weed control programmes.

Further ahead, Bayer’s AI driven CropKey programme is accelerating the discovery of new modes of action. Icafolin-methyl is the first herbicide breakthrough from the programme, it belongs to a new chemical class with an excellent efficacy and safety profile. Due to launch in Brazil in 2028. Development work is already underway to create formulations suited to weed problems in the UK.



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“We’ve undertaken modelling work where we see that by using mixtures and alternating, it’s possible to extend the effective life of a fungicide from 10 to 20 years.”

MIKE GRIMMER

Cereal crop disease management and mitigating potential resistance concerns begin the moment a variety is selected and planted in the ground. *CPM* opens up the discussion early for this month’s *Common Ground*.

By Janine Adamson

In the face of ever-shifting disease threats, particularly in regard to septoria and yellow rust, is resistance management adequately factored into disease control decision-making? Equally, what can actually be done to protect key active ingredients for the season ahead?

To explore this topic further, *CPM* brings together Devon-based independent agronomist, Arthur Marshall; ADAS crop disease

principal consultant for crop disease management, Mike Grimmer; and BASF’s business development manager for cereal fungicides, Jared Bonner.

ATTITUDES TO RESISTANCE MANAGEMENT

To begin, the group broached the subject of whether growers and agronomists are proactively considering resistance management when planning cereal crop fungicide

programmes. In Mike’s opinion, they are.

“There’s certainly a degree of engagement from growers and agronomists, but we also have to recognise they have many other competing aspects to think about as well; it has to work economically.

“I guess it’s about getting a balance where disease control is achieved at a reasonable cost, but subsequently there may be some tension between that and the very best resistance management practice,” he explained.

Arthur added that in his case, due to significant septoria pressure and resistant isolates across Devon, he makes it a major priority. “The industry is really on board with it, but the problem is there can be a reliance on partner products that aren’t quite up to it. So in my



Competing priorities

ADAS' Mike Grimmer believes there's a degree of engagement from growers with resistance management, but a herbicide programme has to work economically too.

opinion, that's the only failing."

The rapid loss of strobilurin performance against septoria in 2003 remains a salutary lesson – a single target-site mutation drove a sudden step-change in resistance across the UK population. "We only have to look back at what happened with the strobilurins on septoria," said Jared. "They went from being a cornerstone of septoria control to losing that facet remarkably quickly."

Jared then noted that contrary to herbicide resistance which is a constant concern, he believes fungicide resistance isn't necessarily treated the same. "It goes in waves of how much people think about it. It's reassuring that people are talking about it more now, in response to recent events such as the YR15 yellow rust break down in wheat and conversations regarding the performance of new SDHIs. Those issues have brought fungicide resistance management back into people's minds a little more."

In response, Mike highlighted that companies such as BASF as well as academics and researchers have a duty to ensure the correct messaging is shared across the industry. "We can't simply expect growers and agronomists to do the right thing, and guess what that might be. We have to make it very clear what the best practices are and support them in that."

CURRENT CONCERNS

For Jared, an alarm bell was raised at AHDB's conference last year where work was presented that suggested two recently introduced SDHI fungicides – isoflucypram and pydiflumetofen – had high levels of selection for insensitive isolates.

"If you consider pydiflumetofen on the fungicide performance curves, it's giving good septoria efficacy; if you're controlling the highest level of septoria, then it makes sense that you'll begin selecting for insensitive isolates. Subsequently, the advice has been not to sequence those two new SDHIs in the same programme and look to bring in alternative modes of action.

"This is nothing new – diversity in modes of action is one of the best ways to mitigate the threat of fungicide resistance, whether that's in the tank or across the programme. Also paying careful attention to what those key actives are partnered with, and aiming for a balance," he urged.

"If you have one active ingredient doing a lot of the heavy lifting partnered with another doing much less, how much are they protecting each other in reality? It's not saying don't use those new SDHI actives, but it's making sure we look at where they're being used and ensuring a full programme is developed accordingly.

"When mapping out potential fungicide programmes, it's important to consider resistance risk profiles early in the season, so as to not limit your options by the time you get to your T2 or T3 applications. Use of a broad-spectrum, lower resistance

risk active at T1, such as Revysol (mefentrifluconazole), allows you to keep your options open at T2, both in terms of resistance and disease pressure."

Mike added that being single-site, both isoflucypram and pydiflumetofen will exert a selection pressure on the septoria population. "Simply, if you use them both/twice, you're exerting more selection pressure than if you use them once."

CULTURAL TACTICS

To continue, Mike raised the topic of cultural tools. "What we can start thinking about even now coming into the autumn, is what sort of crop do we want to have next spring and how much disease do we want in there? If we drill a little later, chances are there'll be less septoria next spring than if we drilled earlier.

"Also, variety choice is important because potentially that's a useful way of slowing resistance development, almost like adding in an extra mix partner to your programme to relieve some of the pressure on the big hitting chemistry, as well as creating flexibility in timings and doses.

"Anything you can do that reduces your reliance on single-site chemistry will help resistance management," he urged.

Arthur said in his region, it's important to avoid varieties with scores below 6.5 for septoria resistance. "In the old days when products were doing a brilliant job, we didn't have to worry about genetic resistance.

"But since the situation has changed, we can't rely solely on chemistry and require adequate genetic resistance. However, this doesn't mean you can



Warning signs

For BASF's Jared Bonner, an alarm bell was raised at AHDB's conference last year where work was presented that suggested two recently introduced SDHI fungicides had high levels of selection for insensitive isolates.



Flexible options

There's potential with some products to mix and match the partner, for example, changing from prothioconazole to a Revysol base.

- ▶ reduce fungicides; you want a belt and braces approach to support both the genetics and the chemistry."

Circling back to drilling date, Arthur explained that in reality, it's agronomist versus the farmer. "If growers do drill early then there'll likely be more septoria and more virus. September is 'out' for us in Devon because it's quite mild; the first week in October would equate to the middle of September for the rest of the country.

"In fact, this past autumn, our best crops were drilled in November, while the year before, a lot didn't get sown because October was wet. That's the trade-off. But where septoria is concerned, late drilling is a good way to back up your fungicide programme."

BEST PRACTICE

Thinking about tactics for chemistry use, Jared re-highlighted the importance of integrating alternative modes of action across a programme. "There's the potential for some products where you can almost mix and match the partner, whether that's a multi-site or perhaps reconsidering the exact azole being used. For example, changing from prothioconazole to Revysol base.

"It's looking at the whole programme, the modes of action and how these can be utilised to create a robust

approach. Asking questions such as where are we going to get the best from the actives? Do they need support, and what does that look like?"

Mike agreed: "If we're using prothioconazole and Revysol in the programme somewhere too, then they're exerting slightly different pressure on the pathogen populations. This is because there's only partial cross resistance that we've seen between those two active ingredients."

Arthur noted that while there's been a trend to move away from multi-site chemistry, he believes it still offers value.

"I think many of us thought when the new products came in that we wouldn't bother with multi-sites, rather spend the money on a higher rate of Revysol or pydiflumetofen. But evidence is accumulating that we ought to still use multi-sites."

It's also looking at the disease present when considering SDHI use, highlighted Jared. "Xemium (fluxapyroxad) is an older SDHI which presents lower septoria efficacy, but offers very good rust control. Therefore it's not only understanding the fungicide families, but also the strengths of the actives within."

THE FUTURE

Jared raised that there are some new active ingredients on the horizon which appear to be offering good septoria and rust activity. "However, we must maximise their life span as well as the longevity

of the products we already have.

"For example, Gilboa (flumetysulfurim), which both Adama and BASF will be marketing once registration comes through, subject to approval, is anticipated to arrive for use next season.

"This is important because it's a brand new mode of action for cereal fungicides in the UK. Being new, this will be really beneficial to growers, but now we have to look at how we successfully integrate that into a programme including what's partnered with it."

Mike urged that mitigating fungicide resistance has to start from the moment a new product arrives.

"We've undertaken modelling work where we see that by using mixtures and alternating, it's possible to extend the effective life of fungicide from say 10 years to 20 years.

"Conversely, if you introduce good

resistance management later in a product's life cycle, you're reducing that benefit by quite a lot. This is why we all have to work together and use good resistance management tactics from the start, rather than waiting until there's a problem and then thinking about it."

Arthur pointed out that he's fully aware that the NPD pipeline is limited. "You can't keep expecting new actives to arrive, but there are a couple coming and I think that will help us. Regardless, resistance is a serious problem and I think any really effective product is only going to have maybe ten applications before it goes," he concluded. ●

"It's looking at the whole programme, the modes of action and how these can be utilised to create a robust approach."

COMMON GROUND

BASF's Common Ground is a community united by shared vision – a brighter future for farming. Working together to tackle the challenges growers face while celebrating the opportunities that arise, the initiative brings together people and businesses with diverse farming philosophies to share their perspectives.

By exploring key topics such as resilient crop production, achieving balance, and preparing for tomorrow's demands, it highlights the power of collective insight. In coming together to openly discuss and face challenges as one, Common Ground can discover what truly works and help shape the future of UK agriculture.

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.

BASF
We create chemistry

Re-thinking mollusc management



After a prolonged dry spring and summer, moisture has finally arrived which means in terms of slugs, the pest is resurfacing from its depths ready to pounce on newly emerging crops. *CPM* takes a look at slug behaviour and the unique benefits of a recently launched molluscicide.

By Janine Adamson

The humble slug – a tentacled pest that can severely damage crops and lead to £50-100M in losses in the UK each year.

And while the past few months of extreme drought may suggest the threat posed by slugs should be minimal this coming season, experts urge this won't necessarily be the case.

CPM speaks to Fera's independent expert, James Ashton and Adama's Catherine Whaley to understand why slugs should never be underestimated and how innovation is driving future control options.

ARE ALL SLUGS THE SAME?

James: While there are around 40 difference species of slug present in the UK, not all are major crop pests. Critically, certain slug species cause more damage in agricultural crops than others.

Arion hortensis (black garden slug) is just 1cm when constricted and can cause damage to field crops, thus is a key species used in plant protection product registration studies. In contrast, *Arion vulgaris* (Spanish slug) is a significant crop pest in Europe that was first identified in the UK in 2012, but is yet to become widespread.

Curiously, a species that behaves differently to others is *Tandonia budapestensis*, which being subterranean, spends most of its life cycle below the soil surface. This slug is primarily a potato pest and burrows into tubers when the crop is bulking.

Finally, the most prolific slug pest in the UK that causes the most damage is *Decoceras reticulatum* (grey field slug). It's fast for a slug, mobile and hungry. Consequently, this is the slug we mainly trial in efficacy studies.

HOW DO SLUGS MOSTLY BEHAVE?

James: This year, the spring and summer seasons have been very dry. Although growers haven't seen slugs on the soil surface, they are still there and certainly haven't disappeared. This is because in prolonged dry weather, slugs bury deep in the soil and wait for moisture.

As soon as moisture is detected, they move back to the surface and begin feeding, which is why you want



Prolific pest

Fera's James Ashton explains that when a slug is stressed it lays eggs, with one slug capable of laying up to 500 eggs.



Rapid impact

Feralla's speed of absorption into the slug delivers a rapid, almost instant stop feeding effect and then mortality, says Adama's Catherine Whaley.

the first thing for the snail or slug to encounter to be a molluscicide pellet and not an emerging crop. Importantly, heavy dew is all it takes for slugs to detect moisture and mobilise.

Equally, when a slug is stressed it lays eggs, with one slug capable of laying up to 500 eggs. So just because it's dry and they can't be seen, we have to be aware of this possible building population.

Finally, slugs require food. Herbal leys, cover crops and grassland have all increased through government schemes and initiatives, and these are highly favourable to slugs. Through field margins we're growing additional food for slugs; we're also fostering dense rotational coverage and taller leys, creating cool and dark canopies which help to maintain slug viability and encourage egg laying.

WHAT DOES EFFECTIVE CONTROL LOOK LIKE?

James: It's actually very difficult to develop an effective molluscicide. You need the slug to encounter a pellet, decide to feed on it, continue to feed on it, ingest a lethal dose, and do all of that in one meal.

For this, the pellet must remain on the surface, be soft enough to consume but hard enough to not break down once it's applied. It has to absorb water to be palatable without becoming mouldy, and persist for the duration of the reapplication window. It also has to be the right size to provide enough baiting points across the application area.

The base of most slug pellets is a good quality wheat, a dye, a central active ingredient and some other

formulation components. Importantly, similar to a human, a slug doesn't feed on just anything – it has to decide something is palatable.

However, before all of this they have to encounter a pellet, which is influenced somewhat by chance, but also by baiting point. In some instances this can be a large number of mini smaller pellets, or a smaller number of larger pellets.

CONTROL OPTIONS

James: Prior to its revocation, metaldehyde worked by effectively dehydrating slugs with rapid knockdown, while ferric phosphate functions by disrupting the digestive system of the slug so it feels unwell and feeding stops.

The latter is a completely different mode of action compared with metaldehyde, meaning the slug takes longer to die. We also don't see deceased slugs on the soil surface because when they feel unwell and stressed, they travel deep into the soil profile and die there. Now we have a new potential option to investigate in elemental iron.

FERRABAIT AND ELEMENTAL IRON

Catherine: Ferrabait, a new molluscicide from Adama, is a complex product that contains more than 12 ingredients which all offer something unique to improve how the pellet works in the field. Among these components is elemental iron, known in this instance as Feralla, which has been proven to be a very effective molluscicide.

Once Ferrabait has been applied and ingested by the pest, a reaction takes place in the stomach of the slug due to its low pH. This causes Feralla to become bio-available in a solubilised form which is quickly absorbed into the slug.

The speed of this process has been investigated in independent lab studies, which demonstrate that the fast action of Feralla is due to it being absorbed quickly. We feel it's this speed of absorption that delivers a rapid, almost instant stop feeding effect and then mortality.

Then in addition to Feralla, Ferrabait's formulation includes high quality wheat flours to optimise palatability, alongside humic acids which stimulate feeding and encourage ingestion. Because humic acid makes the pellet black in colour, we have to apply a blue coating over the outside of the pellet, which helps growers to know when to reapply.

Also unique to Ferrabait is Adama's Desidro technology – a unique two-stage drying process which improves the integrity and durability of the pellet, enabling it to have robust anti-moulding properties which are important for prolonged efficacy. Ultimately, a slug won't feed on a mouldy pellet.

OPTIMISING APPLICATION

Catherine: The maximum dose of Ferrabait is 8kg/ha in high value, high pressure situations with up to six applications per crop. However, Adama has found that 5kg/ha is sufficient for low to moderate pressure, offering 42 baiting points/m². Applied at 7kg/ha this rises to 59 baiting points/m².

We've also developed a simple spreader web-based tool for growers and contractors. This allows the user to select the type of spreader, width to spread at and product application rate. The output is the application guidance that's required, including flute settings.

This is important to ensure the pellets are delivered in an even and accurate spreading pattern for maximum pest control. ●

Sponsor's message

It's all about the pellet – Ferrabait from Adama offers a new standard in slug and snail control through increased efficacy and mortality.

Containing active ingredient Feralla (elemental iron), Ferrabait has been created using proprietary formulation and drying technologies. As well as being highly effective at pest control, it also offers prolonged efficacy due to its superior mould resistance and pellet integrity when compared with market-leading ferric phosphate products.

CPM would like to thank Adama for sponsoring this article and providing exclusive access to the expertise and knowledge required to curate it.

To access the Ferrabait spreader guide, visit adama.com/uk/en/ferrabait-spreader-guide



Closing in on slugs

Three years of farmer-led research has taken slug control from predicting where the pest will strike to exploring how it could be targeted – and even whether wheat itself could provide part of the answer. *CPM* looks at what the SLIMERS project has uncovered.

By Charlotte Cunningham

For something capable of causing an estimated £43.5M of crop damage each year, slugs have an inconvenient habit of refusing to behave uniformly...

One part of a field can disappear almost overnight while another remains virtually untouched. And although growers have long recognised those troublesome patches, predicting exactly where they'll occur – before the damage is done – has been rather more difficult. But what if those patches aren't quite as unpredictable as they first appear?

That question has formed one of the central threads running through the three-year, £2.6M Defra-funded SLIMERS project, and as the farmer-



led programme draws to a close, researchers believe they can now predict where the highest-risk areas will be, potentially allowing growers to cut slug pellet use by an average of 50%.

Alongside this, the project has been investigating whether individual slugs could ultimately be detected and treated with biological controls, while work at the John Innes Centre has homed in on three regions of the wheat genome associated with natural resistance.

So rather than searching for another silver bullet, SLIMERS – Strategies Leading to Improved Management and Enhanced Resilience Against Slugs – has effectively been coming at the problem from three directions.

According to Professor Keith Walters of Harper Adams University, the starting point was understanding why slug patches appear where they do. “Coming into SLIMERS we already knew that slugs don't occur randomly across fields, but suspected that they form distinct patches according to soil type and climatic conditions,” he explains. “The Slug Sleuth's data of slug populations across their fields helped us to develop that understanding further, and also allowed us to confirm our hypothesis about how slug patches re-form after waterlogging.”

Previous research had demonstrated that slug populations form patches which remain relatively stable during crop establishment, but what researchers

couldn't reliably predict was their location. SLIMERS set out to fill that gap, with farmers and agronomists repeatedly monitoring slug traps across commercial fields, and extensive soil analysis, which together helped build a ‘biological’ model that revealed what was different beneath higher-slug areas.

Research partners say what emerged was an interaction between organic matter, soil texture and pH. Slugs rely heavily on environmental moisture, so areas capable of retaining favourable conditions encourage them to remain for longer, with the relative proportions of sand, silt and clay further influencing suitability, notes Keith.

The useful part is that much of this information may already exist on farm. Soil scans undertaken for other precision farming purposes can be repurposed and fed into a second model developed to predict patch location, which then produces a georeferenced map showing higher and lower-risk areas. In other words, rather than finding the slugs, it predicts where growers ought to look for them.

An exceptionally wet spell during the project also provided an opportunity to see what happened when conditions went awry. “In waterlogged soils patches become unstable and break down, but we've now confirmed that patches reform temporarily in places we wouldn't expect in normal conditions, and then quickly



Understanding slug behaviour

According to Professor Keith Walters of Harper Adams University, the starting point of the project was understanding why slug patches appear where they do.



Can slug damage be predicted?

Predicting slug damage has been a central thread of the three-year, £2.6M Defra-funded SLIMERS project, and as the farmer-led programme draws to a close, researchers believe they can now predict where the highest-risk areas will be, potentially allowing growers to cut slug pellet use by an average of 50%.

return to their predicted areas once more typical soil conditions return,” says Keith.

By autumn/winter 2025-26, the model was ready for on-farm testing. Across the trial fields, the proportion classified as ‘at risk’ ranged from 19% to 86%, averaging around 50% – meaning pellet applications could theoretically be halved by treating only those areas.

However, perhaps ironically, the final year proved a rather good one not to be a slug. Populations were exceptionally low, so Keith’s team returned to individual trap data to establish whether catches followed what the biological model predicted – and they did. “Despite low slug numbers during the testing period we have sufficient data to prove that the model works. And perhaps most importantly, that farmers are happy to use it and it fits in with modern commercial equipment.”

But knowing where to treat raises another question – could what’s applied there change too? That’s where another strand of SLIMERS becomes particularly interesting...

Biocontrol using the nematode *Phasmarhabditis californica* isn’t itself new, but economics make blanket application across broadacre crops difficult. However, the project found that if you apply it only where a slug is actually sitting, the sums could look rather different.

To enable this, researchers had to first be able to reliably see the target. Small grey field slugs (*Deroceras reticulatum*) blend remarkably well into soil, stones and crop residue, making conventional RGB camera recognition difficult. So UK Agri-Tech Centre researchers turned to multispectral imaging.

