

december 2024

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**Recommended
Lists bring 41
new additions
Page 8**



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Editor's Pick

It feels like a lifetime since I last shared my musings with you all given *CPM* slows its pace down during the winter months. And although we may wish to embody the crops in the ground and remain dormant until spring, the days continue to tick on.

To relay a quote which is above my desk: "The clock of life is wound but once, and no man has the power to tell just when the hands will stop, at late or early hour." The reason why I share this is, *CPM's* trusted colleague and friend Fred Walker passed away recently.

Fred, the man behind Brooks Design, was wholly invested in *CPM* and as such spent more than 20 years laying out the pages which eventually, with some hard graft, would become each issue of the magazine.

Without his input, stories were just black and white words accompanied by some scant instructions from the editorial team. It's Fred who brought it all to life, he made it happen.

Although I didn't know Fred for very long, what I can say is his patience and kind heart were what led me through a rather ambiguous period when I was acting editor, and then once again when I took on the role permanently.

No handbook can prepare you for taking a leap of faith into the unknown, but having someone in your corner fixing your mistakes without judgement, is very reassuring. When I didn't think I could do it, it was Fred's pep talk that finally shifted my perspective and helped me to realise that I did indeed have it in me.

I've said it before, life really is too short; time is our most precious commodity. There's so much worry in the world right now – in many ways rightfully so – but we mustn't forget about the here and now, the very moment we're living.

As for *CPM*, we'd long taken the decision to re-evaluate our look and brand, and consequently, this will be the final issue in our current guise.



I'll be taking time to get to know new arrival Boss – who certainly isn't for the Christmas dinner table!

Although we'll be wearing a 'new jacket' come 2025, it wouldn't have been possible without the strong foundations that Fred helped to build during the years. This one really is for you, Fred!

So as I come to wrap up what will be my final Editor's Pick (without the picking, actually), I want to wish you a healthy and happy festive season in whatever form it may take. If you love Christmas, I hope it's joyous; if it's not your thing, remember it's just one day and you can spend it however you like. Eat roast turkey or baked beans, only the man in the sky can judge.

Try to take a moment for yourself, just to breathe in that exact second without thoughts of tomorrow, next week or 10 years' time. "The present only is our own."

Janine



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smith's soapbox

by Guy Smith



En marche

I suppose I grew up in the age of the 'demo'. In the 1960s, black and white television screens appeared full of news reports of people gathering to protest about an issue. In our living room, the commentary that usually accompanied these images was mainly my dad's withering remarks along the lines that those attending were, by and large, 'layabouts who ought to get a job'.

However, these strong views of his about the rights and wrongs of demonstrations seemed to take a u-turn when in 1971, we waved him off from Colchester Livestock Market along with a coach-load of other farmers. They were all off to march around Central London to complain about the Labour government's most recent and most measly farm price review. In those days, the annual farm price review determined the value of the main farm commodities through a device called the deficiency payments scheme. The 1970/71 settlement was viewed as unacceptably derisory by most farmers. That evening, mum and I switched on the six o'clock news in the hope of catching

a fuzzy glimpse of dad among what looked like a mass tumult of placard-wielding farmers streaming through Whitehall. Wind the clock on 50 years and there I was amidst a soggy throng of farmers in much the same street making our views known about the current Labour government and their plans to abandon APR. The crowd probably wasn't as great as the turnout in the 1970s, but by modern standards it was impressive enough to make a statement and attract attention. We have to remember here, there are far fewer farmers than there were. As usual, there was a discrepancy between the official crowd numbers – that being 10,000-15,000 according to the Met Police, compared with the 40,000-50,000 claimed by the organisers. From my vantage point behind the cenotaph, I tried to compare the crowd to the one that turns up at Portman Road now Ipswich Town is in the Premiership. It wasn't exactly a rigorously scientific method, but I thought things seemed comparable at 30,000. But the key debate about numbers wasn't the size of the crowd in Whitehall, it was the number of farm businesses impacted by the change in BPR and APR. According to the government it's 25%, whereas according to the NFU it's 75%. If you want my explanation as to why these figures are so different, it's fairly simple – the government uses ridiculous metrics, namely the number of registered farm holdings whereby they think there are 210,000 farms in Britain. If you talk to machinery dealers they'll tell you there are less than 20,000 commercial farm businesses buying farm machinery in the UK. As those of us who've witnessed first-hand the changes in commercial farming in our respective



Farmers on the streets of London in 1971.

parishes during recent decades will relay, the matter of who farms the land has changed dramatically. More importantly, the number of acres required to form a viable farm business has increased dramatically.

The 200-300-acre farms that used to characterise the countryside in the 1970s are largely gone. The fact is, this isn't reflected in the official figures because single farm businesses buy up multiple holdings. If the government knew their onions, they'd realise the £3M cap they've put into place protects smaller units which aren't genuine farm businesses, but rather people protecting wealth from inheritance tax. Meanwhile the 500-acre farms find themselves in the eye of the death duties storm which will leave many family farms on the rocks.

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.

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“It’s no longer the dominance of dirty, barn-fillers; it’s providing choice.”

AHDB Recommended Lists

Something for all

From varieties with mass appeal to niche options targeting specific markets, all has now been revealed from the AHDB in terms of its 2025/26 Recommended Lists for cereals and oilseeds. *CPM* takes a look at the latest additions.

By Janine Adamson

In the words of the glittering Dolly Parton: “Here you come again”. Indeed, it soon rolls back around – whether that’s referring to the arrival of Santa Claus or the Recommended Lists announcement. But hopefully, unlike Dolly’s misfortune, both are far more welcome than a persistent ex-partner.

According to the AHDB, this year’s variety guidance includes several ‘eye-catching’ additions with wide appeal as well as new options which target regional and niche scenarios, plus, the introduction of more winter barley varieties than usual. In fact, in total, 41 new varieties join the RL with 26 having been removed.

Perhaps most notably, a new UKFM Group 1 has been added to the winter wheat RL – for the second year running. Furthermore, two new high-yielding UKFM Group 3 winter wheat varieties have been introduced with a view to further invigorating what’s previously been labelled a stalling market segment.

As for oilseed rape – again, a crop with mixed fortunes – most additions to the RL have regional recommendations which the AHDB says reflects the greater variation in performance of the crop compared with cereals.

And in terms of the ongoing RL review, the lists continue to adapt with changes being implemented to the recommendation processes, for example, the introduction of new target specifications for diseases across all crops and increased importance for untreated yield.

Equally, the new lists see a significant influx of varieties with a specific recommendation for resistance or tolerance to BYDV, demonstrated by five new winter barleys and one new winter wheat; the spring barley list includes disease resistance ratings for net blotch for the first time.

AHDB’s Paul Gosling manages the RL and says farmers want robust varieties that help to de-risk their businesses. “Breeders work hard to deliver new

varieties to satisfy this demand.

“When coupled with the changes to the recommendation processes, the lists now feature varieties that deliver more diverse and stronger genetics. It’s no longer the dominance of dirty, barn-fillers, it’s providing choice that meets the requirements of the RL’s diverse users,” he highlights.



AHDB’s Paul Gosling says the lists continue to adapt, for example, the introduction of new target specifications for diseases and increased importance for untreated yield.

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► Winter and spring wheat

Ten new varieties join the winter wheat list covering key milling sectors, which Paul says in most cases, provide strong steps forward. The headline is the arrival of another UKFM Group 1 which makes for two in two years, following a six year hiatus.

This time it's KWS Vibe which has been given provisional listing (status to be confirmed in spring following Harvest 2024 grain sample analysis). In small-scale testing during the past three years, Vibe has shown good grain and baking quality with good protein levels [13.2]. According to Paul, its disease resistance package, including a yellow rust score of 8, thus high untreated yield (89), will be attractive to Group 1 growers.

Olivia Bacon, KWS UK technical manager for conventional crops adds that Vibe slots into the new RL behind KWS Zyatt for yield, but has the overall highest protein production potential on the list.

"Vibe brings genuinely improved performance to a sector that's had few new additions in recent years. We believe it's the new 'protein banker' for the UK, with the best combination of yield and protein of all varieties but a much better plant package for growers than previous options.

"It has the most comprehensive agronomic offer of all the key Group 1 players including a 6.6 for septoria tritici resistance combined with a Hagberg falling number of 283 and specific weight of 79.1 kg/hl. It really has everything you would wish to see in a Group 1," she says.

UKFM Group 2 sees five new varieties starting with KWS Arnie – a wheat with



Arguably, the headline addition to this year's RLs is KWS Vibe – the second UKFM Group 1 wheat variety to land in as many years.

very high treated yield particularly in the East (106) and West (108), and good disease resistance. KWS Equipe is another entrant offering good grain quality (Hagberg 103) and has the highest untreated yield on the list (92).

Then, KWS Newbie is very high yielding in the North [107] with good grain quality (Hagberg 305), while LG Shergar also has a very high yield in the North [105] and a high specific weight (80.4) although lower protein [11.9].

Completing the new Group 2s is RGT Goldfinch (RAGT). Although offering relatively low yields (89 UK), it has a robust disease resistance package including BYDV resistance and 9 scores for both yellow and brown rust. It shows good baking quality (Hagberg 279) and has orange wheat blossom midge resistance.

Commenting on Goldfinch, RAGT's arable technical manager, Andrew Creasy, says using genetics rather than insecticide to prevent BYDV infection simplifies crop management.

"Goldfinch is best suited to well-bodied land and can be sown from early September – ideal for a BYDV-resistant variety – to the end of November. It produced very high yields under BYDV pressure in RAGT trials and in commercial situations last season," he adds.

Last year it was Bamford which came along to shake up the Group 3s with hope of addressing years of declining market share; continuing in a similar vein sees

KWS Solitaire and KWS Flute join the pack.

Solitaire is high yielding in both treated (107 UK) and untreated (88) trials and although has a slightly lower Hagberg Falling Number (179), it's been rated as high for distilling. However, with relatively weak straw (6 for lodging) will require management.

According to Olivia, these two varieties should be perceived as Group 'disrupters' thanks to their potential to serve all market opportunities whether that be distilling, export, feed or biscuits.

"Solitaire is the top Group 3 variety on the new RL, bringing exciting possibilities to all regions. In addition to high yields for all, benefits include outstanding septoria tritici resistance for the West, OWBM resistance for the East and distilling potential in the North," she points out.

Flute also has high treated yield (106 UK) with good grain quality, rated medium for distilling, but could be said to have a disappointing untreated yield (80). However Olivia says it's a solid Group 3 all-rounder with good early sowing performance.

Just two new feed varieties have been recommended this year – RGT Hexton and KWS Scope. Hexton is a soft group 4 with a very high treated yield particularly in the North [111]. It's rated medium for distilling and has good resistance to septoria tritici (6.8), although its untreated yield is lower (80).

Andrew highlights that Hexton should have widespread appeal across the UK.



According to KWS' Olivia Bacon, KWS Solitaire and KWS Flute should be perceived as Group 'disrupters' thanks to their potential to serve all market opportunities.



“The variety has no Achilles heel and the combination of an exceptional yield and suitability for distilling make it even more attractive for growers in the North,” he says.

Conversely, Scope is a hard group 4 with high yield especially in the West region (111) and good resistance to lodging (8).

Four new spring wheat varieties join the list: UKFM Group 1 STRU102574k021511 (STR Pace – name confirmed next year) from Agrovista, UKFM Group 2 KWS Beziq, Group 4 WPB Fraser from Limagrain and Group 4 Ophelia from Elsoms.

Winter and spring barley

Starting with the two-row feed options, the winter barley RL welcomes KWS Valencis, NOS Olena (Senova) and Kitty (Senova). Valencis and Olena offer very high yields with good disease resistance and although Kitty is lower yielding (104 UK), it has resistance to barley yellow mosaic virus strain 2 (BaYMV2) and a very high specific weight (72.7kg/hl). According to Paul, Kitty won't appeal to everyone but provides valuable traits which some growers will like.

Russo (Agrii), KWS Heracalis and Rosemary (Elsoms)

and SU Arion (from Saaten Union) have all been given regional recommendations.

For the East, Russo has very high treated (108) and high untreated yields (90). For the North, Heraclis and Rosemary offer very high treated and high untreated yields. Arion has been recommended for the North and East regions with the yield in the East notably high (107).

Paul highlights that during recent years, the yield gap between six-row hybrids and two-row feed varieties has closed, however, two new six-row hybrid varieties have stretched that gap once more.