By measuring how slugs and their surroundings reflect different wavelengths of light, laboratory work demonstrated the pest could be distinguished from background material. Fotenix then took the principle into the field, building a dataset to train the detection model.

The other half of the equation was ensuring a detected slug could actually be hit. Farmscan Ag developed a 6m precision application system using individual nozzle control at 25cm spacing, RTK positioning and Isobus integration – deliberately pursuing an approach which could potentially work with existing machinery rather than requiring a completely bespoke platform.

Spraying living nematodes brought further complications, and pressure, filtration, nozzle size and recirculation had to be refined to ensure they survived the journey through the sprayer. Trials eventually achieved around 220 nematodes within a 5cm radius of each target, while placement testing recorded 99% accuracy at 1-3kph.

However, there’s still a gap to bridge and researchers say that while slug detection and accurate application have been achieved, the imaging system currently processes its decision offline. Therefore, the next step would be bringing the two together in real time at practical operating speeds.

Yet the prediction work offers another possibility – future systems could concentrate detection or treatment within areas already identified as higher risk. And there may be another way of reducing vulnerability before a machine enters the field at all...

Research through the project at the John Innes Centre began with screening wheat from the historic Watkins Collection, which identified Watkins 788 – a landrace originally collected in Turkestan – as showing particular potential for natural slug resistance.

Researchers crossed Watkins 788 with commercial variety Paragon to create Recombinant Inbred Lines, 77 of which were tested alongside their parents during SLIMERS. Detailed feeding studies used grey field slugs collected by farmers and citizen scientists from across the UK.

“Having slugs from different parts of the country was important,” explains Dr Victor Soria-Carrasco. “We know slug populations can vary, so using a wide range of grey field slugs helped us ensure the results represented real-world conditions.”

Because the wheat lines had already

been genetically sequenced, differences in feeding could be linked back to the genome. “The thousands of data points collected in the feeding trials helped us to identify the specific molecular markers or parts of the chromosome, linked to slug resistance,” says the John Innes Centre’s Dr Simon Griffiths. “With that understanding, and the screening protocol we’ve developed, plant breeders can now select for those markers to produce a slug-resistant variety.”

Three regions of the wheat genome associated with resistance have now been identified, although – once again – low slug pressure frustrated attempts to prove the effect under commercial conditions during autumn 2025. “Overall, however, the laboratory work demonstrates obvious potential which makes field trials under conditions with greater slug pressure an urgent requirement,” says Keith.

Perhaps that distinction is important when taking stock of SLIMERS. The project doesn’t finish with an autonomous machine roaming commercial fields treating every slug it encounters, nor a slug-resistant wheat variety ready to go into the drill. What it does leave is a clearer route towards both – alongside prediction maps which could influence decisions much sooner.

Crucially, much of the evidence underpinning those developments has been generated on commercial farms, something Keith believes has been fundamental to how far the research has progressed. “I’ve no doubt our farmers collected data to the same level of accuracy as trained technicians,” he concludes. “Plus, by working with farmers from the start, the developments we have made have been more significant and impactful.” ●



An improved spectrum of detection

Small grey field slugs (*Deroceras reticulatum*) blend remarkably well into soil, stones and crop residue, making conventional RGB camera recognition difficult, so researchers turned to multispectral imaging.

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WITH GUY SMITH

Smith's SOAPBOX

Autumn fool

“

It's that time of year when arable farmers mull over whether it's

worth planting seed and investing in growing a crop. Someone once pointed out that farmer confidence was the best fertiliser any farm could have. The line was probably an adaption of the quote from Pliny the Elder who wrote: 'The footprint of the farmer was the best fertiliser'.

Pliny's point was that active fieldwalking is the basis of all good crop husbandry when it comes to the early

identification of deficiencies, pests and diseases. Quite what Pliny would make of drone technology and satellite imagery I'm not quite sure, but you suspect he may have approved.

As an aside, I've always been curious that Pliny lived 2000 years ago, doing the rounds of Roman farms where you'd think there wasn't much in the farmer's toolbox to counter deficiencies, pests and diseases. But nonetheless, his wise observation holds true to this day. This enduring truism stands as testament to the fact farming is an ancient practice underpinned by lores and customs that are universal and eternal.

To return to my opening remark that farmer confidence

was the best fertiliser – for fear of being a 'Debbie downer', you could argue that English farmers must be close to an all-time confidence low. I say 'English', because I'm conscious our Celtic cousins to the West and the North still get some form of the old BPS scheme, whereas in England it's no more.

State support for agriculture has in the past underpinned farmer confidence. Rightly or wrongly, the knowledge that your business would benefit from a cash injection from the national exchequer made the perils and vicissitudes of food production easier to manage. While some might have derided this system as 'featherbedding', the irony is that such derision came from the mouths of the well fed who had little understanding that growing food isn't a process based on constant certainty.

The sobering fact is that English farmers are now facing the prospect of unsupported food production for the first time since the 1930s, and anyone who knows history understands that didn't end well by the time Adolph Hitler was blitzing the UK's supply lines. Today, with hot and cold wars rearing their ugly heads in Europe and the Middle East, suddenly the lessons of history don't seem just for the GCSE syllabus anymore.

Furthermore, with arable markets seemingly dependent on arbitrary decisions made by two old men, one in the Whitehouse and one in the Kremlin, you wouldn't want to predict the wheat price this time next year when we set about selling Harvest 2017.

Another vicissitude that undermines farmer confidence is the weather,

and after successive seasons of unhelpful conditions, not many of us are feeling particularly bullish. At the moment, we're being told we face an El-Nino year which will give us difficult wet weather. With less than 2" of rain in the whole of August and September in northeast Essex, the talk of some wet weather hardly fills me with dread, but I'm mindful that one should be careful about what you wish for.

The fact we have half our arable area in CS and SFI schemes makes all this doubt and uncertainty easier to bear. But the harsh reality is, most these schemes finish at the end of 2027. Given the fiasco of the most recent round of SFI applications, I'm not exactly relishing this time next year when our renewed applications will feel like buying a lottery ticket.

So how am I feeling about arable farming at the moment? Confident? Well, not exactly. But like Pliny the Elder who chose to sail his ship towards Vesuvius as it erupted in 79 AD in the hope he might be of use, I'm currently putting seed in the ground. Give me an October morning there's not much point in staying indoors is there? ●

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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Learning from adversity

"It's difficult to know what to do when you've just come through one of the most challenging seasons for a generation."

DR KIRSTY RICHARDS



What observations are there from a challenging season that may help growers to be better prepared for 2027 and beyond? *CPM* speaks to two crop variety experts for their thoughts on the options.

By Andrew Watts

After a difficult spring and summer, it may be hard to find any positives, but depending on the perspective and objectives, there should be some learnings to be found, suggests Agrii's John Miles.

In many cases, how specific varieties performed had more to do with conditions on-farm than the actual variety being grown, he adds. "For yellow rust, the worst variety was different for almost everybody – from Bamford to KWS Dawsum, to LG Beowulf, while for others

it was Champion or LG Typhoon.

"What did well for one underperformed for another. KWS Extase was poor for many but that wasn't due to yellow rust like the above, it was often a case of how the crop endured the heat. If there's one conclusion we can draw, it's that this season underlined the importance of having a mix of varieties with different characteristics."

Despite the dry season, disease remained a threat, but was highly localised, notes John. "Across the West,



Unusual year

In many cases, how specific varieties performed had more to do with conditions on-farm than the actual variety being grown, believes John Miles.

Exceeding expectations

How Arlington delivered a pleasant surprise for one north Norfolk grower

Put to the test

John Mack was pleasantly surprised with Arlington's yield this past harvest, and believes it must be a variety that can somewhat tolerate drought.



When John Mack harvested Arlington winter wheat at Pond Farm in Bodham this past season, the DSV variety had already made a strong impression. Despite dry conditions, it produced a promising yield, stood well and delivered an excellent sample, reinforcing his decision to grow it again next season.

Having been approached by DSV UK to produce an Arlington seed crop, John decided to manage it as a feed wheat, despite the variety being marketed as Group 1 milling variety. "I didn't treat it as a milling variety, we managed with a feed protocol, and that worked really nicely," he explains. "I think you could do either with it."

That flexibility is one of the features that's encouraged John to consider Arlington for the longer term. With its Group 1 milling classification, the variety offers growers the opportunity to produce quality wheat while

also providing a strong agronomic and yield package for the farm.

However for John, the variety's performance this season has demonstrated that it deserves a place in the rotation. This is because despite dry weather putting pressure on crops across the region, Arlington still produced a result that exceeded John's expectations.

"I was pleasantly surprised with the yield for this year with the dry times; I thought it was good. It must be a variety that can somewhat tolerate drought."

The crop also delivered an excellent specific weight – recording 79kg/hl, compared with 76kg/hl for the Champion winter wheat he grew elsewhere on the farm. As for the grain coming off the combine, John raises that it was a 'very good sample of wheat.'

He was also impressed by the variety's ease of management throughout the season. "It stood

well and didn't have any disease in it, with just a normal treatment. Our agronomist seemed happy."

John acknowledges that the dry season reduced disease pressure across the farm, but the crop nevertheless remained clean and upright, providing a straightforward harvest. The straw also performed well, with a growth regulator included in the crop management programme.

When comparing Arlington with the other wheat varieties on the farm, he's quick to point out that the crops were grown on different soil types. Arlington was on better land than Champion, making a direct yield comparison unfair. "It has yielded better than Champion, but that isn't all down to the variety.

"Even so, I think it's one of the best wheats I've grown lately. I'd tell other growers to give it a try, especially if they're already growing milling wheat," he concludes.



Risk management

According to Frontier Agriculture's Dr Kirsty Richards, the most important learning of the past two years is that risk has to be managed through a spread of varieties with different characteristics.

► crops exhibited high levels of septoria early, and in some areas, it was present all season, while in other areas it was yellow rust. Some had it persistent and bad, others not so much, but nationally it was a low-pressure year for foliar diseases," he says.

"The telltale signs of a lower-than-expected disease pressure year (yellow rust) was that many growers were able to grow varieties known to be poor for yellow rust with a standard three-spray programme of T0, T1 and T2 at normal timings. Where a pre-T0 was applied, it was often for logistical reasons, perhaps because growers had a large area to spray and needed to buy time later if conditions deteriorated," comments John.

CANDIDATE PROMISE

If there's one firm observation John is willing to draw from this season, it's that candidate varieties look promising.

"The newer material looks good, and they delivered on their earlier National List results, which heightens confidence in them."

So what have growers opted to sow this autumn and why? John believes it's largely a case of sticking with what's known while accepting there's a lack of money to buy a lot of new seed.

"Throughout the spring and summer events, our message was to remain with what performs. If money is tight, go with what you know works but don't overexpose yourself to the yellow rust risk. Remember the fundamentals when considering varieties such as drilling date and growth habit, septoria and rust risk, and end market considerations," he outlines.

Nonetheless, interest in new varieties remains buoyant as growers seek to move on from the established options that are starting to succumb to disease. "I think



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- ▶ LG Defiance will sell out this season and take big market share. Given that this is its first year, that's an extraordinary result.

"It needs watching for septoria and will benefit from a PGR, but despite this, its untreated yield of 95% of controls has clearly supported its appeal."

Other varieties securing grower interest include LG Challenger, KWS Scope and to a lesser extent, KWS Aintree – all Group 4 hard types. The Group 4 soft variety Sparkler has sold well for Agrii and RGT Hexton has enjoyed a good second year, highlights John.

PIQUING ATTENTION

Milling types were concentrated on last year's additions with both Group 2 KWS Arnie and Group 1 KWS Vibe proving popular. While Arlington from DSV looks promising, John notes it sold out quickly due to limited seed availability.

"Despite the economic difficulties of the season, it's clear that for different reasons, growers are trying to de-risk from the rust issues of Champion, Typhoon, Bamford and make the natural progression on from Extase. They're keen to look at some of the newer varieties.

"Challenger sold out in April and there's generally strong interest in last year's additions to the Recommended List," he adds.

Several of the candidates look especially promising with good septoria and BYDV resistance, raises John. "This bodes well for growers for the next few years."

For Frontier Agriculture's, Dr Kirsty Richards, the overriding lesson is the need to diversify risk. "Growers are understandably nervous about the season ahead and confidence is low. It's difficult to know what to do when you've just come through one of the most challenging seasons for a generation. There's little other option but to hope for a better year," she says.

"Wheat performance has varied significantly from farm to farm. Some growers have achieved yields close to, or even above, their long-term average, while others have experienced substantial reductions.

"The AHDB countrywide survey currently reports an average winter wheat yield of 6.8 t/ha, approximately 12% below the national five-year average. Crop quality has also been highly variable, creating additional storage and grain management challenges for some growers," notes Kirsty.

More flexibility for OSR

New spring OSR variety with pod shatter launched

Growers will have a new option for establishing oilseed rape thanks to the impending launch of DSV UK's first spring variety with pod shatter resistance.

The new variety has completed two years of National List trials in the UK, where it's delivered strong performance. Offering early maturity, it's due to launch this spring, subject to the completion of necessary registration requirements.

This will be the first spring OSR variety to be introduced by DSV, marking an exciting development in the breeder's portfolio, explains UK sales and marketing manager, Sarah Hawthorne.

"Spring OSR can provide growers with an alternative establishment window, particularly where autumn drilling has been challenging or where growers are looking to introduce greater flexibility into their rotations.

"With the weather increasingly influencing establishment decisions, having the option to drill in the

spring can be valuable. Spring OSR offers an opportunity to establish a crop following the autumn, winter or early spring period, depending on conditions and the individual farm's rotation," she explains.

Early maturity is another important feature of the new variety, highlights Sarah. "By reaching maturity early, the variety could offer growers greater flexibility when planning harvest operations and managing workloads across the farm. Earlier maturity can also be valuable where growers are looking to bring harvest forward and make the most of available harvesting conditions."

While spring OSR doesn't remove the challenges associated with establishment, it can provide another tool for growers to consider when planning their cropping programme, she concludes.

Further information on its agronomic performance, yield potential and availability will be shared as the registration process progresses.

Performance varied greatly between the regions, but yields in the North and Central England tell a unique story. For context, trials in Northumberland in 2024 were the first to display signs of the Yr15 yellow rust race, which has since spread through the Midlands and East regions.

Commenting on AHDB trials results from the North, Kirsty says following a favourable drilling season and mild winter, many early-sown crops developed rapidly. "The highest-yielding varieties across AHDB trial sites in the region were Defiance (107% of treated controls), Sparkler (105%), Extase (105%) and Scope (105%), highlighting the strong performance of these varieties across a range of growing conditions," she adds.

Despite the disease pressure, drought and heatwaves of 2026, there are some observations of note with several varieties performing above their five-year average, highlights Kirsty. "Scope has performed surprisingly well despite the yellow rust pressure many crops faced. Arnie is another that's impressed. Aintree too has done well, but we see Defiance as the stronger variety of the two given its better yellow rust resistance."

Growers are increasingly using

varieties with good disease resistance as a management tool to help schedule spring spraying, she adds. "Defiance is an example of how growers can use varieties to help spread the autumn and spring workloads. Its height and straw strength mean it's better suited to late October drilling while its excellent yellow rust resistance will help spread the T1 spray workload."

While no one can say how next season will play out, there are facts that can't be ignored – a mild autumn means virus pressure will likely be high and there'll be disease, especially yellow rust, come the spring. "We increasingly require varieties with good BYDV resistance in wheat and tolerance in barley, and demand for these types gets stronger each year.

"Perhaps the most important learning of the past two years is that risk has to be managed through a spread of varieties with different characteristics.

"We're seeing more growers use varieties to manage yellow rust risk, but nor should we overlook the threat posed by septoria or lodging in a wet year. Several of the newer varieties are taller types and growers should be mindful of the need for a PGR," she concludes. ●

A matter of maturity

"We've had so many heat units it's been very hard to objectively assess performance – a lot of our later maturing material has been ready very quickly."

CHRIS PASHBY

While it's been a challenging year for maize with many crops maturing far earlier than usual due to drought conditions, R&D work has to continue. CPM attended Hutchinsons' maize open days to learn the latest.

By Janine Adamson

Those who love maize will likely always champion the crop. In a good year, it offers a host of rotational benefits – from providing an opportunity to control grassweeds to disrupting pest cycles – plus a usually high demand across various end market sectors.

This year, however, has proven challenging including for those hosting maize trials, as experienced at Hutchinsons' autumn open days. In fact at Sutton Lodge Farm in Broughton Ashley in Leicestershire, just the variety trial plots were left standing on 9 September following an extremely dry spring and summer and early harvest.

Despite this, the mood was buoyant among attendees, who presented a mix of those growing maize for livestock and AD feedstock. Hutchinsons agronomist Greg Hopkinson shared that he believes

there's increasing potential for maize in the region, driven by demand.

To delve into this further, Greg introduced Pioneer's promoter for the North West, Chris Pashby, who discussed his priorities for selecting a hybrid maize variety. "It's key to consider what the yield of the variety is, its end market, and of course what the following crop will be," he said.

LIVESTOCK VERSUS AD

If growing maize to feed livestock, he added that requirements should also include high starch content, high digestibility, and an earlier harvest maturity so the crop can be off the ground in a timely fashion.

"For AD, we're then looking at the later maturing hybrids, still focusing on what the following crop is because that dictates how late



Word of caution

Pioneer's Chris Pashby advised that anyone considering later maturing hybrids, should trial them on their own land and see how they react to the individual circumstances.

► it can be pushed. However, this is determined by site selection and potential heat units,” he said.

While usually the advice would be to attend a regional trials open day, or test a small area of a variety on a grower’s own farm, Chris noted that this year had thrown a spanner in the works. “We’ve had so many heat units it’s been very hard to objectively assess performance – a lot of our later maturing material has been ready very quickly.”

He also offered further thoughts on what to consider in the future, based on breeding pipelines. “There are two primary types of maize – Flint and Dent. Flint genetics are cold tolerant, hardy but lower yielding. Conversely, Dent genetics are higher yielding, offer more available starch and better plant health, but are later maturing with no cold tolerance. The main aim

for breeders is to produce a hybrid between the two,” he explained.

Currently, Pioneer’s push is towards Dent genetics due to the uplift in yield and starch quality, noted Chris. “But the main thing for us is for livestock farmers, Dent genetics have high rumen degradable starch at harvest

time – an aspect that we’re now proactively focusing on and should be showcasing during the next few years.”

With maize growth having accelerated during this this past

season’s drought conditions, Chris reminded attendees about what to look for with cob maturity. “Snap a cob in half and look at the pointy end; you’re looking for the milk line in the grain which generally starts developing from the top of the kernel and travels down.

“When the cob is fully mature, this appears at the very bottom of

the kernel and a black layer at the base forms, which means the maize has stopped accumulating starch and it’s then about dry down.”

He added that in early August this year, with dry weather meaning crops were receiving a lot of heat units, some varieties were drying down at around 8% every week. “Generally at this time of year, it’s only 2-3% a week if we’re lucky.”

OLD TRUSTY

Considering specific varieties, Chris highlighted that P7326 has been in the market for around 10 years and has remained a faithful and consistent performer. “On trickier ground it can favour heavier conditions, but being FAO 180 it’s dried down very quickly this year while generally speaking, would be harvested from mid-September onwards. It’s not at the top of the list anymore, but has long been a popular top seller.

“However, P7381 (FAO 185) has proven a significant step forward in genetics; there’s an 8% yield difference for

Taking a chance on maize pays off

How a plan B has turned into plan A for one Yorkshire farmer

Farming near Scarborough in north Yorkshire, Luke Backhouse grew maize for the first season in 2024 following a severe attack of cabbage stem flea beetle in the farm’s oilseed rape crop, rendering 6ha unviable.