These varieties are Inys (KWS) and SY Quantock (Syngenta). Inys is very high yielding particularly in the East (109) and West [112] whereas Quantock offers very high yield in the North (106) and West [112]. Both have good lodging resistance and grain quality.

Commenting on Inys' performance, KWS UK technical manager for hybrid crops, Rory Hannam highlights that the variety is the firm's first hybrid barley.

“Although hybrids have been a key feature of KWS breeding for many years across other crops, Inys is



Although RGT Goldfinch has relatively low yields, it offers a robust disease resistance package including BYDV resistance and scores a 9 for both yellow and brown rust.



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AHDB Recommended Lists



Early ripening plus an impressive kernel content make Caledon spring oat suitable for milling and a variety to follow, suggests Elsoms' Toby Reich.

our first hybrid barley to be launched, with the UK the first region to introduce it.

"Its yield potential should make it very popular with growers, but Inys is also a great performer in the field with good standing power and a solid agronomic

package. Its 7 for brackling, for example, is the lowest of all hybrid barleys and also one of the lowest on the RL," he says.

Rounding up the winter barley RL are five new varieties with tolerance or resistance to BYDV, including two-row feed varieties for the first time – Organa (Senova) and LG Carpenter (Limagrain).

Organa has a UK recommendation whereas Carpenter has an East and a West recommendation, and, the highest untreated yield (92) of any two-row on the list.

Managing director for Senova, Tom Yewbrey, believes Organa is a groundbreaking two-row feed variety. "An exciting development, Organa has both genes responsible for BYDV tolerance – YD2 and YD3 – as well as resistance to strain 1 of BaYMV.

"It's just one of the company's winter barleys that aim to help growers reduce their reliance on artificial inputs and allow them to introduce SFI actions which reward farmers for not using insecticides.

"There's some impact of BYDV in tolerant varieties, but the yield loss is much less than that of susceptible varieties," he says.

Three new six-row feed varieties feature

BYDV tolerance or resistance. Conventional variety Integral (Agrii) offers high treated yield in the East and West regions with high untreated yield (91). Sixy (Elsoms) is higher yielding in the North region [107] while hybrid variety SY Kestrel (Syngenta) offers BYDV resistance (rather than tolerance) with added tolerance to wheat dwarf virus.

In terms of spring barley, five new varieties have made the list – four under evaluation by the Malting Barley Committee and one feed variety (the latter, NOS Gambit, has been re-evaluated). Notably, this RL data now includes disease resistance ratings for net blotch.

SY Arrow (Syngenta) offers high treated yields across all regions, whereas Firecracker (Agrii) has high treated yield especially in the West region [106] and high untreated yield (93).

New addition Ptarmigan (Agrii) is earlier maturing than most varieties on the list (0), which Paul says could attract growers in the North. KWS Enduris also joins the RL with a lodging score of [8].

"These new additions offer improvements in yield and/or disease resistance compared with the current market leaders RGT Planet and Laureate," suggests

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Paul. "However, the market is tough to break into and they may still fail to achieve full MBC approval. Growers should ensure they have a market before committing to such varieties."

Oats

Spring oat variety, Caledon (Saten union), is the only new entrant for the crop this year. Marketed by Elsoms Seeds, Toby Reich says Caledon is the highest yielding spring oat variety on the new RL.

"With a treated yield of 105 – 4% ahead of the next best variety – plus the highest untreated yield at 98, Caledon offers outstanding disease resistance and a positive balance of agronomic features.

"Add in early ripening plus an impressive kernel content (72.8) qualities which make it suitable for milling, it looks like a variety to follow."

Winter oilseed rape

Reflecting the greater geographical variation in oilseed rape sees most of the new additions to the RL coming with regional recommendations. Paul stresses that as the divisions aren't absolute, growers should consider which

region is best for their conditions.

Moreover, one new non-specialist hybrid variety has been recommended for the UK: LG Adapt (Limagrain). The UK list also includes two new entrants with a specific recommendation for resistance to the common clubroot strains – Crusoe (NPZU) and Cromputer (DSV). "These offer significant advances in pest and disease resistance over the current varieties, with Crusoe also offering higher yield in all regions (103% UK).

"With milder and wetter autumns, several RL trials have been lost due to clubroot in recent years. The disease appears to be getting more prevalent so these varieties are likely to interest growers," says Paul. Crusoe and Cromputer both offer moderate resistance to verticillium.

For the East/West region, three new non-specialist hybrid varieties have been recommended. Maverick (NPZU) is very high yielding (109), has good disease resistance including a rating of 9 for stem canker, but lacks pod shatter resistance.

Hinsta (KWS) and Magelan (Limagrain) are slightly lower yielding; Magelan is the only variety of these three with moderate verticillium resistance.

For the North region there are two new recommendations – LG Avenger (Limagrain) and Powerhouse (Elsoms). Avenger is non-specialist hybrid with a very high yield [106] plus good light leaf spot resistance (7), whereas Powerhouse is a new conventional variety with the highest conventional yield in the North region (102).

Paul believes its yield result, good light leaf spot resistance rating (7) and the flexibility to home-save seed will attract growers.

Commenting on the variety, Elsoms OSR breeder Mark Nightingale says it offers conventional growers the lowest relative risk for the North as well as strong disease resistance and high seed yields. "It's solid set of disease scores also includes a 7 for resistance to light-leaf spot," he reports. ■

Online tables

The complete 2025/26 Recommended List tables can be accessed online via: ahdb.org.uk/rl

A printed booklet edition will be available January 2025.

“The disease protection delivered by iblon last season really impressed me. I used it on the quality wheat and it did a brilliant job; it's earned my trust.”



Find out more

Richard Cross

Farm Manager, Oxton Estate,
Nottinghamshire.



OSR cropping update

According to United Oilseeds' managing director, James Warner, although it's difficult to paint an optimistic picture for the future of oilseed rape at the moment, there are positives to highlight.

Reflecting on Harvest 2024, James points out that although there's been a significant drop-off in yield across the UK – averages are now down to 2.91t/ha – East Anglia fared better. "Yields in that part of the country were +20% on 2023, despite the rest of the UK really suffering.

"If you recall, East Anglia was severely hit by cabbage stem flea beetle pressure a few years ago, so it could be down to a cycle of control or some form of migration trend," he explains.

He adds that initially, data from the firm indicated 2023/24 UK plantings would total around 350,000ha, but following prolonged, difficult weather conditions, the final harvested area was in fact 291,948ha. "With an average yield of 2.91t/ha, that's a total 833,873t national output – the lowest since 1984.

"Despite this, oil yields were up – the second highest that we've recorded – which is a positive for growers given the £6/t additional margin available through bonuses," he adds.

As for the current season, James acknowledges it's been tough so far. "We all expected plantings to be down but I'm unsure we expected it to be by this much – based on seed sales, we're looking at -36% year-on-year.

"Inspecting more closely, 55% of sales have been for hybrid varieties with just 13% for conventional options (see table). This demonstrates that the swing towards hybrids is continuing – if you go back just five years, conventionals had 50% of the market.

"Furthermore, the biggest shift has been in specialist varieties – HOLL (high oleic, low linolenic) are +17% whereas HEAR (high erucic acid rape) have had less of a downturn than they could have had at -11%, year-on-year.

"The combination of HOLL and HEAR

varieties now comprise around 22% of the market, whereas last year it was 16% and five years ago, just 8%."

Despite the negative headline numbers, James comments that as of today, growers are reporting some of the best OSR establishment seen for years. "In 2023, based on our establishment scheme data, we saw around 10% crop losses. That's in contrast with 4% this year which would also suggest establishment has fared much better this season."

This could be timely news for the firm, given its recently launched OSR Reboot campaign. Led by United Oilseeds with wide industry support, its aim is to reinvigorate optimism and drive action within the sector.

"Already there are noticeable developments as a result of the OSR Reboot including policy requests to amend the SFI framework to include payment for pollen/nectar flowering crops, and to encourage changes to the Border Target Operations Model (BTOM) to expedite seed movement into the UK," says James.

Neil Groom, general manager for Grainseed, agrees that SFI has had a negative impact on the prospects for OSR. "In effect, SFI has become the break crop for wheat on some farms. But care is required to prevent build-up of weeds and pests which will result in more input costs in the rotation."

He also comments that due to wet weather at harvest, it meant seedbed conditions were favourable for OSR. "Establishment was rapid this autumn and fields look very good going into the winter."

Varietal type	2023/24 (ha)	2024/25 (ha)	% change*
Conventional	46,129	26,093	-43%
Hybrid	199,593	122,358	-39%
HOLL	6000	7000	+17%
HEAR	41,892	37,095	-11%
Clubroot	21,729	13,874	-36%
Clearfield	20,118	7206	-64%
TOTAL	335,461	213,626	-36%

*Data based on United Oilseeds seed sales



United Oilseeds' James Warner highlights that plantings for the current season appear to be -36%, year-on-year.



“This is how to achieve return on investment – placing products within a crop’s lifecycle where they’re most likely to deliver impact.”

Bioscience in practice

Working in synergy

Utilising synergistic activity between two foliar biostimulants could help cereal crops to overcome nutrient deficiencies and bounce back from adverse autumn conditions. *CPM* finds out more.

By Janine Adamson

It’s widely acknowledged that when it comes to crop nutrition, rather than abundance of macronutrients, the most critical factor is availability. And in the case of phosphate specifically, despite existing in three pools, it’s only the inorganic form dissolved in soil water which is readily available to the plant.

At the same time, growers are striving to balance reducing their reliance on conventional, applied fertilisers with overcoming 18 months of challenging weather conditions – sharpening the focus on ensuring optimised crop nutrition, suggests Unium Bioscience’s Andrew Cromie.

“As we move through the autumn and

into the spring with crops approaching GS30, thoughts shift towards rooting and phosphate availability. This is even more prevalent following the wet weather of the past season and depleted soil reserves, as well as the potentially compromised establishment of this year’s winter cereals,” he explains.

“There’s also the influence of soil biological activity – as the weather turns, biology shuts down whether a crop is ready to be dormant or not, which can result in a transient deficiency. With all of these factors combined, the importance of crop rooting and scavenging for nutrients comes to the fore.”

Alternative solution

Rather than revert solely to conventional phosphate products, Andrew adds that there’s an alternative in the guise of two foliar biostimulants – Calfite Extra (calcium phosphite+ L-PGA) and Luxor (a nutrient blend+ humic acid+ fulvic acid+ L-PGA).

“Calfite Extra is a stimulant designed to improve crop rooting and maximise nutrient uptake. It essentially tricks the plant into scavenging and therefore boost its roots and exudates which feed the soil biology.

“Working in synergy with this is Luxor which provides an efficient phosphate supply through maximising availability and reducing adsorption in the soil. Because

Luxor contains pidolic acid (L-PGA), the overall combination helps a crop to make the most of this availability while increasing nitrogen assimilation,” he explains.

Having used Unium products for several years, Agrovista agronomist, Rob Sheets, was keen to assess the two biostimulants for himself. This began with Calfite Extra, which he started working with in 2020.



As the season moves through the autumn and into the spring, crops approach GS30 and thoughts shift towards rooting and phosphate availability, says Unium’s Andrew Cromie.



Agronomist Rob Sheets recommends using Calfite Extra as the crop is waking up in the spring because in challenging soil conditions, strong roots are critical.

► “Many of the farms I manage are aiming to utilise more sustainable approaches to crop management but without compromising on productivity or hiking input costs, meaning there’s a growing interest in alternative technologies.

“As with conventional phosphate, Calfite Extra helps a crop to push roots out, and the more roots, the better. This has been a consistent effect and coupled with its cost-effective price-point, the farmers I work with have become accustomed to the product and trust the science.

“In fact, used with Luxor, it’s certainly playing a role in making the switch from granular phosphate for many of the farms I advise on,” highlights Rob.

Waking up

He points out that GS25-30 is the most achievable application time due to autumn conditions becoming increasingly difficult across his region (East Anglia and the Midlands). “A post-em application isn’t possible in reality, instead, I recommend using Calfite Extra as the crop is waking up in the spring. This is because in challenging soil conditions, strong roots are critical.”

As for Luxor, Rob’s experience with the product began in 2022. “Aside from being an available form of phosphate, Luxor’s particle size is very small which helps with solubility and uptake within the plant. I’ve found it to be a useful product in maize too because the crop has such a high energy demand early on in its lifecycle.

“Used with Calfite Extra, the two products exhibit a synergistic effect meaning I rarely recommend one without

What it means for ROI

Trials which took place at Russell McKenzie’s farm in Cambridgeshire last season explored the impact of different biostimulant programmes on a crop of Bamford first wheat.