“The trouble was, we’d applied Astrokerb (aminopyralid+ propyzamide), so following with spring cropping a cereal would be troublesome. However, with cattle on the farm we decided to try maize, opting for early maturing variety, KWS Debalto (FAO 170),” he explains.

The land was ploughed before using a Sumo Trio, and rolled both before and after drilling. But, with the farm located 400ft above sea level, Luke says he knew the maize crop would have to hit the ground running.

“We drilled at the end of April with DAP down the spout and thankfully it grew well. The pre-em herbicide worked effectively and follow-up foliar nutrition helped to get the crop past the ‘purple’ stage.”

At harvest, the crop delivered around 37t/ha, leading Luke to perceive the chance experiment as a success. “It’s

a great entry for wheat, where we try to wait until the end of September into early October for drilling.

“Also, as we typically only plough for potatoes, having maize means we get fields turned over a bit quicker, aiming to grow it where we have brome issues – a good herbicide and plough seem to reset the weed seed-bank and then the next few years of cereal crops and OSR get the fields back in control.

“Maize has helped widen our rotation and offers another option for spring cropping. While it doesn’t represent the same returns as some other crops, it has rotational benefits and we can feed it to cattle and not rely as much on silage, meaning those areas can go back into cereal production.”

Since starting with maize, Luke highlights that any excess grown on the farm is sold to neighbouring livestock businesses. He has, however, noted some specific management requirements.

“I’ve learned it does require moisture early on and with the dry springs we seem to be experiencing now, I’d



Wider benefits

While maize doesn’t represent the same returns as some other crops, it has rotational benefits and can be fed to cattle, notes Luke Backhouse.

avoid ploughing early. It also doesn’t appreciate compaction, but if required, definitely roll to get good seed-to-soil-contact. Luckily we can roll with a CTIS (Central Tyre Inflation System), so pressures are low with a wide footprint to avoid overlapping on headlands etc.”

He also notes that this season has been particularly challenging. “The crop has really suffered in the dry conditions. In fact, we had to change cropping plans late on and the original field planned for maize didn’t happen, so lots of compromising was necessary,” concludes Luke.



Tricky conditions

At the Hutchinsons' maize day in Leicestershire, just the variety trial plots were left standing on 9 September following an extremely dry spring and summer.

virtually the same maturity. As with all of our varieties, we've seen this 4-5 years before national listing, so can understand how it performs early on. It's definitely a dual-purpose, early maturing variety with good yields and high starch quality."

Chris pointed out that new for last year was P72847 (FAO 180), which appears to favour hotter conditions. "With Dent genetics in the mix it'll require adequate heat units at flowering to make sure it comes through to maturity.

"Equally, I'd be cautious about recommending a move towards later-maturing varieties. Recent seasons have demonstrated just how unpredictable growing conditions can be, making final outcomes difficult to forecast. A more reliable approach may be to focus on establishing crops earlier by bringing drilling dates forward where conditions allow.

"The advice for anyone who is considering later maturing hybrids, trial them on your own land and see how those varieties react to your individual circumstances," he urged.

Over at Hutchinsons' Carlisle site, hosted by Smalmstown Farm, compared with much of the

country maize seemed to have fared well. So much so, Hutchinsons' Jim Clark was confident that crops should produce good dry matter and starch, with reasonable yields.

NOT BOMB-PROOF

"While maize likes the heat, it's not infallible to running out of moisture, especially on lighter land. We've seen where growers pushed drilling slightly later into May, perhaps to get a cut of grass in first, crops put a lot of energy into growing, but cob sizes generally don't seem as big as in crops that were sown earlier (typically mid-April) and had more time to get their roots down," he explained.

More than 20 varieties were trialled at site this year. "Apart from perhaps one variety, you wouldn't be disappointed with any of them given the season. A few appear to have withstood the conditions better than others – P7034 was the stand out variety at Carlisle and yields so far have been 40-50t/ha at 33-35 dry matter. P7326, P68106, LG Highlight also did well," he concluded.

For part two of this event coverage, which includes using drones in maize, visit page 42. ●



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“Change essentially came as a way of mitigating our exposure to risk and the large capital investment upfront.”

PETER CLIFFORD

Integrating livestock, lowering inputs and building healthier soils are helping to reshape the farming system at one Gloucestershire estate – with collaboration proving an important part of the equation. *CPM* finds out more.

By Charlotte Cunningham

Mixed farming may be one of agriculture’s oldest concepts, but perhaps what’s more interesting is how that’s now evolving physically on farm.

Because bringing livestock back into an arable rotation doesn’t necessarily mean buying a herd or flock, investing in handling facilities or completely restructuring a business. Sometimes, it can simply be about looking over the hedge and considering what resources already exist locally.

COMING TOGETHER

That’s certainly proving to be the case at Frampton Court Estate in Gloucestershire, where a relationship with neighbouring dairy farmer Ed Spencer has helped Peter Clifford transform what was once a relatively intensive arable system. “We’ve effectively created a mixed farm out of our arable farm with his input,” says Peter.

It’s a simple statement, but one which rather neatly sums up what’s happened at Frampton during the past three years. Peter runs the 607ha estate in partnership

with his parents, with around 162ha of arable cropping and a further 243ha of grassland, alongside lakes, woodland and a diverse range of other enterprises including holiday lets, weddings and events, and rental property.

But while the business is diverse, until relatively recently the arable enterprise was considerably more conventional. “There were more intensive cultivations and a little bit of ploughing, but also quite a lot more variable inputs – synthetic fertiliser, pesticides and herbicides,” says Peter. “It was a lot more fuel, machinery and time.”

Then, around 2023, his thinking began to change. The motivation wasn’t necessarily to pursue a particular system or environmental ideal, but to look more critically at what it was costing to establish and grow crops – and the level of risk attached to that investment, he explains.



Award-winning approach

Implementing a combination of productive farming and environmental management recently earned Peter Clifford (left) national recognition when he was named winner of the 2026 Farming and Wildlife Advisory Group National Silver Lapwing Award. (Pictured with Ed Spencer, right).

“Change essentially came as a way of mitigating our exposure to risk and the large capital investment upfront.”

Peter says that meant questioning which parts of the system were really necessary and where costs and intervention could be stripped out, while still retaining the flexibility to react when conditions required it. “What we found is that for us, less is more,” he says. “We’re now low input and concentrate on keeping costs and soil disturbance to a minimum.”

In the field, that can now mean direct drilling straight into stubbles or using a stubble rake beforehand. Discs haven’t disappeared altogether and remain an option where they’re genuinely required, he adds. “We’re pretty flexible, depending on the year and the cropping.”

He says this is a particularly important ethos of the system – rather than swapping one prescriptive system for another, the aim is to use as little intervention as conditions allow.

The rotation itself is diverse, encompassing milling rye, winter and spring rye, maize, sunflowers and field beans, alongside winter and summer cover crops and herbal leys. And while machinery and establishment have clearly played a role in the transition, arguably one of the biggest changes to the arable system hasn’t involved cultivations at all...

For the past three years Peter has been working closely with neighbouring

dairy farmer Ed, whose family previously farmed organically and therefore brought experience which has proved useful as Frampton has reduced inputs and disturbance. At first glance, the basis of the relationship is simple. “Ultimately, it’s just a handshake between me and him,” explains Peter.

MUTUALLY-BENEFICIAL

In more detail, through a muck-for-straw swap, cereal straw leaves Frampton Court while Ed’s farmyard manure or slurry travels back in the opposite direction. For Peter, it provides another source of fertility as he attempts to reduce the arable enterprise’s reliance on synthetic inputs. For Ed, there’s a use for the cereal straw being produced next door.

But what could simply have remained a convenient transaction between two neighbouring businesses has developed into something considerably more integrated. “We plan the rotation together and make any key management decisions together – sales, purchases and crop types,” explains Peter. “For the past three years we’ve been working with Ed and he’s been key to the transition we’ve made from an intensive arable system to fully extensive.”

In effect, livestock fertility has returned to the arable rotation without Peter having to own the cattle which produce it – while Ed’s experience has also become part of the decision-making process. And cattle aren’t the only livestock now playing a role. A second relationship with local grazier Scott Finley sees sheep brought onto Frampton Court to graze both winter cereals and cover crops, with up to 500 ewes and lambs moving across the farm.

Again, it’s not simply a case of opening the gate and letting someone else get on with it. Peter says communication between farmer and grazier is fundamental to ensuring the crops aren’t pushed beyond the point at which grazing remains beneficial. “He’s very well organised and has a good electric fencing set-up,” he explains. “Communication between us is key and he’ll know exactly when to move his sheep on when the plants have been grazed enough.”

As they move, the sheep are doing more than simply removing biomass, he adds. “They’ll muck steadily across the field, so that fertility is being brought in. They’re obviously light as well, so their feet will push that in without poaching the ground.”

Then there’s what happens to the crop itself, points out Peter. “By grazing leaf material from the growing winter cereals we can avoid a fungicide treatment



A different approach to mixed farming

A relationship with neighbouring dairy farmer Ed Spencer has helped transform what was once a relatively intensive arable system into a mixed farming system.



Sheep benefits

A second relationship with local grazier Scott Finley sees sheep brought onto Frampton Court to graze both winter cereals and cover crops, with up to 500 ewes and lambs moving across the farm.

- ▶ later in the season, providing another opportunity to take cost out of the system. There's a saving there, and there's also a small income from the tack."

Put the two livestock arrangements together and a rather different version of mixed farming begins to emerge. Frampton doesn't have to carry the capital cost or infrastructure associated with owning the animals, while neighbouring businesses gain access to straw or grazing. Meanwhile, muck, slurry and grazing become tools within the arable rotation, helping Peter move towards the lower-input system he's aiming for.

And while the transition is still relatively young, he says there are already indications that changes are taking place beneath the surface too. "We measure our organic matter, which has steadily been going up over quite a short space of time."

For Peter, this focus on soil health is becoming an increasingly important part of how he thinks about both the productivity and longevity of the farm, and he believes that growing interest in what's happening beneath the crop may also explain why similar approaches are attracting more attention across the industry. "I suppose there's more of an awareness now of what's going on under our feet," he says. "There's a whole other world under there that we don't really know a great deal about."

However, at Frampton that thinking doesn't stop at soil. The wider estate encompasses a diverse range of land uses and habitats. Alongside the arable ground and grassland are woodland

and lakes, while around 40ha is being managed for the creation of wood pasture. Species-rich ancient hay meadows and the restoration of 'ghost' ponds are also among the features being managed across the estate.

BEING MINDFUL

For Peter, those habitats form part of a broader recognition that the way land is managed has consequences beyond the crop being harvested from it. "There's an awareness of species decline in what is not a very long space of time – perhaps 50 years," he says. "And an awareness of what we've done to our planet."

But importantly, the environmental side of Frampton isn't being viewed separately from its role as a productive farming business.

The estate has a Higher Tier Countryside Stewardship agreement covering much of its land, while SFI options across the arable fields and hedgerows include cover crops, hedgerow management, no-pesticide options and maintaining winter cover following maize.

In many ways, those measures sit alongside the same thinking which has driven the changes within the arable rotation – reducing unnecessary inputs, keeping soil covered and considering how different elements of the farm can work together.

And it's that combination of productive farming and environmental management which recently earned Peter national recognition. He was named winner of

the 2026 Farming and Wildlife Advisory Group National Silver Lapwing Award, selected from five finalists for his approach to combining commercial farming with a broad range of habitats across the estate. The award recognises farmers who go further to protect and enhance the countryside while demonstrating that food production and environmental management can sit alongside one another.

At Frampton, judges particularly highlighted the breadth of habitats being provided, however, Peter admits the win wasn't something he saw coming. "I was very pleasantly surprised to have won it."

Perhaps fittingly, Ed was alongside him when he collected the trophy – reflecting just how collaborative the changes at Frampton have become.

But there's still plenty Peter wants to achieve, and looking 5-10 years ahead, one of his main aims is to remove synthetic fertiliser from the arable enterprise altogether. "I'd love to get the arable off synthetic fertiliser so we're more self-sufficient here in Gloucestershire," he says.

Doing so would inevitably place even greater emphasis on the muck and slurry coming from Ed's dairy enterprise, as well as continuing to build soil health. But reducing inputs is only part of the plan. "We want to keep increasing profitability," he stresses.

There are other ideas in the pipeline too, including what he describes as an 'interesting agroforestry experiment', which would involve establishing native trees from seed within arable fields.

"What we found is that for us, less is more."

The hope is to find a way of establishing those trees without irrigation, while Peter would also like to

see the local community become more involved with the estate in future.

However, for all of the changes being made, there's a fairly simple reason why the longer-term resilience of the farm matters to him. With two young children, Peter hopes they'll have the opportunity to take on the business themselves one day – and believes looking after the soil now is an important part of making sure that option is there for them.

"I want to be in a place where I can give them the opportunity to run the estate," he concludes. "So to do that, the ethos has to be about sustainability and longevity, and I see soil health and integration between enterprises as key to that." ●

Ensuring fauna flourish



“It’s in the hands of the farmer to create an environment for soil organisms to flourish.”

MAGDA KACZOROWSKA-DOLOWY

Data from a long-term tillage and traffic research project confirms that leaving the soil undisturbed gives the greatest soil health benefits. *CPM* talks to the researcher who’s painstakingly monitored soil fauna and carbon levels during the past three years.

By Mike Saull

According to Harper Adams researcher, Dr Magda Kaczorowska-Dolowy: “Soil biology is our best friend, but you have to create favourable conditions for fauna to thrive and be aware that traffic and tillage markedly shape that environment.”

Those views are based on her recently published research – outcomes of a long-term study initially focused on the physical condition of soil, crop yield and the cost/benefits across a range of cultivation and soil trafficking systems.

Established in 2011, the work confirms significant improvements from minimising trafficked areas as well as cultivation depth. Three tillage systems (no-till and operating to 25cm and 10cm depth) were subjected to three traffic systems, namely traffic with standard and low inflation pressure tyres, and

no traffic from the non-wheeled zones of Controlled Traffic (CTF) plots.

As a continuation of this initial work, Magda’s research has now assessed soil biology and health as well as soil organic matter (SOM) content on the site.

ORGANIC MATTER

Her work shows that 10 years in, soil organic matter content varies greatly according to cultivation practice, with levels at 0-10cm depth at 4.44% and 4.35% on zero and minimally tilled soil, but just 4.11% where deeper loosening had been the norm. In addition – contrary to research elsewhere – these carbon improvements weren’t associated with a depleted carbon content down the soil profile.

“By breaking down soil aggregates through more aggressive tillage, we’re opening up the soil to the breakdown

of organic matter and soil carbon loss,” explains Magda. “While the 0.3% magnitude in change in OM between treatments may appear small to some, it’s highly important in terms of the capacity of the soil to store nutrients and hold water.”



Drainage wonders

Earthworms are the greatest helper in terms of structuring and improving drainage, says Harper Adams University’s Magda Kaczorowska-Dolowy.



Feeding activity

Using plastic sticks filled with bait, researcher Magda Kaczorowska-Dolowy recorded the overall soil fauna feeding activity.

- ▶ Magda points out that with global warming, rainfall event intensity is increasing, combined with longer dry spells. Therefore, such a rise in organic matter will bring an increase in water holding capacity of the soil, increasing moisture availability throughout the growing period.

Higher levels of organic matter also improve storage of applied fertiliser nutrients in a soil that's less at risk of erosion from run-off, water course pollution or eutrophication issues, she raises.

Furthermore, on the back of this increased organic matter content and better soil porosity, Magda has recorded higher numbers of springtails where traffic was controlled, and more earthworms under zero-tilled systems compared with those that had been tilled.

Using plastic sticks dotted with holes every 5mm and filled with bait, she was able to record the overall soil fauna feeding activity by assessing the level of food consumed. This soil metric demonstrates a 100% improvement on un-trafficked CTF soils compared with trafficked plots, regardless of tyre pressure.

"Soil is very abundant in soil organisms like springtails or mites, as well as microorganisms like bacteria. These organisms readily feed on plant residues and return nutrients back to the soil but aren't strong enough to create the porosity they require to survive.

"So, it's in the hands of the farmer to create an environment for them to flourish. They require space and oxygen, so by increasing porosity, populations increase," she explains.

Magda concludes that the higher volume of soil pores in the un-trafficked soil – with its free movement of air and water – increases the feeding rate and number of springtails. In the looser soil under controlled traffic farming, numbers of these specific springtails averaged around 4000/m² compared with just 2700/m² under a random trafficked soil where cultivations were carried out using standard tyre pressures. In trafficked soil plots with cultivations carried out at low tyre pressures, springtail numbers were around 3300/m².

With earthworms, there was no significant difference between traffic systems; increased topsoil compaction had little effect on population numbers. However, tillage treatment is significant, with the greatest number of earthworms found where the soil had been tilled less aggressively.

WORM COUNTS

Under deep cultivation, earthworm numbers were as low as 78/m², rising to 128/m² under shallow cultivation. But in zero tillage plots, the earthworm population was significantly higher at 183/m².

Magda also assessed total earthworm biomass, finding that under zero-tillage this was more than double that measured under deep tillage. "Earthworms are our greatest helper in terms of structuring and improving drainage of soils, and this beneficial effect isn't something any farmer should ignore," she says.

"Reducing the amount of mechanical damage and leaving the soil undisturbed promotes longer feeding periods and cocoon production."

Looking at physical soil condition, bulk density values and penetration resistance were highest under the more intensive trafficking systems. This mirrored assessments of porosity which on the other hand were much greater in un-trafficked plots, raises Magda.

In addition, under controlled trafficking, infiltration rates measured by hydraulic conductivity were 5-8 times greater than on the compacted soils under wheel passes with standard tyre pressure plots. "This is important, not just from our need to store water in soils and capture it for crop growth, but also to prevent run-off and soil loss," she urges.

Magda argues that the sandy loam soil of the long-term experiment site is typical of a large area of the UK's nationally farmed land and that similar effects on other soils should be expected.

"Research by others on a clay-based soil in Cambridgeshire are pretty much in line with what we've seen," she notes.

"It's possible that a sandier soil than the one we used at Harper Adams would be even less structurally stable and so would require even greater care and attention to maintaining organic matter and soil fauna in order to maintain good soil health.

"Looking at the complete picture and acknowledging the need to restructure serious compaction where it's seen, it really is important to minimise soil disturbance and reduce operations that re-compact the soil particularly once it's been loosened.

"Any level of soil disturbance degrades the environment, reducing soil health and the number of soil organisms critically important for maintaining the soil carbon pool," says Magda.

She adds that early conclusions by other researchers on the site prove that in the long-term, once soils have stabilised, it's uneconomic as well as unnecessary to use regular deep tillage from the farm gross margin point of view.

While there are initial yield losses from reduced cultivations, reduced inputs mean that farm gross margins are comparable, and with minimal or zero cultivated soil for five years, the soil health benefits soon build.

Controlled Traffic Farming (CTF) offers additional benefits when it comes to soil health and it's a case of matching machinery operating and track widths to suit farm size and maintaining the traffic lanes, says Magda. "However, this approach requires discipline from all farm workers and subcontractors," she concludes. ●



Exploring the impact

One pass minimal cultivation was one of three treatments used by the research team.

Building a robust gross margin plan



“In most situations, optimising the overheads of the business can have a far greater improvement on overall profitability than attempts to reduce variable costs.”

PAUL PICKFORD

Following a bruising 2026 harvest, a guide to whole farm gross margins is indicating some rays of hope, with financial planning increasingly important in de-risking farm businesses against ongoing volatility. *CPM* speaks to one specialist advisor to find out more...