Most notably, an application of Calfite Extra 0.5 plus Luxor 0.5 at GS30, resulted in a 1t/ha yield increase come harvest, compared with the farm standard.

Analysing this for return on investment by dividing the net income by the cost of the treatment (see table), Andrew Cromie says the figure of 16:1 for the two products should speak for itself.

But what does Russell think?

“Not only is it reassuring to see a positive yield response from the two products, but because they’re cost-effective, they reduce some of the risk associated with making the investment in the first place,” he says.

“Using them certainly supports exploring new approaches to phosphate while reducing input costs, but with the added benefit of



Farmer Russell McKenzie says because Unium products are cost-effective, they reduce some of the risk associated with making the investment in the first place.

knowing that the products consistently work. If you work out the ROI of conventional phosphate versus the Calfite-Luxor approach, the latter wins hands down.”

	Yield t/ha	Difference t/ha	Additional yield value (wheat at £188.8)	Cost/trt	MOIC	ROI
Farm standard	12.2	-	-	-	-	-
Farm standard plus Calfite 0.5 l/ha	12.4	0.2	£37.76	£6.30	£31.46	5:1
Farm standard plus Luxor 1.0 l/ha	13.1	0.9	£169.92	£10.20	159.72	16:1
Farm standard plus Calfite 0.5 l/ha and Luxor 0.5 l/ha	13.2	1	£188.80	£11.40	£177.40	16:1

*1st wheat: Bamford

the other. Equally, knowledge is improving regarding TSP in that it’s a waste unless aspects such as pH and calcium levels are at their absolute optimum. This means using the biostimulants is a far more efficient approach,” he comments.

Bedfordshire farmer, Matt Fuller, is a self-confessed advocate of biostimulants and uses them across the entirety of 1000ha Heathcote Farms to help maximise crop health and efficiency. He includes biostimulants in most tank

mixes across a range of combinable crops including Group 1 wheats.

After seeing the benefits of this approach, Matt says it led him to question exactly how crop nutrition is being delivered. “Having purchased a microgranular applicator a few years ago, we’d been applying Primary-P around the seed in our oilseed rape and cereal crops topped up by foliar phosphite applications in the autumn and spring.

“However, I wasn’t sure if this was



According to Bedfordshire farmer Matt Fuller, a stand-out benefit of Luxor is that it has activity whether it's soil- or foliar-applied.

the correct method for the cereals in particular, and wanted to know whether we could fine-tune both product choice and application timings," he explains.

This led to a conversation with Unium which explored the 'supply and demand' effect of the Calfite Extra/Luxor combo. But Matt says a particular stand-out benefit was that Luxor has activity whether it's soil- or foliar-applied. "This means the crop's biomass, which can vary during difficult conditions, is less of a concern and we gain greater flexibility on timings, especially for backward crops."

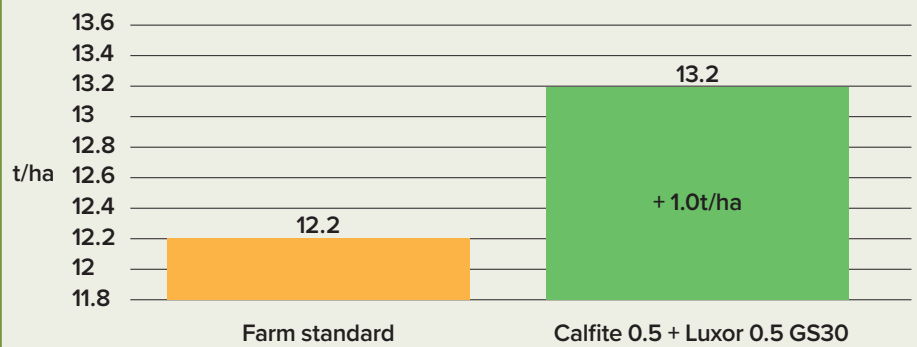
As such, this led to him trialling Luxor for the first time last year (2023/24). "We tried the product across various first and second wheats and also some spring peas with applications being made in the spring to boost crop vigour and overcome any stress.

"The main crop which I was interested in was 110ha of Extase (second wheat). Despite the difficult conditions throughout the season, which in many ways has made it difficult to conduct and assess trials, we achieved 9.39t/ha average, which I was very pleased with.

"Although that can't be attributed to the addition of Luxor alone, I believe it has contributed to the crop's performance," suggests Matt.

He also highlights that managing take-all in second wheats can be a challenge on the farm and therefore he perceives Luxor to have value in offsetting that disease threat. "Due to the weather and heavy land, we'd usually have to be drilled up in early October but of

Yield response in winter wheat – Calfite Extra and Luxor



Source: Unium Bioscience, 2024

course, it increases the risk of take-all.

"Biostimulants such as Luxor can't eradicate take-all, but they can help to increase rooting which supports a crop to grow through the disease pressure," he explains.

Biostimulant programme

Crucial to his success with biostimulants has been creating a suitable programme depending on mode of action and what each product contains, stresses Matt. "I believe this is how to achieve return on investment – placing products within a crop's lifecycle where they're most likely to deliver the greatest impact.

"For second cereals, Calfite Extra and Luxor certainly fit well during the high supply and demand period in the spring," he adds.

To revert back to his point regarding how best to deliver crop nutrition, Matt says he conducts regular tissue testing to support tailored applications and avoid wastage. "We have a lot of data from the past few years which we've been

able to collate and start to extract trends based on the weather, for example.

"We're also conducting grain analysis too which helps to understand the impact of biostimulant products which are applied later in the season, such as 3 ALO T6P (trehalose-6-phosphate), and whether they're influencing grain quality."

Cambridgeshire grower, Russell McKenzie, has also been trialling Calfite Extra and Luxor. Despite the testing conditions of last season, he says the products still performed which is reassuring.

"We regularly see uplifts of at least 1t/ha from using Calfite Extra and Luxor, which includes last year. You can't always see a difference with the naked eye comparing treated with farm standard, but it's apparent during NDVI scanning.

"Half the battle with biostimulants is managing conflicting claims about their performance as they don't all work, but through trials, we've seen that the Unium products are effective year-on-year," he concludes. ■

Bioscience in practice

As the chemistry toolbox continues to shrink, an array of new biosolutions are coming to market, offering a range of benefits and complementary additions. Evaluating how effective they are and where they're best placed can be tricky, however.



This series of articles opens a window on the science behind these innovations. CPM has teamed up with Unium BioScience to explore the background, unravel the physiological processes and provide analysis on trial results. Above all, these articles give the grower an insider's view on some of the exciting opportunities biosolutions offer in the field, including Calfite Extra and Luxor.

Calfite Extra is a foliar nutrient complex designed to improve crop rooting and maximise nutrient uptake from the soil. Luxor is a soil- or foliar-applied fertiliser based on two forms of available phosphorus, which aim to maximise availability and reduce adsorption in the soil.

Learn more by joining the Unium Bioscience technical group <https://www.uniumbioscience.com/unium-technical-group>

“If we can start growing decent crops of wheat with 100kgN/ha, it's a game changer.”

AHDB

from theory
to field

Developing practical N strategies

During what's undoubtedly been a difficult season for in-field experiments, CPM finds out what the nitrogen trials on AHDB's Strategic Farms are indicating.

By Mike Abram

What is it about farmers called David? All four of the current AHDB Strategic Cereal Farm hosts have that first name, but the similarities don't end there – they also share an instinctive interest in undertaking practical on-farm research, which is one of the key missions of the initiative.

The network was established in 2017 with the first AHDB Strategic Cereal Farm for the East hosted by Brian and Patrick Barker in Suffolk. The aim was to move away from small plot trials in favour of implementing scientifically robust work on a commercial scale, explains Henny Lowth, senior knowledge transfer manager for AHDB, who oversees the Strategic Cereal Farm programme.

“It helps to provide insight from the

farmers into what does and doesn't work practically within their farming systems. In small plot trials, that real-world view can be lost,” she says.

The network also provides an opportunity for farmers, not just the hosts but visitors to Strategic Farm meetings, to interact with researchers. “It's become a hub for researchers to hear from farmers about their research in a helpful environment.”

Focus areas

Each farm has selected – with the help of its steering group – 3-4 different areas to focus its trials and research efforts. Unsurprisingly, given recent volatility in pricing plus the ongoing social and environmental pressures on its use, nitrogen fertiliser and its efficiency has become a common interest on three of the four farms.

Nitrogen rates on wheat have typically followed the national trend during the past 10 years for David Jones, host of the Strategic Cereal Farm East in Morley, Norfolk, with a reduction from around 220kgN/ha to 200kgN/ha and below since 2021.

“David [Jones] wanted to try and improve his nitrogen use efficiency and reduce his reliance on mineral-based fertiliser,” says David Clarke, soils and farming system specialist for research partner NIAB.

“One approach is to reduce the amount of soil-applied nitrogen and use a polymer urea-based foliar product instead.”

The claim for polymer urea products is, applied to the leaf, they have high bio-availability of the nutrients resulting in much higher nitrogen use efficiency. “If the efficiency of these products is higher, you shouldn't see a yield difference despite a lower total amount of nitrogen applied,” explains David Clarke.



The Strategic Cereal Farm programme helps to provide insight from farmers into what does and doesn't work practically within their farming systems, says AHDB's Henny Lowth.

2024 research areas on Strategic Cereal Farms

North – David Blacker

- Nitrogen use efficiency – soil v foliar applied
- Living mulch & compost impact on soil biology
- Old v new drainage effect on soils and crop performance

East – David Jones

- Cultural grassweed control performance
- BYDV – decision support tools and varietal resistance
- Nitrogen use efficiency – soil v foliar applied

Scotland – David Aglen

- Cover crops – drilling date / termination method impact on following crop performance
- Management practices influence on biodiversity
- Nitrogen use efficiency – soil v foliar applied in direct drill system
- Interaction between tailored nutrition and standard agronomy on crop health

South – David Miller

- Cover crop choice influence on nitrate leaching and following crop performance
- Regenerative system field management impact on soil health / crop performance
- Companion cropping in winter wheat
- Impact of farm management on grain nutrients

Typical practice is to use foliar nitrogen to replace soil-applied products later in the season and in the case of Morley Farms', that'd be the last of three splits when 30-50kgN/ha is typically applied in early May.

Historic soil moisture data recorded at Morley 2014-2023 indicates that soil moisture declines during April into early May. That might make uptake of soil-applied nitrogen less efficient, whereas applying it to the leaf should bypass that issue, suggests David Clarke.

"The rationale is replacing soil-applied nitrogen with foliar might overcome some of those limitations," he adds.

As part of his PhD studies, David Clarke has been validating the Sirius nitrogen model developed by Rothamsted Research, which could potentially help to understand nitrogen use efficiency within crops.

Using measured soil data from a long-term trial at Morley where different rates of nitrogen are applied from 0 to 250kgN/ha to calibrate, David Clarke has been able to show the model can accurately predict crop growth, grain yield in response to nitrogen and grain nitrogen uptake to within 22kgN/ha.

With increased confidence in the model's accuracy, David Clarke used it to estimate the nitrogen use efficiency of each application using 29 years of recorded weather data, plus average farm benchmarks for drilling date, soil properties and residual soil nitrogen from previous crops.

Perhaps unsurprisingly, the model suggests nitrogen use efficiency for the first two splits is high at 98% and 83% respectively. "But our simulated nitrogen

use efficiency for the third split is down to 47%, suggesting it is something to change."

The yield response to the last timing was, on average, only 0.1t/ha, he notes, although it varies by season. "From previous AHDB research in the Learn project we know the last 30-35kgN/ha typically only increases yield by a very small amount."

This information led to one of the Strategic Farm's trials last season, where replicated tramlines were treated at the last

split with either with the farm's standard 38kgN/ha soil-applied nitrogen, or the equivalent amount of the foliar nitrogen product. Other tramlines were untreated at the last timing to provide a control.

Both soil electrical conductivity and satellite maps were used to ensure the site was even in previous yield performance, soil type and in-season nitrogen uptake before the work began.

Yield results

Yields were then recorded via both mapping and by accurately weighing each cut treatment swath individually. "Yield mapping slightly underestimated yields, but there was a consistent relationship between it and the weighed yields," says David Clarke.

Within the trial strips, the soil-applied nitrogen generated a yield response of around 0.3t/ha and 0.5% boost in grain protein over the strips that didn't have any nitrogen at the later timing, he reports, with yields of around 10t/ha.