By Rob Jones

According to advisor Paul Pickford, no business can protect itself fully from the impacts of fluctuating market prices, adverse weather conditions and global political turmoil, with 2026 a great example of that.

While 2027 could prove another challenging year, understanding the factors that can be controlled at farm-level and making the subsequent right decisions could help inject a critical layer of much required stability, he raises.

“Good crop planning decisions have a major effect on gross margins and are the fundamental building blocks for optimising farm business profit as well as being an invaluable help in

projecting cashflow requirements.

“Focusing on reducing fertiliser costs, for example, managing cashflow as carefully as possible, and marketing crops more efficiently, are all critical areas for businesses looking to shore up their foundations for the future.”

SCRUTINISE CROPPING

Paul, who consults for Agrii, highlights that naturally, rotations require careful consideration. “While we’re yet to see a significant reaction in grain values due to the current turmoil in the Middle East, the outlook based on future prices towards the end of next year is starting to show some upward movement.

“Grain values based on November

2027 ex farm prices have mostly increased by around 4%, but oilseed rape has, however, jumped by 15% while pulses have fallen back by 4%.

“Against this trend, all the fertiliser values being applied in Agrii’s 2027



Getting the fundamentals right

Good crop planning decisions have a major effect on gross margins and are the fundamental building blocks for optimising farm business profit, highlights advisor Paul Pickford.



Crop marketing

Lack of knowledge of grain values day-to-day, and a thorough understanding of market trends can remain a major weakness for many farmers.

gross margin guide – used by the firm's advisors to prepare individual gross margin analyses for farms – have increased. Nitrogen-based products are showing rises of above 40% or more with straight N (34.5%) increasing by nearly 45%," he comments.

The effect of rising fertiliser prices on overall gross margins on UK farms has been profound, highlights Paul. "2027 winter cereal gross margin projections show the continuing decline started in 2026, predominantly due to these increased fertiliser costs which is only marginally offset by the small increase in crop futures value for November 2027.

"Oilseed rape bucks this trend and a strong improvement in crop value has overcome the increase in fertiliser cost. Equally, spring cereal gross margins for 2027 are showing a small improvement over those for 2026 too, due to reduced reliance on fertiliser. Spring beans have continued to decline as crop values have dropped back.

"While a lot is still far from certain, there are some priority areas emerging that producers could consider if they wish to build sustainable businesses for the future."

As well as crop choice, growers could focus on other ways of using fertilisers more effectively if they're to boost gross margins, believes Paul.

"The uncertainty regarding future input values remains a constant topic of discussion with fertiliser at the heart of the debate. Fertiliser purchasing strategy is still important, but the market

continues to see a greater number of innovative products coming to light that can have a benefit in improving the efficiency of nutrient use.

"Technologies such as slow release fertilisers, high efficiency foliar feeds and Liqui-safe urease inhibitors combined with the latest soil, grain and tissue testing can have a profound effect on NUE and help to reduce the fertiliser bill considerably," he says.

"It's also important to invest in a good nutrient management plan (NMP) to ensure nutrients are being used as cost-effectively, as well. This applies not just to those farming in an NVZ, but across the whole of England."

The use of a crop marketing strategy is more important than ever, with a well-planned approach continuing to have a significant impact on gross margin and profitability, he suggests. "Lack of knowledge of grain values day-to-day, and a thorough understanding of market trends remains a major weakness for many farmers.

"Even a simple strategy based on selling a percentage of the crop through the year can help to reduce the increasingly significant risks from fluctuating prices."

STRATEGY

Therefore, a full understanding of the real cost of production for each crop on the farm is the single most effective marketing tool that any business can develop, he stresses.

"Producers should determine a long-term marketing strategy for their crops and be looking to implement this strategy having taken into consideration the best market information available. Those businesses less willing to get more involved in marketing, however, should still be looking to marketing pools to help reduce the impact of price volatility."

While the demand for a solid grain marketing plan has never been greater, Paul acknowledges that selling decisions are often driven by the demands for cash on the business. "The importance of understanding the cashflow requirements for Harvest 2027 can't be underestimated, with most producers increasingly aware of this on the back of lower yields and prices from both 2025 and 2026 crops.

"Growers should plan how they're going to manage cashflow – it's obviously not always easy, but it can be a self-perpetuating issue if not addressed. As well as grain

marketing implications, it can extend across many areas of the business.

"With fertiliser purchasing, for example, poor cashflow can stop producers taking full advantage of the lower price window and potentially drive them to accepting higher costs, which in the current economic climate can have severe gross margin implications.

"Then, continuing uncertainty and reluctance in the grain market will pile further pressure on these businesses, compounded by the attitude of some banks with regard to extended borrowing. If this is becoming an issue and placing a stranglehold on the business, don't forget many growers are now successfully finding sources of finance away from the traditional high street banks."

Farm overheads saw a significant increase between 2022 and 2024, arising from the start of hostilities in the Ukraine (33%). While there was some scale back in 2025 (3%), this saving has now been completely eroded away, notes Paul.

"Overheads are pretty much back at 2023 levels. The recent turmoil in the Gulf has seen many costs rise significantly and while some stabilisation will occur, it's very likely that overhead costs will see a further increase in 2027.

"For a well-structured arable business, the total variable costs should account for around 30% of output, the overheads – labour, machinery and other, but not rent – typically account for 40%," he explains.

Although overheads are often referred to as fixed costs, nothing could be further from the truth, argues Paul. "In most situations, optimising the overheads of the business can have a far greater improvement on overall profitability than attempts to reduce variable costs that often only lead to reduced output and corresponding falls in profit.

"Understanding not all overheads are fixed is also a vital step in understanding the implications for a business of not cropping. With the current pressure on output prices and input costs some businesses are understandably considering alternatives. In these situations, it's vital that the business understands which of its overheads it can save and which will remain," he argues.

"The projected gross margin may not be that high for a particular crop, but that gross margin still pays for most of the overheads. Without that, how much of a farm's total overheads will be left to be paid for?" he concludes. ●

Creating a hub of integration

"In some ways, we were waiting for machinery and technology to catch up to Omnia's ambition."

LEWIS MCKERROW



As technology becomes more sophisticated to capture increasing amounts of information to guide core farm business decision-making, moving data seamlessly between platforms is no longer simply a nice-to-have. *CPM* investigates why Omnia has made connectivity an essential function.

By Janine Adamson

From machinery and crop yield data to sensors and aerial imagery, growers can be bombarded with multiple data streams on a daily basis; all useful in isolation, yet often fragmented. The consequence of this can be administrative duplication, clunky manual uploads, information not being fully utilised, and potential user error along the way.

However, when Omnia launched its key upgrade more than two years ago, the goal was to become an all-in-one farm management software solution with connectivity at its core, explains Hutchinsons' Lewis McKerrrow.

"In fact, we've always wanted to make life easy in terms of data movement.

In some ways, we were waiting for machinery and technology to catch up to Omnia's ambition," he says.

EVER EVOLVING

During the early days of Omnia, John Deere Operations Center and Dropbox were integrated, albeit at a relatively basic level, notes Lewis. Omnia Connect then came along in 2018 – an iPad-based system that facilitated sending variable rate maps to a machine using the cloud.

However, it was during the recent upgrade that Omnia achieved the Holy Grail, comments Lewis. "With the new spray module, customers can send a task from Omnia to a

machine, complete the job, and then receive the record back in Omnia. It's a complete loop that confirms the date, time and products used. Even better, it also allocates stock and machinery



Digital nexus

The objective is to make Omnia a central part of a connected farm data ecosystem, where information can move in and out and be put to practical use, says Hutchinsons' Lewis McKerrrow.



Simplicity and reliability

According to John Deere's Dennis Schrijver, growers want to focus on completing the task at hand, rather than handling various software providers.

- operations, so that costs are accrued automatically with minimal user input."

In terms of integrating data from farm machinery, it's an ever-evolving story, he says. "We've been busy preparing for when the different manufacturers are ready to connect with Omnia. They're all at different stages in that journey, but we're beginning to welcome them on board."

In terms of integrating data from farm machinery, he says it is an ever-evolving picture. "We've been engaging with many of the manufacturers for a number of years. They are all at different stages of their own technology journeys, so we maintain a constant dialogue to ensure we can plan future upgrades as they come on stream.

"Importantly, the enthusiasm is there from the machinery sector and last year particularly, integration really ramped up, driven by the manufacturers themselves in some cases," explains Lewis.

Critically, all of this is with efficiency in mind. "For the grower, connectivity into Omnia should save time and reduce duplication, freeing up capacity for more critical tasks. Traceability of farm record keeping should improve and machinery-generated data should be better used overall.

"We know Omnia can't self-generate all of the information required on-farm, so instead, the objective is to make it a central part of a connected farm data ecosystem, where information

Connections beyond machinery

Omnia also has the capability to connect with a number of other platforms and services

TELUS FARM MANAGEMENT / GREENLIGHT

The connection with Telus Farm Management (previously Greenlight Grower), allows field and cropping information to move between the two systems. According to Hutchinsons' Lewis McKerrow, this is particularly useful where agronomists and farmers are working across both platforms, reducing the need to manually recreate the same field and cropping information.

TELUS SPRAY PLAN PDF IMPORT

Omnia can also import spray plans produced within Telus systems from PDF. "This provides flexibility where, for example, an agronomist creates a recommendation or spray plan within Telus and the farmer subsequently

wants that information within Omnia.

"It allows different systems to remain part of the same workflow rather than forcing both parties to work within a single platform," explains Lewis.

DROPBOX

Dropbox connectivity provides another straightforward route for moving files and data into and out of Omnia, supporting customers who already use Dropbox as part of their existing farm data workflow.

XERO

According to Lewis, this is in response to the Omnia team seeking to overcome administrative bottlenecks for growers. "Invoicing and accounting can be quite time-consuming, so we're working on making a connection with Xero Finance for launch later this year."

can move in and out and be put to practical use," says Lewis.

Looking at the connection with John Deere in more detail, this currently offers the broadest range of data exchange including the capacity to import field boundaries and yield data, send work plans from Omnia to machinery via the John Deere Operations Center, and receive completed task information back into Omnia.

RECORD KEEPING

This helps to create a more complete record of work carried out in the field, suggests John Deere's precision ag specialist, Dennis Schrijver. "Record-keeping is becoming increasingly important due to demands from both the supply chain and government. It's important to make that process as simple as possible, and we believe we're leaders in enabling the connectivity to achieve that," he says.

The current updated connection between Omnia and John Deere has been live for around six months, although the Operations Center was launched back in 2014. While growers have been proactively asking for this connection, Dennis raises that the demand broaches far beyond this. "Growers want simplicity and

reliability, and the ability to focus on completing the task at hand, rather than handling software.

"For us, it means being an open platform; one system alone is unlikely to ever be able to undertake all farm tasks, so it's critical that the various providers talk to each other. If we enable connectivity, from a farmer's perspective, it feels like one seamless central system."

This also helps John Deere to continue to do what it does best, he believes. "A key strength of ours is delivering tasks effectively in the field. We know that agronomists are the experts in managing a crop, so we have to be able to integrate with appropriate farm management software.

"And now the connection has been established, just as we continue to evolve and improve our Operations Center, we'll do the same with our functionality to and from Omnia."

As for CLAAS machinery, this connection is currently focused on the capacity to import yield data into Omnia, to support mapping, comparison and analysis, alongside other farm information. This is achieved using the CLAAS Connect digital platform, which was launched in October 2024.

"The aim of CLAAS Connect is to

simplify farm and fleet management, and streamline processes,” explains the firm’s James Kennedy-Walsh. “For our harvest machines, it captures yield data every second, logged from the field into CLAAS Connect and then uploaded straight to Omnia.

“We’re also integrating protein-sensing technology into the platform based on advanced Near-Infrared (NIR) sensors, with testing taking place this year in the UK.

“As for foragers, information such as protein, sugar, starch, dry matter content, ash and fat can be captured in CLAAS Connect before being sent over to farm management software like Omnia,” he adds.

James believes this all results in improved efficiency and more value from machinery. “From our customers’ point of view, it’s about reducing the amount of systems being used. We believe it’s important for APIs to work together for greater functionality across the entire farming business.

“CLAAS is an open book – we welcome new development and listen to feedback. As such, we even link third party machines into CLAAS Connect, as well as other farm vehicles, to create one machinery portal for the customer.”

James believes there’s been a tangible demand for a connection between CLAAS and Omnia. “The conversation is starting to come up as part of negotiations on deals for new machines. This is strengthened further by having digital experts at all of our dealerships to provide customers with greater support.

“Customers may not be digital experts, but they want to be able to successfully utilise and interpret the data they’re capturing across the farm. That’s why we’ve been so keen to partner with Omnia to help our customers to achieve that goal together.”

A connection is also available from Omnia to AGCO machines through the manufacturer’s PTx FarmENGAGE platform. This currently supports the movement of field boundaries and prescription files, to allow information created or managed within Omnia to be used more easily by compatible AGCO machinery and systems.

“With the growth in the Omnia platform, this connectivity to the PTx

FarmENGAGE platform is seen as a positive for all AGCO customers – the ability to share data via the best platform for the customer is a real bonus,” says Ed Dennett, AGCO’s marketing manager for Northern Europe.

“As PTx FarmENGAGE is a multi-brand platform, not limited to AGCO products, we believe this gives customers greater flexibility to work with the machinery that suits them best. The link with Omnia is another step in ensuring AGCO customers in the UK can get the best from their machinery and their farm business.”

Omnia also integrates with the CNH FieldOps platform with functionality including field boundaries and prescription files. “The CNH FieldOps API supports the transfer of agronomic information, helping customers to simplify workflows and reduce the risk of errors associated with manual file handling,” explains CNH’s Jack Halmshaw.

“Looking ahead, there are plans to extend the connection to support the import of yield data ahead of the Harvest 2027 season. This will create a valuable feedback loop, enabling machinery-generated harvest information to be brought back into Omnia for further analysis, crop planning and future agronomic

decision-making.”

He comments that for CNH, connectivity is about giving customers the freedom to work with the digital tools and agronomy platforms they already trust. “FieldOps is designed to provide a single environment for

“One system alone is unlikely to ever undertake all farm tasks, so it’s critical that the various providers talk to each other.”



Customer demand

CLAAS’ James Kennedy-Walsh believes there’s a tangible demand for a connection with Omnia, because the conversation is starting to come up as part of negotiations on deals for new machines.

machine and agronomic data, while supporting third-party partnerships that allow customers to keep all their information connected and accessible.

“By connecting machinery data with agronomic planning tools, farmers can gain greater value from the data generated throughout the season and turn that information into practical actions that improve efficiency, productivity and long-term farm performance.”

For Lewis, it’s all part of a move towards meeting customer demands. “Previously, growers may have used memory sticks or similar but with that, it requires a level of IT literacy to ensure the information is uploaded correctly into the right place.

“Being connected through APIs means the user just hits ‘send’ and it all happens automatically. By removing the human aspect, it all becomes so much simpler and more efficient,” he concludes. ●

Digital Direction

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

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

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



Taking maize applications to new heights

“A huge amount of the nutrition for maize is required after tasselling, so the drone gives an opportunity to apply it at that much later stage.”

GREG HOPKINSON



Once maize reaches full height, getting back into the crop with conventional machinery becomes increasingly difficult. But could drones provide a means of extending the application window, while opening the door to entirely new agronomic opportunities? *CPM* attended Hutchinsons' maize day in Leicestershire to find out.

By Charlotte Cunningham

For more than a decade, drones have been touted as one of the technologies likely to change the way growers manage crops. Much of that conversation has centred around what they might see from above – mapping fields, assessing crop performance and gathering imagery to help inform management decisions. But while the technology's ability to observe crops has continued to develop, perhaps the more interesting question now is what drones can actually do to them.

And in maize, where the sheer physical size of the crop can quickly close the door on conventional machinery, that could present some particularly interesting opportunities...

Speaking at Hutchinsons' maize day in Leicestershire in September, arable agronomist Greg Hopkinson said drone

technology was beginning to move beyond the role many in the industry had originally envisaged for it. “For the past 10-15 years, we've all been thinking that drones are going to be flying around assessing crops for us, or providing us with imagery which helps us make more informed management decisions. Now we are looking at a new way of utilising drones for applying crop inputs.”

FOLIAR NUTRITION

One area Hutchinsons has been investigating is the application of foliar nutrition later in the maize crop's development – something Greg says could have particular merit given the crop's nutrient demand. “A huge amount of the nutrition required by maize is required after tasselling, so the drone gives you a great opportunity to apply it at that much later stage.”

There's also the issue of increasingly challenging application windows, he continued. Hot conditions can make timing foliar nutrition particularly difficult, while crop height itself restricts when conventional sprayers can travel through



Drone potential in maize

Hutchinsons' Greg Hopkinson says the company is now looking at a new way of utilising drones for applying crop inputs – with impressive preliminary results in maize.



Application authorisation

James Poyton of SAS Agri Drones says operators have worked extensively with the Civil Aviation Authority to gain the necessary authorisations and ensure applications can be undertaken safely.

maize. “Application windows for sprayers are getting more and more limited with very hot conditions when you’re trying to apply foliar nutrition to maize.

“So having that flexibility where you can come back with a drone over a wider window is great in terms of applying those nutrients.”

Importantly though, Hutchinsons is also looking at whether that additional flexibility can translate into a worthwhile return for growers. Early assessments from this season’s trial have been particularly encouraging, although Greg stressed that the figures discussed at the event were based on small-scale yield assessments, with full harvest and laboratory analysis still to come.

“What we found this year is that with the drone applications of the foliar nutrition, we saw a significant response based on our small yield assessments. We’re still waiting to get the full harvest lab analysis data back, but it looks promising.”

The drone application itself costs around £35/ha, he explained. Once the foliar nutrition products used in the trial – Endurance and Peloton – are included, the total treatment cost comes to approximately £115/ha.

Against that, preliminary assessments suggested around a 10t/ha increase in freshweight maize yield. “If you work that out at roughly £40/t for maize, you’re looking at a potential £400

Making connectivity count

Whether it’s mapping a field, guiding an autonomous flight or enabling increasingly precise applications, much of the potential offered by drone technology rests on data. However, according to Harry Bowlby, MD of Spitfire Network Services, there’s a less visible part of that equation which shouldn’t be overlooked – the connection required to move that information reliably and securely.

“The productivity that matters now comes from information rather than raw power. It comes from knowing precisely what is happening in a field, a grain store or a herd at the moment it happens, and being able to intervene before a problem hardens into a loss.”

That principle extends far beyond drones, encompassing the growing array of sensors, monitoring systems and autonomous technology being deployed across farms. “Every one of these tools depends on a connection good enough to carry its data off the farm. A sensor that cannot report is no more than an expensive thermometer nobody reads, and even the most sophisticated autonomous machine becomes useless the moment it loses

contact with the system directing it.”

Yet as the amount of connected technology on-farm increases, so too does the importance of considering how those connections are secured. “Every device added to a network is also a door, and the exposed surface of a farm grows with each sensor, camera and controller bolted on to it.”

For Harry, this means connectivity and cyber security increasingly have to be considered together, particularly as farming becomes more reliant on real-time information.

“Reliability and security stop being two separate problems and become one problem observed from two sides – whether the right data can get through, and whether everything else can be kept out.”

While connectivity may not be the most visible element of new agricultural technology, it could ultimately determine how much value growers are able to extract from it, he concludes. “Connectivity is not the plumbing concealed behind clever technology; it’s what decides whether clever technology becomes an asset or a liability, and it deserves to be the first decision a modern farm makes, rather than the last.”

increase in output for a cost of £115/ha.

“That’s what we’re looking for as agronomists – to give advice on things that are giving real return on investment.”

UNDER-SOWING

While further analysis will determine just how significant that response proves to be, applying nutrition isn’t the only potential role Hutchinsons sees for drones in maize. The next area Greg is keen to investigate is seed application – specifically establishing cover crops and grass seed beneath standing maize.

In a typical season, the timing of maize harvest can leave a relatively narrow opportunity to establish something behind it. Broadcasting seed into the standing crop before harvest could offer a way around that, he suggested.

“With a drone application that can apply the cover crop seed directly into the standing maize crop, you can create

a cover underneath the maize canopy.

“You take the maize off, the cover crop is already established, and that’s where you can look at the benefits – not just in terms of providing some soil cover and reducing soil erosion, but potentially some livestock grazing opportunities if you were putting in a suitable mix.”

There could also be an economic incentive where the practice meets the requirements of environmental schemes, he added. Using indicative figures of around £45/ha for seed and £30/ha for drone application, Greg said the establishment cost could potentially be offset against available payments for overwinter cover crops in environmental schemes such as SFI.

For businesses that encompass livestock, another option could be establishing grass beneath the crop. It’s something Hutchinsons has already explored at its Carlisle maize trial site, ▶

where grass seed has been applied into standing maize with the aim of having an established sward ready once the maize is harvested. “Not only does that provide soil cover and prevent that soil erosion, but people are then taking an early cut of silage in the following spring.

“In terms of overall output on that area of land, combining that silage output and the maize output, you’re getting huge benefits compared with if you took the maize off and drilled it with grass the following spring.”

Both cover crop and grass seed applications are areas Greg says Hutchinsons intends to investigate further in future trials, alongside additional foliar nutrition work.

Of course, broadcasting seed or applying nutrition above a mature maize crop raises an obvious question – how effectively can material applied several metres above the ground actually penetrate a dense canopy?

For James Poynton of SAS Agri Drones, the answer lies partly in the airflow generated by the aircraft itself.

Having launched his business in May as part of a national drone operator network, he has already undertaken ryegrass applications into standing maize. “One of the big questions was, how on earth do you get all of that seed right down there? Is it going to get caught up in all of the stalks and the rest of it?

“Well, the drone creates this vortex and it swirls air down, so you get very good, even coverage at the base of the maize.”

It means standing crops are particularly interesting candidates for the technology, he believes. “Maize is probably one of the worst you can imagine, but with the vortex of the drone you get movement coming down from it.”

The drone demonstrated at the event can both spray liquids and spread seed, with a 40-litre liquid tank and capacity for around 50kg

when spreading. At present, one of the main limitations when spraying maize is water volume, explained James. “We’re spraying at 100 litres/ha volume, so we’ve reduced that from 200 litres with conventional sprayers. It worked very well

“With a drone application that can apply the cover crop seed directly into the standing maize crop, you can create a cover underneath the maize canopy.”

rates are required. With the spreading unit holding around 50kg, James said cover crop mixes applied at around 5kg/ha allow several hectares to be covered from each load.

Accuracy is another important

here, and my colleagues have been doing it nationally for the past three years.”

However, reducing that volume further could significantly increase work rates and bring down application costs. “We’re working with a lot of different companies now trying to reduce the volume, in fact we’ve been trialling a product at 30 l/ha.

“This will speed up the job and obviously it’ll bring down our costs to you as well, so it’ll make it more economical.”

ENSURING FINESSE

Droplet size also has to be matched carefully to conditions. On the relatively breezy day of CPM’s visit, James had opted for a heavier droplet than would ordinarily be preferred for foliar applications. “Normally I’d say we’ll come back another day and do this if I was spraying foliar nutrition. At a push you can increase your droplet size, but you don’t get as good coverage.

“The finer droplet size you get, the more even the coverage and the more

effectively the plant will absorb it.”

For seed applications, payload becomes less of a constraint where relatively low seed

rates are required. With the spreading unit holding around 50kg, James said cover crop mixes applied at around 5kg/ha allow several hectares to be covered from each load.

Accuracy is another important

part of the equation. Fields can be mapped digitally before an application begins, with obstacles such as trees incorporated into the flight plan. James said mapping the field used for the Leicestershire demonstration would take only a matter of minutes. “You map it out and if you have obstacles or trees close to the margins, you just map around them on your programmer.

“For safety reasons, we’d set out the whole field, go up and down it, and then do a margin run all the way around the edge.”

However, there are restrictions governing where drones can operate – with separation distances required from uninvolved people, properties and roads. James said operators have worked extensively with the Civil Aviation Authority to gain the necessary authorisations and ensure applications can be undertaken safely.

Yet perhaps the most interesting prospect isn’t simply whether a drone can replicate a job already undertaken by a conventional sprayer or spreader.

Instead, in a crop such as maize, its value may lie in providing access at precisely the point when other machinery no longer can – whether that’s applying nutrition after tasselling or putting the next crop in place before the current one has even left the field.

As Greg concluded, that leaves plenty still to investigate. “We’re really interested in looking at new things like the cover crops, grass seeds and other foliar nutrition trials going forward.”

For more coverage following Hutchinsons’ maize open day, turn to page 29. ●



Drone trials pave a new way for maize agronomy

With careful application, Hutchinsons’ trials have found it’s possible to spread both maize seed and nutrition via a drone.



WITH MARTIN LINES

Nature NATTERS

Regenerative farming: data and leading by example

“Is it time that farmers start collaborating to lead the harmonisation of farming data and regenerative farming practices?”

Some in the sector argue that regenerative farming requires a rigid set of standards and certification in order to be trusted and respected, and some feel that a strict protocol would hold back the ability to manage context-specific issues on their farms in the way they would like. Regenerative farming has clear principles of action; what's the best approach for measurement?

There are many data platforms already out there that can capture actions with farm data, soil testing metrics and satellite imagery. I think the challenge is in how we can benchmark progress across farms and throughout the industry using comparable datasets that follow a guiding set of principles for measurement, that are flexible for the unique farm systems we all have. Which practices are reaping improved outcomes, and where? How are we valuing these on-the-ground investments?

Many leading food brands are making commitments to purchase solely from regenerative farming systems in the future, with some already on that pathway. As a farmer selling a range of commodities into the market, I only

want to have to collect one set of data for the market to reward me for what I'm doing, whether that's premiums linked to carbon sequestration, water-holding ability or nature restoration. I don't want to have to test my soil in 20 different ways on 20 different apps for each of my buyers.

The government needs to work with the private sector and align which regenerative actions they measure. We'd then have one harmonised set of data that drives change and investment on farms and through the wider supply chain by rewarding the added value regenerative farming can deliver for the landscape.

It would be great to see the wider retail sector and procurement contracts in schools, hospitals and prisons reflecting the commitment also. Many of the government's environmental schemes aim to support farmers to move towards a more nature-friendly, regenerative farming system. The government could support the farming industry more fully by committing to only serve food produced to the standards they're financially supporting farmers to deliver.

The government has a manifesto commitment for 50% of public procurement to be sourced from British farms. At a recent meeting, I challenged the secretary of state for Defra to commit to moving public procurement



Our soils – I don't want to have to test my soil in 20 different ways on 20 different apps for each of my buyers.

to regenerative farming systems by 2030, as it'd send a clear signal that the government is behind farmers transitioning towards regenerative practices.

We as farmers can also lead by example. How many times have you been to an event to find the only food offering is a wafer-thin, grey-ish beef burger, topped with a square of yellow plastic, and slapped into a bun that can barely be called bread? What a signal it would send if all events hosted by farmers and the wider farming industry offered regenerative produce for their catering options!

Farming is more than just food production. We deliver outcomes and benefits for other businesses and wider society, and this must be recognised and

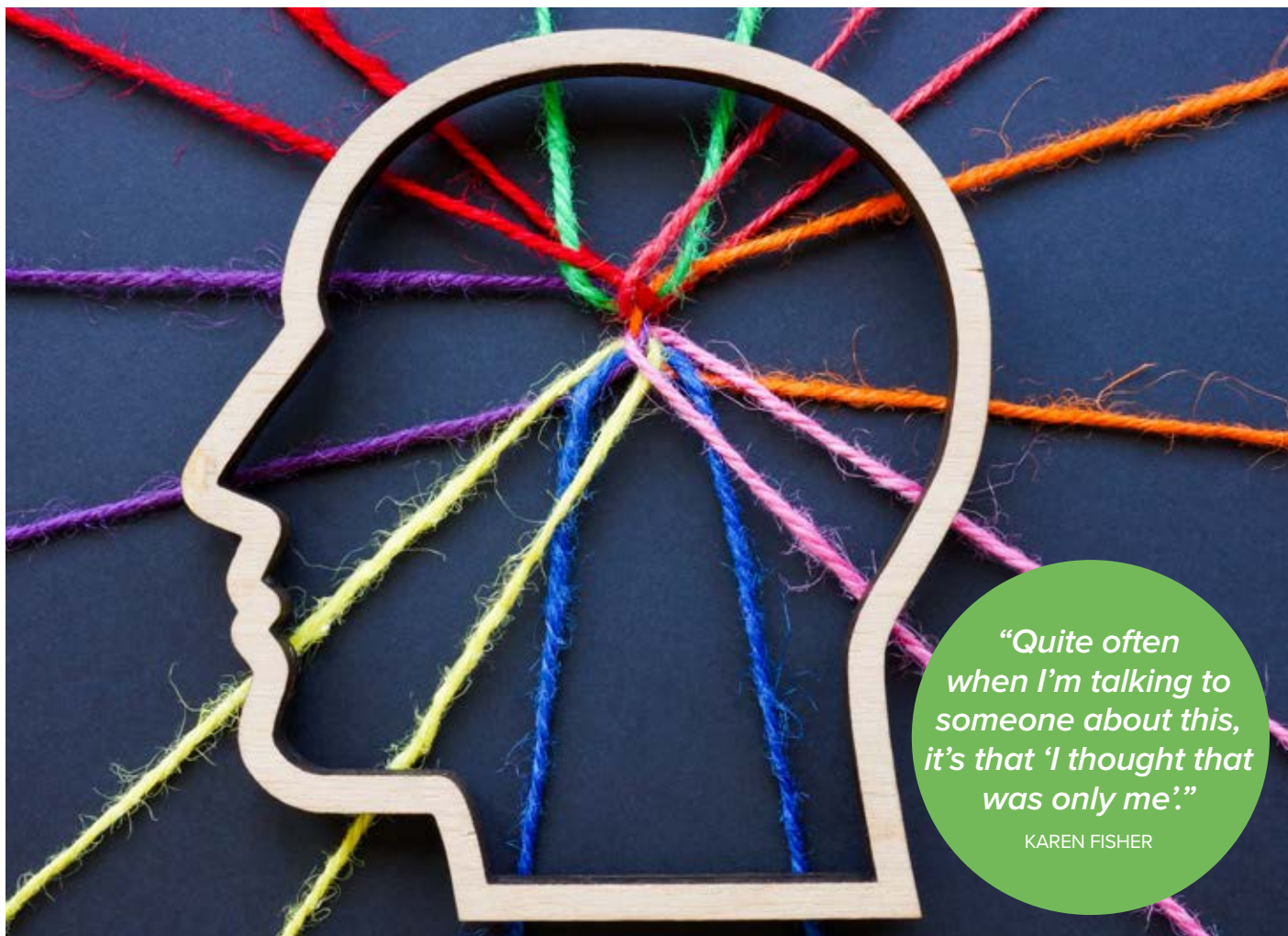
rewarded by both public and private finance actors. Adapting and investing in new approaches to regenerate soils, better manage water, and restore biodiversity comes at a cost, which should not be borne by us as individuals.

I continue to bang the drum. ●

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.

Different by nature



“Quite often when I’m talking to someone about this, it’s that ‘I thought that was only me’.”

KAREN FISHER

Neurodiversity may be entering mainstream conversations, but within agriculture it remains relatively unexplored. Yet with farming facing challenges around labour, wellbeing and the need to innovate, could understanding how differently-wired brains work help the industry to better support and make the most of its people? *CPM* explores...

By Charlotte Cunningham

Diversity is often described as nature’s insurance policy. From genetics and cropping rotations to habitats and ecosystems, agriculture understands perhaps better than most the value of variation.

But when it comes to the people working within the industry, has there traditionally been a much narrower idea of what ‘normal’ should look like?

It’s perhaps a particularly pertinent question given that neurodiversity has become far more prominent in everyday conversation during recent years. Terms such as ADHD, autism and dyslexia are increasingly familiar, while social media is awash with posts prompting people to recognise traits they may previously have dismissed as simply being ‘the way they are’.



What is neurodiversity?

Neurodiversity is the natural variation in our brains and nervous systems – in how people communicate, learn, think, process information and generally experience the world, explains agricultural consultant and neurodivergent coach, Karen Fisher.

For some, that growing recognition has been liberating. For others, it's prompted scepticism that suddenly everyone appears to have a label for something which seemingly 'didn't exist' a generation ago. Yet neurodiversity itself is nothing new, explains agricultural consultant and neurodivergent coach, Karen Fisher. "Neurodiversity is the natural variation in our brains and nervous systems – in how people communicate, learn, think, process information and generally experience the world."

What has changed is the understanding of what those differences can look like, she believes. "Before I had an understanding, I thought ADHD was children in classrooms that couldn't sit still and listen, but we now know that's very much not the case."

Autism too has historically been associated with a relatively narrow set of characteristics, while much of the research and diagnostic criteria around neurodivergence was based on its presentation in males, she adds. "I think that's why we've had such a surge in women suddenly realising that they are some type of neurodivergent, because the traits often present differently in women."

Then there are those characteristics which have appeared across generations of the same family and simply been accepted as 'the way we are'. Social media, for all its shortcomings, has also given people greater opportunity to see their own experiences reflected back at them, notes Karen. "Quite often when I'm talking to someone about this, it's that 'I thought that was only me.'"

Perhaps then, the more interesting question isn't why so many people suddenly appear to fall outside of 'normal', but how that definition was established in the first place. Because for all the attention now being given to neurodiversity, many of the structures surrounding work and productivity have traditionally been built around a fairly narrow idea of how people should operate. "As a society, we've been boxed into a way of showing up that suits certain neurotypes, but not others," says Karen.

And that creates an interesting contradiction for agriculture...

On the one hand, farming remains an industry where doing things 'the way they've always been done' can carry

"Being outside in nature is obviously a very natural nervous system regulator."



A newer conversation

While farming has made considerable strides in talking about mental health, some experts argue that the conversation around neurodiversity is much closer to the beginning.

considerable weight. Long hours and hard work are still badges of honour, while the tendency to push through physical ill-health, exhaustion or difficulty is deeply embedded. "There's definitely that stoic attitude," she says. "It's not necessarily talking about it as labelling it as neurodiversity. I think we're having more conversations and more awareness of things like burnout and those mental health conversations."

ONLY THE BEGINNING

While farming has made considerable strides in talking about mental health, Karen believes the conversation around neurodiversity is much closer to the beginning. "There's a lot more work out there within the education system and the health system, whereas this hasn't really been looked at, researched or thought

about in agriculture until recently. We're only just at the tip of the iceberg."

Yet on the other hand, could some of the very characteristics of farming make it an environment in which

certain neurodivergent people have quietly been thriving for generations?

It's a question Karen has arrived at through both professional and personal experience. Having studied and worked within agriculture for 25 years, she received her own ADHD diagnosis around six years ago. What followed was what she describes as a 'deep dive' into understanding her own brain, but it also changed the way she looked at the industry she'd

spent her career working within.

"It was that interesting overlap between overworking the soil, overworking your farm without putting anything back into it," she says. "I think it's the same with the people that work on the land as well."

Karen subsequently trained in neurodivergent coaching and established Harvesting Potentials, bringing together her interests in sustainable food systems, human behaviour and wellbeing. Now, that same curiosity has led her to undertake a PhD at Harper Adams University exploring neurodivergence specifically within agriculture – an area where she says formal research remains sparse.

Rather than starting with an assumption that farming is either inherently good or bad for a neurodivergent brain, she wants to understand what's already happening on the ground. "There's a lot of grey literature out there, but at the moment there's no research that looks into people who work on the land, different types of neurotypes and where those hidden talents are," she explains.

"Why do so many people thrive on the land and that kind of work? But also, it's not a superpower. There are assets in the way people think and show up, but there are also struggles. I want to get people's real-life experiences of where they love the way their brain works and where it's really useful for them in their job, but also where they feel they could have more support."

Certainly, there are aspects of agricultural work which Karen believes can suit some neurodivergent brains particularly well. "It's practical and visual, with tangible problems to solve

► and, despite the unpredictability thrown up by weather and livestock, an underlying rhythm to the farming year. There can also be a degree of autonomy which isn't always possible within a more conventional workplace.

"I do think a lot of neurodivergent brains really suit that," she continues. "Within farming, quite often we thrive because there's a lot of practical, hands-on and visual learning, and we quite often have special interests. That's how I've navigated to where I am – that hyperfocus on particular interests.

"Being outside in nature is obviously a very natural nervous system regulator. You can have that autonomy of, to a degree, doing jobs at your own pace rather than having a fixed routine. And I also believe that thinking outside

the box, curiosity and innovation, being able to actually have tangible solutions to problems that you're seeing on the farm, can be strengths."

That could be particularly pertinent for an industry grappling with how to attract and retain the next generation of workers, she suggests. "Rather than expecting people to mould themselves around a traditional idea of what an agricultural employee looks like, could there be value in looking more closely at the skills different thinkers bring?"

In terms of how this is approached practically in the work place, Karen says that every individual is different, so there isn't a copy-and-paste 'this is going to help everybody' way of doing things. "Instead, it's about being open to that two-way communication of what works

both for the employer and the employee."

In reality, those changes can be remarkably straightforward, she adds. "Take verbal instructions, for example. Someone who struggles to process or retain them might leave a conversation without fully understanding what's been asked, then attempt to fill in the gaps themselves.

"If you give somebody verbal instructions but they haven't quite understood it fully, they might go off and guess what you want, do half a job, and then you get grumpy with them because they haven't understood.

"So it's finding a solution to that. It might be making sure you WhatsApp message them afterwards so they can go back and check what you said, rather than being reliant on memorising it."

Views from the field

For Cornish farmer Mark Hoskin, navigating an autism diagnostic has brought both freedom and challenge

According to mixed farmer Mark Hoskin, a diagnosis of autism at 46 has helped to explain behaviours and feelings he's experienced for much of his life – while prompting some significant changes to the way he farms.

Based in south-east Cornwall, Mark grows cereals and potatoes alongside running a sheep enterprise. He says he'd always felt 'different', but it was only after his daughter was diagnosed with autism at 12 that things began to fall into place. "The penny dropped," he says. "Then I received my autism diagnosis in November 2025."

But getting there wasn't straightforward. Mark says he initially struggled to have his concerns understood by healthcare professionals and, even after diagnosis, coming to terms with it has been a gradual process. "I'd never wanted a label but now I have one; I'm trying desperately to educate my brain that it's not a problem.

"On the darker days, you think, why can't I just concentrate? Why can't I just go to work? I still beat myself up, but ultimately it's progress. It's not going to happen overnight."

Looking back, Mark can now recognise how autism has influenced the way he's farmed. Having always wanted jobs completed exactly as he'd envisaged, he recalls an occasion

in his twenties where he once lifted newly-planted seed potatoes simply to replant them because he wasn't satisfied with the rows. "Nobody actually noticed. They just thought, 'Oh, that's Mark. He's working hard!'"

Unexpected changes can also be difficult, and interestingly, Mark says he remains calm during a genuine crisis and can adapt to weather changes – but sudden disruption to a plan can be overwhelming.

Since his diagnosis, rather than trying to change those traits, he's begun changing the business around them. Potato production has been reduced and he's altered how he uses contractors, while the departure of a member of staff provided an opportunity to reconsider the pressure he placed on himself.