That almost matched the recommendation from Yara's handheld N-tester of applying 40kgN/ha for the last split for a 10t/ha target yield, he highlights. "But we didn't see any response from the foliar urea treatment, where yields and grain protein were almost identical to the untreated." ▶



On David Blacker's farm, difficult weather played a role in his wheat crop failing to respond to an initial 70kgN/ha of soil-applied nitrogen at the first split.

▶ That could be down to a couple of factors, he suggests. “It was a good year for soil-applied nitrogen – soil moisture was above average for most of the year so we didn’t see the deficits you might expect.

“There was also some septoria in the crop which could have affected the foliar products – obviously when you’re looking for leaf uptake you want as much green leaf area as possible.”

A similar trial will be repeated during the coming seasons to build a larger dataset on how much response farmers can expect from these products, he adds. “It’s also a demonstration that a well set-up tramline trial like this, using either yield monitors or weighbridges, can be useful in determining if changing strategies is worthwhile on farm.

“Concentrate on finding a good even site when setting the trial up to give you the best chance of identifying differences,” advises David Clarke.

However, on the other Strategic Cereal Farms where foliar nitrogen has been trialled against soil-applied nitrogen, the results have been mixed. In the North on David Blacker’s farm, difficult winter and spring weather played a role in his wheat crop failing to show any response to an initial 70kgN/ha of soil-applied nitrogen at the first split.

“A soil mineral nitrogen test suggested most of this was lost to the atmosphere by denitrification or in drainage water,” explains Henny.

But with roots compromised after sitting wet, it gave an opportunity to assess the merits of a slow-release foliar product. As such, two treatments of a foliar application were tested against the farm standard of completely soil-applied 160kgN/ha.



As part of his PhD studies, David Clarke has been validating the Sirius nitrogen model developed by Rothamsted Research, which could potentially help to understand nitrogen use efficiency within crops.

The first had a foliar treatment of 10kgN/ha followed by a soil-applied 50kgN/ha as the third split, while the other treatment had the soil-applied dose first followed by the foliar application.

“It means the total dose of nitrogen for the one with foliar applications was 130kgN/ha, but that’s considered equivalent to 160kgN/ha with extra use efficiency,” adds Henny. “The idea was, with poor root growth could we give a boost by applying nitrogen through the leaf.”

Even so, the yield results suggest that didn’t happen with both foliar treatments yielding 0.8-0.96t/ha less than the soil applied nitrogen, she comments. “Economically, for it to break even as the foliar product was cheaper, the yield penalty had to be less than 0.2t/ha to make it viable.”

Mixed outcomes

That level of loss has put David Blacker off from continuing to explore foliar nitrogen products, says Henny. “It doesn’t necessarily mean it’s not going to work, but David [Blacker] doesn’t see it as a financially viable option.”

In Scotland, David Aglen is much more positive about the use of foliar nitrogen following three years’ trials and commercial use. The latest trial compared ammonium nitrate, liquid UAN, and a third treatment starting with liquid urea with remaining applications with a foliar urea nitrogen product, he explains.

Yields were similar despite the foliar treatment receiving 30kgN/ha less than the 200kgN/ha total in the ammonium nitrate or liquid UAN treatments. “They were all over 10t/ha and within a 0.16t/ha of each other, so it wasn’t significant in my eyes.”

He wonders whether foliar nitrogen is working more effectively for him in the North because of more favourable application conditions. In Australia, research suggests a combination of humidity and temperature can be used to help judge when to maximise nutrient absorption into the plant and avoid rapid evaporation rates.

“Our application windows when you look at that are massive, and my suspicion is further south where the air is drier, it might have more of an impact. If you apply on a dry day with a drying wind, the water part of the solution evaporates before the urea molecule can get into the plant,” he suggests.

Next year’s trial will look more closely at application technique to see whether it can be improved to help reduce total nitrogen further. “The previous season we



David Aglen has pondered whether foliar nitrogen is working effectively for him in the North because of more favourable application conditions.

were getting 10t/ha yields with 140kgN/ha, but last year that wasn’t adequate as I don’t think there was enough nitrogen in the system after the wet winter. Hopefully we can drive down the nitrogen required – if we can start growing decent crops of wheat with 100kgN/ha, it’s a game changer,” he says.

According to David Aglen, getting foliar urea into the plant is the difficult part. “I think using bubblejets or standard spray jets is hit and miss. Most of what you spray probably ends up on the ground so we’re going to try hollow cone jets for a really fine, swirling mist around the plant.

“Anecdotally they work a lot better, giving fantastic coverage on the leaf. They’re also cheap, but you do have to watch your timing with drift,” he concludes. ■

Research roundup

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

For more detail about this project, visit ahdb.org.uk/strategic-cereal-farms



“ I walked into the field and it made my heart sing not just because of the skylark’s song, but because of the quality of the soil and crop. ”

Real Results Roundtable

Quality not quantity

For many this year, much rests on making a success of the Sustainable Farming Incentive, but what advice do biodiversity experts have regarding its management? CPM hosts BASF’s latest Real Results Roundtable to start the conversation.

By Janine Adamson

This year, many growers have found themselves on board with the Sustainable Farming Incentive (SFI), a situation no doubt accelerated by a challenging 18 months where cropping rotations and management plans have been thrown into disarray.

And although growers are fully aware of the benefits of enhancing biodiversity, and in many cases already undertaking appropriate action, will their SFI activities deliver on government targets?

To help understand how to best manage and therefore enhance

on-farm biodiversity, CPM brings together Northants grower and Project Fortress host, Andrew Pitts; wildlife farming consultant, Marek Nowakowski; research ecologist for the Game and Wildlife Conservation Trust, Dr Lucy Capstick; and BASF sustainability manager, Alice Johnston.

Having all worked together during the evolution of BASF’s Project Fortress at The Grange, the Roundtable discusses what they’ve learnt during the process while reflecting on the current direction and implementation of SFI.

Understanding ‘good’

The Roundtable began with Marek stating that when it comes to biodiversity in nature, the focus must be on quality rather than quantity. “Ecologists use the word heterogeneity, which at a simplistic level means diversity.

“What this country has lost is not only habitat, but the diversity of habitats – which could continue to be the case when SFI is a three-year scheme rather than five-year. If you look at the actions being adopted, England is being rapidly covered by the same options and will end up with thousands of hectares of neutral-density grassland which won’t meet the government’s environmental target.