"If I was having a poor week, a poor month or even a poor day, I didn't necessarily have to rush to work and force myself," he explains. "I've been able to think, actually, it doesn't make me a bad farmer if I don't finish this field tonight. I can fit the farm around my life rather than the farm ruling me."

However, Mark admits he still doesn't feel comfortable discussing his diagnosis widely within farming, having experienced comments and attitudes which make him concerned about how it could be perceived. "I've now stopped beating myself



Fitting in

Cornish farmer Mark Hoskin says he always felt different.

up about it," he says. "It's okay to be different and other neurodiverse people need to know that."

For him, improving that experience doesn't necessarily require wholesale change, but greater understanding of uniqueness. "Every individual is individual, whether they're neurotypical or neurodiverse; it's about communication.

"A bit of acceptance more than change, I think, and education. We can all work together – we have done for centuries. We just need people to recognise it, accept it and maybe be prepared to adapt slightly."



A career suited to neurodivergence?

There are aspects of agricultural work which Karen believes can suit some neurodivergent brains particularly well – notably, it's practical and visual, with tangible problems to solve and, despite the unpredictability thrown up by weather and livestock, has an underlying rhythm to the farming year.

For somebody else, breaking a larger job into smaller stages or using a visual checklist might remove the sense of overwhelm, notes Karen. "Demonstrating an unfamiliar task may work better than explaining it, while asking someone to repeat a job back can help to identify misunderstandings before they become mistakes.

"They might seem really obvious to you, but it could be: do this first, then that, then that, and then come back and see me. These things aren't necessarily going to take a lot of time or money."

The same thinking can apply when plans change. Rather than simply announcing a new way of working, Karen says explaining why something is changing and allowing time to process it can make a considerable difference. "If something is changing within the business or on the farm, it's giving them that 'why'. Why is this changing? Provide the chance to give feedback and time to absorb that, rather than just showing up that morning and saying: 'Now we're doing it this way'."

Sensory differences may require equally simple adjustments, from appropriate hearing protection to somewhere quiet to step away from a busy environment. "Importantly, none of this is especially radical. In fact, much of it could arguably amount

to good management regardless of somebody's neurotype."

Perhaps the more difficult hurdle is making it acceptable for someone to say that the standard way of doing something isn't working for them. But that doesn't necessarily require disclosing a diagnosis, Karen points out.

"For somebody who isn't comfortable doing so – or who may not have one – it could simply begin with explaining where they're struggling. Essentially, having a safe place to maybe feel it out and just explain what they're struggling with. Could they work together to find a solution to that – find a way that's easier for them?"

REFLECTION

Nor does the individual necessarily arrive at that conversation armed with the answer, she stresses. "I have people come to me and say: 'But I don't know what's going to help me, and I don't know what I need; I just know I'm struggling.' So it's all about taking a little bit of time for yourself and actually sitting down and thinking about it."

Creating somewhere for those conversations to happen is also part of the motivation behind the Rural Neurodivergent Network, which Karen has co-founded with Liz Haines to provide a community for those

working within rural industries to connect and share experiences.

Looking 5-10 years ahead, she hopes the growing awareness of neurodiversity will be matched by better research and practical tools shaped by those actually working within agriculture. "It's like anything in farming, isn't it? It's no good people at the top doing a broad brush that every farmer must do this. It has to come both ways."

Rather than judging somebody according to how closely their way of working resembles our own, Karen believes there's value in becoming more curious about why somebody might approach a task differently – and what they might be particularly good at as a result. "I think people are very quick to judge and label it as lazy or 'they don't care'. It's just finding a different way of doing that for them and the way their brain works.

"Take that fear away, so we can really utilise those areas where people have their strengths and where they excel, and then find ways to support the areas that they may struggle with more.

"It's about what lights your employee up," she concludes. "What are they good at? What do they enjoy? Where do you see them excelling? And then utilising those strengths within the team." ●

The icon of farm machinery



“The 8R is a highly productive and efficient tractor with greater capacity.”

CHRIS WILTSHIRE

In terms of kit on the farm, the tractor is undoubtedly the iconic daddy of big kids’ toys. *CPM* collates some of the latest updates that’ll be ready to play soon.

By Janine Adamson

Irespective of how many years happen to be ‘on the clock’ – from the youngest member of the family or team through to the most senior – the tractor will forever retain a special place in the hearts of all.

To be bold – it’s an iconic symbol of agriculture that most members of society can correctly identify. However, the specific details, upgrades and developments that yield from manufacturers are probably only of interest to those at the coal-face or

complete tractor nuts... the ‘enthusiasts’.

And while most have a preference or sway on brand, it’s hard to deny the gravitas of the green stable. After all, nothing runs like a Deere.

But of course competition is stiff in this sphere, so in a bid to retain its position at the front of the pack, John Deere released a number of updates to its 8R, 6R and 6M tractor ranges during the summer, for model year 27.

Starting with the 8R, according to the firm’s Chris Wiltshire, this high

horsepower machine has been designed as the ultimate cultivation tool. “It’s for large-scale farms that are looking to do more with their own businesses; it’s a highly productive and efficient tractor with greater capacity,” he says.

Delving into some of the detail, the updates are available as 8R tractors from 280 to 410hp, as well as 8RT and 8RX models from 310-410hp. Collectively, John Deere is positioning these machines as a powerful and versatile solution for demanding farming operations, with tasks ranging from heavy pull to semi-load applications and occasional transport.

Of particular interest to arable outfits should be up to 20% more drawbar power. The 8R 410 delivers strong pulling performance for heavy draft



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6R level up

Improvements introduce technical refinements aimed at road transport performance, operator environment, precision farming capability and long-term operating efficiency.

applications, allowing operators to work with wider implements and cover more area efficiently. Across the range from 280-410hp, the 9.0 I PowerTech JD9 engine together with a wide selection of transmission options, converts engine output into efficient, usable traction.

As for drilling, the new 8 series is engineered to meet the specific demands this places on a tractor: efficient partial-load operation, precise control and minimal soil impact, all in a balanced package. In fact, independent tests suggest up to 35% higher productivity in partial-load and combined applications, enabling higher output and the efficient use of wider implements.

Specifically, thanks to its efficient drivetrain and favourable weight distribution, the tractor can operate large drills economically, often without additional ballast. Intelligent power management (IPM) ensures the tractor delivers exactly the power required, maximising efficiency when full output isn't required. The central tyre inflation system (CTIS) – or the four-track 8RX configuration – further minimises ground pressure, helping to protect soil structure and yield potential.

Looking at transmission, this now provides smooth, stepless acceleration with 50km/h transport at a low 1150 RPM level, improving fuel efficiency and

comfort. At low speeds up to 5km/h, the drivetrain operates fully electrically, offering precise control and maximum torque for demanding work such as silage pushing or heavy PTO operation.

Equally, operator experience been a priority during the design process, with the firm stating that it's added all of the comfort features to the 8 series as standard, for the 'ultimate' experience in the cab. For one, the updated CommandView 4 cab introduces a range of improvements aimed at reducing fatigue and simplifying daily operation, from push-button start with pin code protection to 320° wiper, and wireless phone charging.

PRECISION READY

Moving to tech, every 8R, 8RT and 8RX tractor leaves the factory precision-ready, equipped with integrated receiver technology, a G5Plus CommandCenter display and JDLink connectivity. Field tasks including machine settings, guidance lines and application maps – pre-planned with AutoStart in the John Deere Operations Center – are sent wirelessly to the machine and start automatically when crossing the field boundary.

Wireless data synchronisation with the John Deere Operations Center removes manual data transfer, while

in-field data sharing allows linking multiple machines to work together seamlessly. And, the new 8 series tractors come ready to be retrofitted with John Deere autonomy technology.

John Deere's Marcus Luchmann says all-in-all, the new 8 series is designed to deliver tangible benefits in everyday farm operations. "From increased usable power in the 8R high-horsepower models for demanding cultivation work, to high efficiency in partial-load applications such as drilling with the 8R 410 eAutoPowr, the range is built for consistent performance.

"Combined with the advanced John Deere precision ag technology available across the series, these tractors help large farms operate more efficiently, expand acreage without adding machines, and manage existing land with greater precision."

Shifting to the 6R, the update comprises four Large Frame models (6R 180, 6R 200, 6R 220, 6R 240) and two Xtra Large Frame models (6R 230 and 6R 260), with outputs up to 305hp with IPM. The improvements introduce technical refinements aimed at road transport performance, operator environment, precision farming capability and long-term operating efficiency.

Starting with ride comfort, the key standouts are automotive ergonomics, adaptive damping, steering and



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► braking updates. Furthermore, the sport package pro combines chassis, steering and braking updates to improve stability, ride quality and steering precision on- and offroad.

Central to this package is the updated TLS pro front axle suspension that combines adaptive, adjustable damping and suspension with automotive-grade components and reinforced suspension cylinders. The system continuously adapts to speed, load and surface conditions and is calibrated to each frame size. It operates fully automatically or can be adjusted via custom mode to suit operator preferences and ballast configuration.

The next-generation hydraulic cab suspension (HCS) features new low-friction suspension cylinders, an updated controller and revised cab mounting components. John Deere states that together, these improvements reduce vibration, harshness and noise, and protect the driver from uneven ground conditions.

The new 6R tractors also introduce the CommandView 4 versatility cabin with increased volume and a revised layout to provide more legroom and a more natural seating position. A redesigned cab frame with forward-sloping c-pillars and a curved rear window improves rear implement visibility by up to 20% compared with the previous model.

All updated 6R tractors are delivered with StarFire 7500 integrated receiver, G5 CommandCenter and JDLink modem, enabling immediate access to guidance, automation and even supervised autonomy, subject to licence selection.

As for its power, it combines the series-turbocharged engine of the 6R 260 with a compact 2800mm wheelbase, creating a 'highly powerful all-rounder machine especially suited for contracting operations'. The standard AutoPowr transmission offers up to 85% efficiency, supported by hydraulics up to 210 l/min, up to six fully independent rear SCVs plus two front SCVs and a Power Beyond hydraulic connection.

At the top end of the range, the MY27 6R 260 delivers up to 305hp with IPM and introduces the new e19 full powershift transmission. Building on



Gear selection

The updated 6M has new e19 full powershift transmission for efficient performance in both field and transport applications.

the PowrQuad technology, it integrates a dual-clutch design and advanced proportional control valves to ensure smooth, uninterrupted gear changes, a more dynamic driving experience and exceptional pulling performance (see more information below).

The specification also includes integrated single-line (CTIS) with a dedicated 700 l/min dual-piston compressor that can inflate 1-bar in only four and a half minutes.

Finally, there's the 6M tractor series. This update includes a revised cab layout, a more consistent operating concept across the tractor series, expanded

precision agriculture functions and like the 6R, a new e19 full powershift transmission.

"The update is all about consistency, usability and versatility," highlights Marcus. "By aligning cab layout, controls, and precision ag functionalities across the 6M range up to the latest 8R and beyond, we're making it easier to integrate

6M tractors into existing fleets without sacrificing precision technology or data management capabilities."

Looking in more detail at the e19 transmission, this features 19 fully powershifted gears designed to deliver efficient performance in both field and transport applications. It works by continuously adapting gear selection and shifting behaviour based on multiple tractor inputs, supporting efficient operation and fast gear changes with no torque interruption under varying load conditions.

FAST AND PREDICTIVE

The system allows clutch-free operation similar to a stepless transmission, while an inclination sensor adds terrain awareness to gear selection, making changes faster and more predictive. 'Skip shift' jumps multiple gears for rapid speed changes, while 'scroll shift' keeps clutches partially engaged for even faster transitions, reduced heat, and less wear.

Compared with the CommandQuad Plus transmission, the e19 can deliver up to 5% productivity improvements, with up to 5% reduced fuel consumption. The e19 transmission will be available on most 6-cylinder models up to the 6M 250.

As for tech, the 6M series can be equipped with StarFire 7500 receivers, G5 displays and JDLink connectivity. SF-RTK enables positioning accuracy down to 2.5cm; while standard G5 functionality includes section control and variable rate control, with optional upgrades such as AutoTrac turn automation, AutoPath and passive implement guidance.

Considering specific applications, the 6M lineup continues with 17 models in total. The 6M 125, 6M 145 and 6M 220 represent key configurations for different applications; the short-frame 6M 95 to 6M 125 models are ideal for loader work and confined spaces; while the 6M 145 combines six-cylinder performance with e19 transmission features, thus offering high pulling capability in a compact format.

The 6M 220 combines intuitive operation, full precision ag integration, and strong pulling power to integrate seamlessly into existing fleets at a value-spec cost level. According to John Deere, a broad transmission portfolio makes this model suitable for tillage, transport, and PTO applications. ● ►

"These tractors help large farms operate more efficiently, expand acreage without adding machines, and manage existing land with greater precision."



More from Massey

Six new tractor models due to roll in 2027

The new MF 7S MARK 2 series has been announced by Massey Ferguson, featuring six models from 170-245hp. According to the firm, the series delivers 'significant changes' from the current MF 7S models, which will remain in the range.

The new tractors include an AGCO Power six-cylinder, 7.5-litre engine; Dyna-VT transmission as standard on all models; a brand-new cab featuring MF's Protect-U design; the latest MF technology options and fleet management software; and a

new Datatronic 6 12" touchscreen.

Looking in more detail at the AGCO Power engine, this features a single turbo and 25% fewer parts than its predecessors for improved long-term reliability; stage V emissions are met without exhaust gas recirculation.

Maximum power is available across a wide engine speed band, while the torque curve remains flat between 800 and 1500rpm for all models. A larger 410-litre fuel tank (+25% compared to MF 7S) and a 56.5-litre AdBlue tank (+88% compared to MF 7S) are

both standard on the new models.

All MF 7S MARK 2 models are fitted with the two-range MF Dyna-VT transmission, offering a maximum speed of 57kph. A four-speed PTO is standard, as are high-capacity hydraulics.

For the operator, the tractors feature a redesigned version of the spacious MF 8S cab plus a new Datatronic 6 12" touchscreen terminal to simplify navigation to key machine settings. This is twice as large as the previous screen fitted to this size of MF tractor.

There's also generous in-cab storage, an optional fridge, and a factory installed mobile phone holder for mounting on the armrest or terminal rail.

For data enthusiasts, new MF 7S MARK 2 tractors will be the first with PTx FarmENGAGE supplied from the factory. The next-generation farm operations management software is compatible with all farm machinery brands to wirelessly transfer data for precise management and monitoring through the integrated telemetry system.

In addition, all tractor, machinery, field, cropping and task management data can be shared by USB or through the cloud, thanks to the connectivity centre included in PTx FarmENGAGE.

Full production and first deliveries of the new MF 7S MARK 2 will begin in spring 2027.



Cab updates

The new tractors feature a redesigned version of the spacious MF 8S cab plus a new Datatronic 6 12" touchscreen terminal to simplify navigation to machine settings.

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What else is new in tractors?

DEUTZ-FAHR

Unveiled at Agritechnica 2025, the Deutz-Fahr Series 8 represents the next generation of high-performance tractors, which the firm claims are a symbol of 'power, precision, and technological leadership'.

The Series 8, operating at 313-340hp is powered by the proven 6.7-litre FPT N67 engine, delivering an ideal balance of power, responsiveness and fuel efficiency. With up to 1398Nm of torque, it provides the performance required for the most demanding field operations while ensuring smooth,

confident transport on the road.

The advanced eVGT turbocharger continuously adapts to the engine load, delivering rapid response, strong low-end torque and consistent power throughout the entire operating range. Combined with a 1600 bar common rail injection system, it optimises combustion for outstanding fuel efficiency, low emissions and immediate throttle response.

At the tractor's heart lies the SigmaVision cab, which the firm says is spacious, quiet, and fully digital, integrating a 15" iCluster display and



12.8" iMonitor 5 for control of machine parameters, ISOBUS functions, and smart farming applications.

Connectivity takes centre stage – thanks to SDF Smart Farming Solutions and the MyDEUTZ-FAHR App, operators can manage fleets, monitor performance in real time, and stay connected with their dealer network for remote diagnostics and updates.

FENDT



Bringing in the power is Fendt with the firm's new 1100 Vario MT series, comprising four models ranging from 521hp to 680hp. Built at the firm's Jackson factory in Minnesota, the 1100 Vario MT Gen 2 series features an entirely new cab, which includes the familiar FendtONE workstation, a new lighting system and a selection of customisable configurations for the terminals and 3L-joystick.

"The new 1100 MT has incorporated the best features of the wheeled tractor range alongside class-leading economy and power to help save farmers time and money," explains Fendt's Ed Dennett. "The MAN D38 and MAN D42 have updated engine control units, a new Tractor Management System (TMS) and a hydraulic fan system that runs independently of the engine."

The cab includes an armrest with multi-function joystick and freely assignable buttons, a 12" armrest terminal, 3L-joystick and a digital dashboard behind the steering wheel. ISOBUS implement control is standard, and there are new agronomy functions including doc task management and telemetry functions. A further option

KRM

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is the Fendt Guide guidance system.

Ed highlights that the MT series has the option of Fendt's TI Headland management system which automates headland turns and adjusts the height of the implement automatically. "A dual pump offers greater oil capacity and pressure and the MT can be specified with up to eight spools. Key to the innovation of the MT is its Mobile Track System (MTS) which helps provide a smooth ride while spreading the weight of the tractor to minimise soil compaction."

The MT runs on a 3m long twin track that uses 10m of tracks to make the system longer lasting than triangular systems. The six-axle track design distributes the nearly 20t weight of the MT, and new Michelin tracks range in width from 18-36", although the widest available in the UK will be 27.5" to keep the overall width of the tractor to 3m.

"A two-track design with fewer moving parts provides reduced operating costs and the longer track enables the maximum permissible weight of the MT to increase by 7t to almost 27t, with a rear lift capacity of 9t," raises Ed.

The MT promises to be 'easier to

live with' thanks to dust extraction and passive filter cleaning, easy access oil control and the option of a compressed air connection for cleaning. While its fuel tank has increased by 16 litres to 1370 litres, and an upcoming DLG test should prove fuel economy to be class leading.

"The Fendt 1100 Vario MT series is available to order now from UK dealers and we expect the first machines to be delivered early in 2027," comments Ed.

CLAAS

According to CLAAS, it's making a 'strong statement' in the four-cylinder tractor segment with its new Arion 5 Cmatic series, featuring maximum outputs ranging 145-180hp.

In addition to continuously variable, power-split Cmatic transmission, the three new models are characterised by the highest levels of driving and operator comfort, future-proof digital machine and farm management solutions, and the emotive design of the new CLAAS tractor family, claims the firm.

The three tractors are successors to the Arion 500 series and should prove suitable for versatile



agricultural use in fields, grassland, on roads and around the farm.

The four-cylinder concept, optimised for performance, efficiency and driving comfort, features a durable Cmatic gearbox, combined with comfort-enhancing features in the fully-suspended cab and the Proactiv front axle suspension.

All three models in the Arion 5 Cmatic series are powered by a dynamic 4.5-litre engine delivering a maximum torque of up to 730Nm at 1500rpm.

For CLASS, the new releases represent a compact, manoeuvrable, lightweight and extremely versatile alternative to the Arion 6 Cmatic series, which also comprises three models with a longer wheelbase and covers a power range from 145-205hp maximum output.

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Where farming starts

Fighting fire with foresight

As hotter, drier harvests bring machinery fires increasingly into focus, protecting the combine is becoming about far more than the value of the machine itself. *CPM* speaks to a Northamptonshire grower about why fire suppression has become another layer in his farm's harvest defence.

By Charlotte Cunningham

There was a time when 30°C during a British harvest was enough to make headlines. But as prolonged spells of hot, dry weather become an increasingly familiar feature of the summer months, they're also changing the risk profile of getting crops safely from field to store.

While dry conditions can make for easier combining, tinder-dry crops and an inevitable build-up of dust and debris aren't always comfortable bedfellows with hot engines, exhausts and hydraulics. Add in temperatures which are now commonly creeping towards the high 30s, and the potential for a small ignition to quickly become something much more serious is difficult to ignore.

But perhaps just as significant as the immediate fire risk is what happens afterwards. At the height of harvest, losing a combine isn't simply about the cost of replacing or repairing the machine. It can mean losing days – or even weeks – of capacity during what could prove to be the season's most valuable weather window.

This is something Northamptonshire grower Fred Hilsdon has become increasingly conscious of during recent years. Fred is the third generation of his family to farm at Harrowden Farms near Wellingborough, where the business grows combinable crops across around 809ha of mixed soils.

Like many arable businesses, fire has always been considered an inherent harvest risk, but Fred says the changing conditions experienced during recent

summers have pushed it much further up the agenda. "During the past couple of seasons we've been experiencing higher temperatures at harvest and fire has become a lot more relevant," he explains. "We've had combine fires in the past, but 30°C of heat used to be a talking point. Now we're pushing up towards 40°C, so we're getting towards other parts of the world where fire is a major, major consideration."

Thankfully, the farm hasn't experienced a serious combine fire, but that doesn't mean there haven't been warnings, he continues. "We've had small fires most harvests, luckily detected early and dealt with when very small. Sometimes it was a handful of dust smouldering and it was put out with a drinks bottle, which sounds a bit like an anti-climax but that's often where these big fires start."

At the same time, Fred had watched neighbouring farms experience much more significant incidents, including the loss of combines and balers. Consequently, fire preparedness has gradually become a formal part of harvest planning. "We sit down and do a health and safety briefing before harvest and run through everything with fire, just making sure precautions are in place," he explains.

A water bowser is kept parked in the yard complete with couplings, which allow the fire brigade to connect directly to agricultural fittings, while a cultivator is also kept ready to go should a firebreak have to be established quickly, notes Fred. "Then there's the

safety of the combine itself. Machinery hygiene is prioritised, with a compressor used to regularly blow the machine down and prevent combustible dust and debris accumulating."

But perhaps one of the simplest precautions is making sure everybody knows to speak up when something doesn't seem right, he points out. "A lot of it is staff awareness. Particularly for the corn cart drivers behind the combine, I say if there's any doubt or something smells different, just get on the radios or phones and we'll stop and check."



A dual-agent approach

On combines, dry powder provides the primary means of extinguishing the fire, rapidly dispersing throughout the affected area, while a supplementary wet agent is directed towards particularly hot components including turbochargers, exhaust manifolds and the diesel particulate filter.



Fireward suppression system – how it works

Designed to operate independently of the machine's electrical system, Fireward's automatic fire suppression system uses heat-sensitive pneumatic tubing routed around high-risk areas such as the engine compartment.

The tubing is pressurised with nitrogen and, if exposed to fire, melts at the point of contact. This releases the pressure and activates a valve within the cylinder, automatically discharging the suppression agent without requiring intervention from the operator.

On combines, Fireward uses a dual-agent approach. Dry powder provides the primary means of extinguishing the fire, rapidly dispersing throughout the affected area, while a supplementary wet agent is directed towards particularly hot components including turbochargers, exhaust manifolds and the diesel particulate filter. The latter helps to reduce component temperatures following discharge, minimising the risk of the fire reigniting.

Because the pneumatic detection system requires no electrical power

or battery to remain operational, protection continues when the combine is switched off and parked – important given that residual heat and smouldering crop debris can pose a fire risk for several hours after work has finished.

From January-July 2026 the fire suppression systems have activated and put out fires on 35 pieces of machinery, worth a total value of £12,060,000.

Systems can be installed on new machinery or retrofitted to existing equipment.

"The best place to smell a combine fire is when you're on the tractor and trailer approaching it from a bit behind."

Yet even with those measures in place, Fred began looking at whether the farm could add another layer of protection. Having first heard about Fireward's automatic fire suppression systems through the NFU, he later saw one fitted to a baler at a show and started investigating the technology more seriously.

But it was the experience of a neighbour which really brought home the potential wider cost of a machinery fire. "One of my neighbours lost a combine in harvest and he couldn't get a replacement machine for about 10 days to two weeks," says Fred. "Fortunately, the season was very good and he managed to get everything in eventually. But in a lot of years, that fortnight of missed work could have been absolutely crucial."

With that in mind, Harrowden Farms opted to retrofit a Fireward automatic suppression system to its Case IH 9250 Axial-Flow combine rather than wait until the machine was replaced. In fact, Fred says there was little reason to wait given the business intends to retain the combine for at least another five years. "Looking at the actual cost of the Fireward compared with the cost of the combine, it was very favourable. For me, it was a bit of a no-brainer.

"Machinery is more complex, there are more areas for dust and combustible debris to accumulate and, due to emissions legislation, engines are running hotter. All in all, it seems to be a perfect storm for fires."

On Fred's 9250, many of those critical areas are concentrated towards the rear of the combine, where the



In-cab activation

A monitor is located in the cab alongside a manual activation button, allowing the operator to trigger the system if a fire is spotted before automatic activation takes place.

engine, exhaust, hydraulics and drives are located. The Fireward system was retrofitted to the machine with automatic detection covering key risk areas around the combine and hydraulics. A monitor is located in the cab alongside a manual activation button, allowing the operator to trigger the system if a fire is spotted before automatic activation takes place.

Fred says the retrofit itself proved straightforward, while the system requires little additional input from the operator.

"There are some very simple daily checks. We have the monitor in the cab and there's a gauge or two on it. It doesn't take you an extra hour in the morning to make sure it's all up and ready – it's there."

But one feature Fred particularly values is that protection doesn't stop when the combine is parked in the shed at the end of the day. "It's extremely reassuring to know that the system is active 24/7. The combine stays hot for several hours after being parked up, so there's still a risk," he says. "A few years ago, we had bean dust smouldering on a combine after it was parked up and this highlighted that risk."

Because the system doesn't require electrical power to remain operational, Fred says there's also reassurance that protection remains in place should batteries become drained.

Fortunately, the system hasn't had cause to activate yet – and Fred would be quite content for things to remain that way. "The Fireward system is in addition to everything else that we're doing, rather than a replacement. We're still blowing the combine down and we're still very vigilant for fire," he says. "There's no substitute for having everything else ready, having the staff aware and having good hygiene with the combine."

"But the system provides yet more peace of mind that we're doing all we can to prevent fire." ●

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Drilling with the big one



“Drilling is the most important job on the farm; if I know it’s gone in right, well-sown is 60% grown.”

JAMES ASHLEY

A philosophy that combines flexibility, operational synergies and an uncompromising drive for output has led one Hertfordshire business to invest in the UK’s first 18m Horsch Avatar drill. CPM finds out more...

By Rob Jones

Since it began in 1957, Hertfordshire-based farming enterprise AT Bone has always taken carefully calculated risks, seized opportunities to expand, and been prepared to invest in new areas.

The business began life as a pig unit, but now decades later, stands as a multi-faceted diversified operation, including thriving property and construction divisions. While risk is spread considerably across the different

aspects of the enterprise, farming around 4400ha of arable land and environmental schemes means there has to be a clear strategy, highlights operations manager, James Ashley.

And while some large-scale operations centre their approach around Controlled Traffic Farming, AT Bone has gone against the grain. In fact according to James, committing to strict CTF restricts flexibility and forces a business to carry significant

capital overheads when expanding.

“We don’t like controlled traffic, but we love to control the traffic. We’re not CTF, but our tram lines are in the same place every year using RTK. They have to be; that’s just common sense,” he says.

“Farming has very tight margins as it is, and the bigger you get, when you’re committed to a specific width, the more kit you have to buy. If you jump from 5000 to 10,000ac (2000 to 4000ha), you have to commit yourself to another drill or two, another combine easily. Financially, that can’t work.

“But you can commit to maybe one bigger drill and stretch it longer, because no matter how much money you save with controlled trafficking, it can’t make up for the

opportunity to take on an additional 5000ac,” explains James.

The farm’s cultivation strategy is highly adaptable, driven by operational efficiency and the demands of their clients. With eight contract farming agreements, AT Bone must cater to different landlords; what works for one, may not be preferred by another, stresses James. “We’re not purely direct drillers – we won’t commit to one thing, we require flexibility,” he notes.

Furthermore, the farm’s sheer volume of fieldwork, including extensive baling and spreading 50,000t of organic matter, creates significant field traffic that requires remedial cultivation. “We sit down every year and create a cultivation plan [in May or June] for after harvest, but nobody knows what the weather’s going to do. For instance, if a dry summer creates natural, deep cracks in the soil, the team avoids unnecessary subsoiling, saving time and money. Conversely, a wet summer causing soil pans requires intervention,” he says.

More than 50% of the farm’s land is drilled with winter wheat with second wheat, with the remaining rotation featuring oilseed rape, winter barley and spring oats. It’s due to the latter that ploughing remains a vital tool in the arsenal, raises James. With a considerable area gluten-free spring oats in the mix, rigorous winter ploughing is often required to bury wheat or barley volunteers to avoid the entire crop being rejected.

However, when it comes to drilling, to help manage the business’ expanding area and maintain output during tight weather windows, the team had to re-evaluate their machinery. Previously relying on three drills – a 12m tine drill and two 8m disc drills – AT Bone made the somewhat bold decision to replace one of its 8m drills with an 18m Avatar, the first of its size in the UK.

“The Avatar is marketed as a direct drill but as a cultivated drill, it’s fantastic. We may put in another pass behind the subsoiler to level it out, but the cost to do that with a 12m cultivator is minimal. Our 12m Cruiser will leave it level enough that we can go straight in behind,” explains James.

The decision to go for the 18m Avatar was largely driven by output and weather resilience, he adds. During the exceptionally wet autumn of 2023, pulling a 12m drill resulted in too many visible wheel marks, says James. ▶



Horsch Avatar 18m

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► “We don’t like wheel marks. So, what can we do in those conditions to go wider? We’re on 36m tramlines so when we’re drilling at 18m, you have just one wheel mark, then you’re on a tramline.

“If it’s a real wet one, you sacrifice the width of the track that you don’t bury the seed, but then you always have a little 3m power harrow in the shed to cover the seed up. It was just more efficient. We had to take the plunge, it was the only way we could do it,” he comments.

James urges that the Avatar wasn’t deployed straight out of the box without careful consideration. The farm opted for a few custom modifications, specifically changing the star wheels and covers to prevent blockages caused by the stony land in some of their fields.

Being an early adopter of the 18m model also has meant navigating a few practical and technological

realities. “The drawbar to wheel is a long distance, so you can ground out where the jack is. As such, we simply knocked out a few cambers in gateways with a mini digger.”

Currently, the drill features two nine-metre sections rather than individual coulter or narrow-width shut-off.

This results in an estimated 8% overlap, increasing seed costs. “I should think the next generation you’ll be able to get half-width sections, which is down to where

you want to be really, in an ideal world,” he suggests.

For James, who operates the drill, seed-to-soil contact is key for maximum output, and the investment in the Avatar is essential to the farm’s continued success. “Drilling to me is the most important job on the farm. If I know it’s gone in right, well-sown

is 60% grown,” he comments.

Having planted around 2200ha this past season with the Avatar, during some very challenging conditions, James is still evaluating its performance, although says he’s happy with operations so far. Equally, a neighbouring farm noted it was pleased with its 12m Avatar, even in a wet season, and it wasn’t direct drilling either, says James.

“All you want is just the top to dry out, you’re not moving any soil, you just need it to hold you. The coulter pressure will allow you to punch it in. We really liked the Horsch Serto, but it wasn’t wide enough, while the Avatar offered 18m plus still has a 3m transport width.”

Despite the positive review, a primary concern of James’ has been preserving headlands. “If you look at people’s field yield maps, it’s always the first 15m that let you down because that’s where you’re turning with everything. It gets a pounding but with the Avatar, you’re 9m from the edge which reduces compaction.”

“We really liked the Horsch Serto, but it wasn’t wide enough, while the Avatar offered 18m plus still has a 3m transport width.”

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Pulled by a 410hp John Deere 8RX on tracks due to a lot of flint on the farms, James has noted that not requiring huge horsepower has been another benefit. "It's a great combination, and only needing a 20t tractor helps to keep diesel costs down."

"I'm doing 55ac/hr (22ha/hr) at 13kph; I'm not going fast or stressing. I'm not ruining tractors by pushing them to the limit, and I'm burning just 50-60 litres of diesel an hour; it's a dream."

Although moving to 25cm spacing wasn't a driver for purchasing the Avatar, James has noticed that the crop has 'tillered out beautifully' with no increase in weeds. "The spacing definitely helped with weeding," he suggests.

Another challenge to ponder has been logistics – operating a machine of this size across a vast area comes with its own unique considerations. This is because AT Bone farms a 30-mile radius

including land inside the M25.

"The biggest problem is traffic," admits James, noting the difficulty of moving agricultural machinery through heavily populated areas near London. "I think there comes a point we wouldn't want to go any further than we are now. We're not at our stretch by any means, but I think life becomes very inefficient."

When it comes to the 18m Avatar itself, transport has been surprisingly straightforward, he says, because the drill folds neatly to 3m. "Honestly, it's no different to towing a trailer."

While the Avatar has been a roaring success, James has decided to keep an 8m disc drill, stating it's still the ideal tool to follow the plough, especially when preparing ground for the farm's gluten-free oats. And with second-hand values being relatively low, retaining it for specific jobs is a logical choice, he concludes. ●



Added benefits

Although moving to 25cm spacing wasn't a driver for purchasing the 18m Avatar, James Ashley has noticed that the farm's crops have 'tillered out beautifully' with no increase in weeds.



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WITH ANDREW WILSON

Talking TATIES

A year of 'why'

“ Well, what a month eh? A man could swear! Isn't it coincidental

that at a time of year when nearly every arable farmer in the country is burning diesel, that the price should rise by nearly 30% in a fortnight, apparently because a few folk are upset with each other thousands of miles away. There's only one thing more frustrating than expensive fuel, and that's no fuel at a critical time of year, so as ever, we have no choice but to suck it up.

If there was to be a glimmer of cashflow hope, it was to be the SFI window opening, although predictably that turned to jelly in less than half a day. We've had 6ac of grass margins earning nothing since Defra pulled the 2025 scheme with a few minutes notice, but previously the BPS covered the rent, so it wasn't as big an issue as it is now. I'd logged a technical query before the system closed, but whether the glimmer of hope is the proverbial train coming, who knows.

As ever, we crack on, what will be will be. With 10 different crops, livestock, stewardship and diversification, it's unusual that everything is poor at the same time. That said, with potatoes looking to average 65-70% of contract yield at best, and beet that currently looks like very dry parsnips, I think we're in for some pain yet. This isn't helped by quality issues with

what look to be our best yielding fields this season.

One variety that we grow is currently sat at over 26% dry matter which makes them like eggs to handle, and another variety has some serious secondary growth issues. Couple that with some in-field sprouting and a high physiologically aged crop, and they're going to take some looking after this winter, which is a tough old gig with a crop that looks at present like it won't break even.

So, thoughts for 2026? I've long been a fan of a SWOT (strengths, weaknesses, opportunities and threats) analysis, and take the view that everything will have a high year and a low year at some point. But if the weakest player is consistently the lowest player, then change it – and remember to consider the consequences of doing so. I'm fortunate to have a committed and strong team here on the farm, which is a motivating factor in seeking opportunity and finding solutions to problems.

I said last time that we'd reached the end of the line for sugar beet here, which is sad, but at the same time presents opportunity for change. We drilled some oilseed rape back in early September, which for all it has a long way to go yet, is growing away nicely. My potato area will stay as it currently is, with maybe a few tweaks to the varietal spread depending on where contract prices sit when the industry announces them later in the year. They are an important crop to us, and to stop growing would be a monumental change to the business and how it operates, mostly in a negative way.

So, we find solutions.

Tweak the spuds, be keen on the detail, contract a few more crops generally, with a premium if it can realistically be achieved. Vining peas create a great entry for a first wheat and are a low-risk crop, so they'll stay on our lighter land, as will winter beans on the heavier ground, spring malting barley and feed wheat will retain their positions too. I've contracted some heritage malting barley, and forward sold some of next year's wheat, just in case markets bomb.

What does look like my cup of tea for 2027 is growing hybrid spinach seed. It's essentially sown with a beet drill and looked after similarly, but harvested with a combine. It's nice to be involved in producing something that's in demand, particularly when it utilises mostly existing kit, and presents new challenge, opportunity and reward.

We grow a wide range of crops on our little patch, plus grass, stewardship, cover and companion crops, pollinator strips and other nature-enhancing measures. Add to that contact-finished pigs, muck of various types, an average nitrogen loading of only 120kgN/ha and a completely in-house operation, and I struggle to see how we could spread risk any further.

This year we've looked at how and why we dress farm-saved seed, and with what. Single purpose dressings have been the automatic go-to for decades, but why? Are they delivering value? We've utilised an excellent local agricultural laboratory and done more in-depth seed testing this year than usual,

and ditched any varieties with poor vigour scores or much bunt present, in a bid to improve crop health.

This has resulted in dressing some seed on a threshold basis, and some alternative ideas trialled. Wheat blends generally perform slightly above straight varieties here, so I've pushed that envelope a bit further, and used more nutritional dressings and less fungicidal ones.

Next month I'm hosting two meetings here on the farm. Both groups are primarily focussed on healthy soil and clean water, so alongside all of this, we've treated some wheat seed with a biological drench and sown it next to some traditional single purpose-dressed seed and will observe carefully over winter.

Having ditched a couple of wheat varieties due to reducing grain quality, we've also sown four new ones side-by-side on very comparable land in the same rotation slot for analysis and shortlisting into our 2027 variety profile. It's going to be an interesting year of 'why'. ●

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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Prioritising preserving potato quality

“Dormancy break can be expected to occur up to a month earlier this year than might be expected in a typical year.”

ERIC ANDERSON

Potato yields are down not just in the UK but across Europe, posing a significant threat to supply. CPM looks at what can be done to optimise the quality of what's being lifted.

By Andrew Watts

It's too late to influence potato yields this year, but there's still plenty that growers can do to protect quality, believes industry expert, Eric Anderson.

Eric, principal advisor for Grounded Agronomy, says bruising and tuber turgor are his main concerns. “Experience in 2025 showed that crops under soil moisture stress at haulm destruction were more vulnerable to bruising at lifting than where moisture stress was limited prior to burn down,” he adds.

Bruising damage can be internal or external depending on impact severity and other tuber factors, namely temperature, dry matter skin set and tissue condition. Whereas superficial damage such as scuffing, splits, cuts and gouges can be removed at harvest, internal bruising may not show until later. It can also be made worse during store loading and unloading, he raises.

“Tuber turgor is central to managing this risk. High turgor, often caused by

excess moisture after a dry period, can increase the risk of shatter bruising and cracking. Low turgor, caused by a prolonged lack of moisture, makes the tissue more compressible and increases the risk of blackspot,” explains Eric.



Watch-outs

Grounded Agronomy's Eric Anderson says bruising and tuber turgor are his current main concerns.

Some varieties are more susceptible, for example Maris Piper, but in all cases soil moisture levels should be managed carefully after haulm destruction. “Moderate soil moisture status helps tubers enter harvest and storage with more stable internal pressure and better resistance to vibration, drops and conveyor impacts,” he adds.

Another issue that’ll require monitoring closely because of the hot and dry summer will be dormancy break. Potatoes housed in older stores with less efficient fridges or processing crops – which are often stored at higher temperatures – are at greatest risk.

“Dormancy break can be expected to occur up to a month earlier this year than might be expected in a typical year; reducing temperatures to 3°C slows this process,” raises Eric.

MH TAKE-UP

Pre-pack and processing growers are likely to have applied a sprout suppressant such as maleic hydrazide, and just how well it was taken up will influence dormancy break, he says.

“Stores will require inspecting regularly so that any dormancy break is spotted early. This will allow re-application to be timed appropriately, which is when 20% of tubers are at first white spots visible. This approach will maximise the time between applications and reduce costs during the season,” notes Eric.

Exactly what treatments growers choose is likely to be dictated by the intended marketing strategy, as harvest intervals differ between products. “It’s worth discussing the options with your adviser or contractor. 1,4-dimethylanaphthalene (DMN) has a 30-day harvest interval, while that for spearmint or orange oil will be shorter,” he comments.

Discussing maleic hydrazide (MH) performance further, it’s likely to have been compromised this season, especially in droughted or non-irrigated crops, notes Jon Kemp of Mercian. “In many cases, MH wasn’t applied, and where it was, we don’t know whether it worked.

“Those crops also died off quickly, so in terms of life cycle, the potatoes have already physiologically aged 4-6 weeks more.”

Hitting processing specification on some of these crops is likely to be a challenge with smaller tubers, he adds. Therefore, Jon advises growers to think carefully about whether unirrigated crops will long-term store, even if they will hit specification and

the financial incentive is strong.

“Some customers might have sympathy particularly if there’s a shortage, and be able to bend sufficiently if things go wrong, but in some smaller grower groups it could be difficult. Be realistic and prioritise crops for early movement.”

Short-term stored crops that will be moved by Christmas might not require any sprout suppressant treatment, he raises. “Take a ‘wait and see approach’ but if there are any signs of movement, apply orange oil (as in Argos).”

The advantage of Argos over DMN in that situation, is its speed of activity. “It works within a couple of hours so there’s no loss of efficacy once you start venting the shed to bring temperatures down, whereas with DMN,

it will be blowing it out of the shed.”

Where crops will be stored until at least January, he advises bringing down temperatures as quickly as possible once the crop is dry and then treating with DMN immediately, and following up with another 20ml/t application four weeks later.

Experience from a not dissimilar season in 2025 highlighted the importance of getting protection on early. “It’s going to need it because from March we had significant issues with internal sprouting and trying to keep the crop dormant.”

Irrigated crops should have fewer problems, particularly where MH was applied, but Jon still recommends treating those destined for long-term storage as quickly as possible because the impact of the summer heat is unknown. ►



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Thinking twice

Jon Kemp advises growers to think carefully about whether unirrigated crops will long-term store, even if they will hit specification and the financial incentive is strong.

“MH applications will mean they should store better with no internal sprouting,” says Jon. “I think all sprout suppressants require MH to make them effective.”

Growers storing potatoes for the pre-pack market often rely on MH and low storage temperatures to control sprouting, at least for short- and medium-term storage, notes UPL’s Geoff Hailstone.

“But with lower MH levels in tubers, that might not be sufficient this year,” he suspects. “Where it’s a shorter dormancy variety or in longer-term storage, store managers are almost bound to require orange oil, possibly at the start if potatoes have already sprouted, or at the end.”

“If rots appear and you have to unload quickly or there’s a marketing opportunity,

you can do it after 48 hours following treatment with Argos, while it’s common practice to leave stores ventilated for 7-10 days with mint oil because of the risk of taint,” comments Geoff.

Steve Edgley of Nightlayers Farm

in Chatteris, Cambridgeshire, applies orange oil during the latter stages of tubers that are stored long-term. The farm’s 200ha of potatoes are split approximately 50:50 between those that are lifted ‘green-top’ from June through to around October for immediate movement, and crops

stored from November through to June.

Potatoes destined for storage are treated in-field with MH, including non-irrigated fields. “Everything we applied MH to was green, so I’m happy that it was

“As one of Europe’s thirstiest crops, it was inevitable that the potato harvest would be hit hard, and we’re starting to see that now in industry yield estimates, down 20% in some cases.”

taken in,” he comments. “We put a lot of detail into feeding crops with nutrients because even if they’re not getting water, they keep producing with feeding.”

Longer-term storage is in two 1500t ambient temperature box stores kept at 9°C, and a third 1000t refrigerated store at 8°C. All are treated initially with DMN once potatoes have been cured and dried down, with further treatment 4-5 weeks apart as required.

HOLDING PERIOD

Once unloading has started, a switch will be made to orange oil, or less often, mint oil, says Steve, because of the much shorter holding period.

“We’ve had good results with all three products, but Argos comes into its own when we come out of using DMN [because of its shorter 48 hour holding period].”

Considering the broader impact of the challenges experienced this season, Europe is on course for its smallest potato crop on record (including seed and starch crops), due to the lower yields incurred by the drought and successive heatwaves of summer 2026, combined with a smaller planted area.

Analysis by the Energy & Climate Intelligence Unit (ECIU), a non-profit organisation that supports informed debate on energy and climate change issues in the UK, suggests this summer’s weather will knock around 3.11M tonnes off the potato harvest in Germany, France, Belgium and the Netherlands. Collectively, these four countries – often described as the ‘North-western European Potato Growers’ (NEPG) – account for more than half of total EU production.

Separate analysis of Great Britain’s potato crop suggests a loss of roughly 0.44M tonnes, bringing the total for NEPG+GB to more than 3.5M tonnes in reduction.

These estimates of lost production are based on comparisons with the five-year average, with yields 13% lower in France, 21% in Belgium, 10% in Germany and 7% in the Netherlands. This is in addition to the estimated 3.6M tonnes already lost across the four countries due to the 2026 lower planted area. The NEPG puts the crop area for 2026 at 521,500ha (excluding seed and starch), a drop of 82,700ha compared with 2025. In a statement, the NEPG warns that buyers will have to revise specifications or accept a lack of supply.

“Export customers may also have to adapt their usual specifications and expectations, particularly regarding tuber size and length. Availability

Timely research to address current pest challenge

New potato leafroll virus research aims to protect crop quality and cut risk

A new research project has been instigated to investigate potato leafroll virus (PLRV) transmission routes, with the goal of helping growers to protect crop quality, reduce rejection risk and secure future supplies of healthy seed.

With around three-quarters of the UK potato crop grown from Scottish seed, preventing PLRV spread matters significantly to ware and processing businesses across the country. The project will identify where risk is greatest and turn its findings into practical guidance for growers.

The research is part of CIC-START – a training and research programme backed by a £1.87M Biotechnology and Biological Sciences Research Council (BBSRC) award. Based at the Crop Innovation Centre in Invergowrie, the programme brings together the University of Dundee, the James Hutton Institute, Harper Adams University, the University of Nottingham and industry partners including Grounded Agronomy, to tackle commercial crop problems.

Work is being led by David Reynolds as part of a four-year PLRV PhD studentship; his previous research covered aphid-borne viruses, plant resistance and variation between virus strains. Eric Anderson, Principal Agricultural Adviser and Director at Grounded Agronomy, will serve as



Applied research project

David Reynolds is undertaking a four-year PLRV PhD studentship, to identify where risk is greatest, with findings being turned into practical guidance for growers.

David's industrial supervisor, linking the science with commercial seed potato production and hopefully keeping the work focused on grower requirements.

Once underway, the project will study the aphids that spread PLRV, how infected plants respond and why particular virus variants become established.

Critically, the demand for this research immediate – peach-potato aphid numbers were high in Scotland in 2026, while milder winters have increased potato volunteers in

cereal crops. Volunteers can carry PLRV without obvious symptoms and act as infection sources.

By 2023-2024, one PLRV variant had become dominant in some Scottish potato crops, replacing a type present for more than 40 years.

Growers are urged to act now by checking cereal stubbles for volunteers, removing potential virus sources promptly, and using aphid monitoring and local risk information to target crop inspections and protection decisions.

of the larger and longer potatoes they're accustomed to sourcing will be more limited this season, requiring greater flexibility in terms of product specifications," says the NEPG.

These assessments have been estimated using a combination of grower test digs, national statistics and trade estimates. Although similar data doesn't currently exist for Great Britain, the ECIU references trade publication *World*

Potato Markets, which estimates yield in line with the drought year of 2018 – 11% below the 2021-2025 five-year average.

The publication also highlights the demand for more investment in private water storage and overall water management, whether that's conserving water when there's too much, or irrigating during dry periods.

ECIU reports that the trade expects an EU potato crop of 19.5-20.5M

tonnes, a decrease of around 27% compared with 2025's record 27.3M tonne crop. In response, market prices have increased dramatically – Belgian free-market potatoes have moved from zero in April to €200/t or more; German processing potatoes are making €240/t against a season low of €15 in June; and British processors are paying more than £300/t to secure supply against what was £180 in February. ●

Horizon scanning for the problems of tomorrow



"We need to find solutions quickly, otherwise we will lose sugar beet in our rotations."

ACHIM JESSER

A sugar beet disease in Germany is making virus yellows the forgotten challenge. CPM reports from the recent IIRB Congress in Cambridge.

By Mike Abram

Virus yellows might be taking much of the sugar beet research focus in the UK, but in Germany and other parts of Europe, another challenge is equally, if not more, feared.

Syndrome des basses richesses (SBR) and rubbery taproot disease (RTD) (see box) have some similarities to virus yellows, in that the pathogens are vectored by an insect, and, in the case of SBR, cause yellowing of sugar beet leaves.

But rather than being a virus, SBR is caused by bacteria transmitted by planthoppers. First recorded in Burgundy in France in 1991, it's now Germany, Switzerland and Austria bearing the main brunt of infections.

Symptoms show up in late summer as yellowing and chlorosis of older leaves, lance-shaped or asymmetrical new leaves, with necrosis of vascular root bundles, which presents as brown rings in the cross-section a root. The roots don't rot and remain processable, but with losses of up to 5% sugar content and 25% root yield.

PATHOGEN COMPLEX

Like virus yellows, SBR is a complex of pathogens, with the proteobacterium *Candidatus Arsenophonus phytopathogenicus* (ARSEPH) implicated, while the 'A' and 'P' strains of the stolbur *phytoplasma Candidatus Phytoplasma solani* (PHYPSO) can also be present.



Cultural control

Research suggests that while there are economic questions regarding spring cropping, this could be part of the solution for SBR, posed Achim Jesser.



Field trials

Carsten Stibbe highlighted that research at KWS' field station near Frankfurt has found most yield damage happens during the period of peak planthopper flights.

ARSEPH was the classic main SBR pathogen in most countries, but in Germany the 'P' strain of the phytoplasma is now dominant. Where both or even all three are present together, which has been found in parts of Austria, the impact on crops is usually more severe.

A similar complicated picture occurs with the cixiid planthopper vector. At least three types have been shown to carry the pathogens. *Pentastiridius leporinus* is more common in western and central Europe, driving the classic ARSEPH bacterial infections in much of Germany, but also transmitting the stolbur 'P' strain phytoplasma in eastern Germany.

GENERALIST VECTORS

In Austria and further southeast in Europe, the principal vector of the 'P' strain is a reptalus species, but again it can transmit either pathogen type.

Both are generalists rather than specific to sugar beet. DNA sequencing of *Pentastiridius leporinus* by German researcher Omid Eini at the Institute of Sugar Beet Research (IfZ) found DNA from up to 32 plant species, including weed species such as nettles, bindweed, meadowgrasses and cocksfoot.

With no direct cure for infected beet plants – the pathogens are parasites that live and feed in the plant's phloem carrying sugars from leaves to roots, and therefore impossible to hit with a spray.

A longer-term control solution, and

ultimately probably more effective measure, will be through breeding, with some promising results from trials comparing SBR-tolerant varieties versus susceptible varieties.

In the meantime, agronomists and experts are concentrating on finding agronomic measures that reduce risk, again mirroring the UK experience with virus yellows.

"We're at the beginning of the race," admitted Südzucker agricultural research coordinator, Achim Jesser, who's been working in partnership with growers and grower associations in Germany to implement various control

practices on farm. "But we have to find solutions quickly, otherwise we'll lose sugar beet in our rotations."

Various research projects are starting to help suggest what could work on farm. For example, KWS research at its field station in Seligenstadt, west of Frankfurt, has found that most of the yield damage happens during the period of peak planthopper flights.

In 2024, that coincided with a 10-day period from 20 June, while in 2025 it was a slightly longer 20-day period in mid-June, explained Carsten Stibbe, KWS R&D head of field station at IIRB's recent 80th Congress in Cambridge.

What's the threat to UK beet crops?

The German experience means SBR and rubbery taproot disease are very much on the watch list for BBRO

According to Professor Mark Stevens, BBRO head of scientific endeavour, the explosion of SBR and rubbery taproot disease on the Continent is concerning. "But we need to be pragmatic, appreciate what's happening elsewhere and learn from the research findings in Europe."

A monitoring programme has been set up with the University of Sussex entomologist Dr Alan Stewart looking for planthoppers, particularly *Pentastiridius leporinus*, around the East Anglian and Lincolnshire coastlines from 2025.

The planthopper, also known as the reed glass-winged cicada or saltmarsh lacehopper, has been found by Alan, raised Mark. "So one of the key vectors is here, but to the best of our knowledge we don't have the phytoplasma or proteobacterium that cause the disease complex."

However, the risk is the disease could spread to the UK, for example, on imported material such as seed potatoes or other infected vegetables, as well as on infected planthoppers arriving from across the channel. "All the classic routes are valid for the particular pest-pathogen combination, exacerbated by its extremely wide host range."

As a further check, British Sugar agricultural managers have been tasked with reporting any strange



High alert

British Sugar agricultural managers have been tasked with reporting strange symptoms in beet crops, especially around the coastal areas, said BBRO's Professor Mark Stevens.

symptoms in beet crops, especially around the coastal areas, added Mark. "The challenge is it can look quite similar to virus yellows."

SBR SIMILARITIES TO VIRUS YELLOWS

- Looks almost identical in the field – both induce yellowing of leaves
- Pathogen is vectored by an insect – viruses by aphids (virus yellows); bacteria and phytoplasma by planthoppers (SBR)
- No direct cure – control for both is about limiting the vector or breeding tolerant varieties
- Both affect sugar economics, as well as yield – virus yellows infections raise amino nitrogen, sodium and potassium levels reducing how much sugar the factory can extract; SBR reduces sugar content directly
- Both have become worse since the neonicotinoid ban

- “The key finding is there’s a beginning and an end, which indicates a chance for a control system – we just need to be able to detect the beginning and end of flights.”

That could be one application of two complementary models using AI-based image analysis of sticky traps being developed by Dr Facundo Ispizua Yamati and colleagues from IfZ.

The first model identified cixiid planthoppers from other insects caught in traps to 94% overall accuracy, he reported, while the second model distinguished between the main SBR-relevant planthopper groups, with 99% accuracy.

KWS’ research also looked at the effectiveness of insecticides, finding the contact insecticide lambda-cyhalothrin gives up to 10 days’ control, with a combination with systemic insecticide acetamiprid providing some increased activity up to 15 days after exposure to planthoppers.

Südzucker’s research builds on those findings, trialling the use of combinations of insecticides and foliar fertilisers across small plot trials and

in around 60 on-farm split fields.

These too showed promising results, with the combination of three sprays of a tank mix of contact and systemic insecticides providing 10-14% higher white sugar yield; adding in a foliar fertiliser boosted that to a 16% increase in both small plot and grower strip trials over untreated controls, reported Achim.

“Importantly, it’s economically feasible for the grower. They make more money if they spray compared with doing nothing.”

PROGRESSIVE RESEARCH

A second project had an even more ambitious scope. In four regions, Südzucker designated that all the growers and fields in the region were part of the trials, explained Achim.

In these trials, growers were asked to adjust their cropping rotation to grow spring crops rather than the typical winter wheat after beet, as well as to use insecticides and foliar fertilisers to protect and strengthen the beet crop.

Researchers monitored planthopper emergence from the spring crops

versus winter wheat outside the designated project areas, finding 80% fewer planthoppers emerging in the spring crops.

“While there are economic questions [about growing spring crops], this could be part of the solution,” suggested Achim.

Visually, the beet in the region looked better too, he added. “But it’s all about did it improve yield? The short answer was yes, delivering around 20% more white sugar yield on average inside those regions compared with a 3km surrounding area.”

Armed with these results, last year Südzucker provided similar recommendations to all its grower base. The result, after three consecutive years of losing up to 1.3% sugar content year-to-year in the beet delivered to the factories in SBR-affected regions, was a 1% increase in sugars, said Achim.

“While it was a good year for beet, this gives us hope that these measures and farmers trying to do something about SBR are helping us to go in the right direction,” he concluded. ●

Why RTD persists in Serbia

Latest research presented at the IIRB Congress in Cambridge shows a wheat-sunflower rotation is instrumental in maintaining the persistence of rubbery taproot disease in Serbia

First observed in the 1960s, rubbery taproot disease (RTD) has caused widespread problems in Serbia and neighbouring countries in recent years, because it makes the beet rubbery and impossible to slice and process in factories.

Previous research by Živko Ćurčić and colleagues found that the *Candidatus Phytoplasma solani* pathogen causing rubbery taproot disease carries a particular gene marker known as ‘tuf-d’.

He also identified that the vector was the *Reptalus quinquecostatus* planthopper, but there was a gap in knowledge about how both the planthopper and pathogen persist outside of the sugar beet crop.

The first clue was an observation that RTD hotspots appeared on the border of sugar beet fields next to winter wheat after sunflowers, said Živko. “That changed our approach from just looking at sugar beet, to inspecting the roots of sunflowers and wheat.”

After finding nymphs on the roots

of both sunflowers and wheat, sunflowers were confirmed as an important reservoir of *Ca. P. solani* tuf-d that causes RTD. Further experiments where adult planthoppers were caught in emergence cages in wheat after sunflowers confirmed that the hidden nymphal stage completed development in wheat.

“Transmission trials using the planthoppers collected in wheat after sunflowers showed 10 out of 11 sugar beet plants in the cage were infected with RTD,” explained Živko.

The research has led to a newly revealed life cycle that involves the adult planthoppers feeding and egg-laying in sunflowers, before a nymphal stage underground developing on the roots of sunflowers and subsequent winter wheat crop, re-emerging in late spring or early summer as adults.

“Their flights last for 4-6 weeks, during which time they also feed on other crops, including sugar beet, transmitting the disease. But the planthoppers don’t produce a new generation in sugar beet – it’s just a host for feeding.”

The findings help to explain why RTD occurs in sugar beet fields where the crop hasn’t been grown for several



Research findings

Transmission trials using planthoppers collected in wheat after sunflowers showed 10 out of 11 sugar beet plants in the cage were infected with RTD, explained Živko Ćurčić.

years, he said, while having implications for control. “First, we know that we can’t wait until the vector enters sugar beet fields because by then it is too late.

“For farmers, it means they have to pay attention to surrounding crops, with sunflower, wheat sequences representing high risk. It also means we can now start to trial management practices to interrupt this hidden life cycle in the soil,” he concluded.



I'm the master of my fate

During the run up to its launch I received some rather pointed criticism, mainly saying I didn't have the skills

The reason why I've taken them to heart is the objective of Glazed isn't simply wailing a few words off a sheet. I really wanted to create an inclusive space where people felt supported and nurtured

Maybe I'm deluded,
powered by pink Lucozade
and blind faith (really need
to quit my Luco habit eek)
but I'm at the age where I'm
aware that I want better for
the next generation. And
isn't that what farming is
striving to achieve too? ●

Now, it was never my purpose to behave so indignantly, but when it came

During our recent readers' survey, we asked you to describe *CPM* in just one word. This was the result, and we are very pleased:



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.

The **NEW** Pantera

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