“Whereas focusing on quality and

spreading habitats around the farm means insects and pollinators can reach a ‘petrol station’ which is the critical part.”

In agreement, Andrew explained his goal is to produce high value, clean seed crops in the centres of fields while maximising the environmental benefits which can be achieved around the outsides.

“And with environmental schemes, I’ve been through buying cheap and replacing them two years later. I’d



According to wildlife farming consultant, Marek Nowakowski, the UK has lost not only habitat, but the diversity of habitats too.



Ecologist Dr Lucy Capstick said whether it's possible to use beneficial insects as part of integrated pest management is in many ways, indicative of good biodiversity.

▶ rather choose quality options which you get greater financial benefit from in the long-term. It may be expensive to establish these types of crops, but you see a good variation of insects, birds and invertebrates because of that," he said.

Furthermore, Andrew highlighted the importance of implementing best practice across the whole farming system by relaying his experience that morning. "I walked across a block of farmland that had been a second wheat seed crop before we autocast a stubble turnip mix for grazing by sheep.

"We then planted spring oats as a seed crop – which required no applied nitrogen because of the sheep manure – and produced 4t/ha at an incredibly low cost of production.

"This crop was a 'low input spring cereal' – AB14 – and the combination of these payments of £350/ha and the low input spend meant we'd a gross margin on that crop of more than £1200. Not only was it profitable, but the regular SFI payments help smooth the cash flow; this type of farming can pay."

He says he then used a stripper header to harvest the oats and direct drilled straight into the stubble. "It looks fabulous. The soil has changed colour during the 10 years of being direct drilled with a mixture of spring and winter crops plus grazing; it's transformed.

"I walked into that and it made my heart sing not just because of the skylarks' song, but because of the quality of the soil and crop. That's what professional farming is all about – that's the Holy Grail."

Lucy added one of the first things

the GWCT measured at The Grange was invertebrate abundance during the transition to direct drilling. "When we started monitoring, the plough was still being used in places and we noted on average there was an increase in the invertebrates in the direct drilled fields compared with those ploughed. There was also an increase in natural enemies and a reduction in pests in direct drilled fields compared with other cultivation types.

"In many ways, that's indicative of good biodiversity – whether you can utilise beneficials as part of integrated pest management," she said.

Managing abundance decline

With reports of a national decline in pollinators and beneficial insects this past year, the Roundtable discussed mitigation tactics.

To provide context, Lucy explained the wet spring and continued inclement weather has had an impact on pollinators, bumblebees especially.

"I repeated a bumblebee survey which was conducted in 2019 this year and there's been a 70% decline across the same farms. As such, it's becoming increasingly important to consider whether there are ways for us to buffer extreme weather conditions."

Andrew raised this is where quality habitats come into their own. "That way nature is more resilient and can withstand these shocks in the same way soils with higher organic matter can better withstand drought. With more diversity in wildflowers, for example, there are more nectar sources for both long-tongued or short-tongued bees."

Beyond the impact of environmental extremes, Marek pointed out the concept of natural decline. "Unless you're rotating habitats over their appropriate period, they will naturally decline, which is something we're seeing at The Grange now.

"It's not a criticism, but rather like a rotation in combinable crops, we should be creating a habitat rotation too, unless you're on chalks in the Chilterns of course."

Marek added that on heavy land, habitats will likely have to be relocated every 10 years to ensure insect and pollinator levels can be maintained.

Rewarding results

Continuing with the weather, having recently re-assessed what he perceives

as a 'normal' autumn, Andrew questioned the current payment mechanism for SFI. "Now in our part of the world, a normal autumn is when you don't get drilled up, so how do you reward a farmer for doing his best endeavours despite that?"

"You could plant a high value wild bird seed or wildflower mix in the right conditions, at the right time of year and manage it correctly just for Mother Nature to release 12" of rain in 12 days and it's washed away – that's the problem."

In response, Marek shared the 'payment by results (PBR)' experiment demonstrated that an alternative reward mechanism has the potential to work. "PBR is a model where farmers are paid based on the results of their actions, rather than for following specific methods and thanks to technology, it can easily be monitored.

"At the time, it was suggested that it wouldn't work, even though it did, and now we have a system which encourages bums on seats rather than quality."

Andrew said PBR would certainly pique his interest. "Our environmental crops



With a vested interest in improving biodiversity, farmer Andrew Pitts said a payment by results-type reward mechanism, rather than the existing SFI model, would definitely pique his interest. Pictured with companion, Ziggy.



The role of the agronomist is changing – more are focusing on the environment and becoming experts to ensure schemes like SFI are treated in the same way as crops, suggested BASF's Alice Johnston.

are good because William (brother) and I value them. A first wheat is our most productive financially, but if we manage SFI well, that's an effective break or rotational crop which has a value.

"If you can incentivise that value, farmers are very good at capturing premiums; essentially the environment has become a premium because it's expensive to manage and requires investment of time. But PBR would yield massive results," he commented.

Learning journey

As discussions turned to the learning process and how to encourage a change in mindset, Andrew shared that his journey to understanding biodiversity at a deeper level began in 2002 when the farm sold its dairy herd.

"William and I always had a passion for what's alive in our surroundings, but it was selling the dairy herd that freed up management time and allowed us to start thinking. Whereas set aside was allowed around headlands, we realised we could do more than just let natural regen happen, instead, we could start planting wild bird seed or wildflower mixtures in small areas.

"And nature responds – it will always fill a void. If you put a food source or a habitat somewhere and predator control, nature will find it and take over."

Having been introduced to Marek in 2017, Andrew said this was when his knowledge was taken to another level. "Much like overcoming a yield plateau, finding someone with even more passion than we had was the key.

"There's tonnes of advice out there to be tapped into but the better the advice, the better the results you'll achieve," he stressed.

Conversely, according to Lucy, the GWCT has heard reports that information regarding the management of environmental schemes isn't always tailored and as such, can prove a barrier to uptake. In response, Alice suggested there could be a current knowledge gap between academic work and farmer knowledge.

"A few years ago, individuals weren't as clued up about soil health but since then there's been a huge increase in knowledge; hopefully this will happen with biodiversity.

"The role of the agronomist is changing, more are focusing on the environment and becoming experts to ensure schemes like SFI are treated in the same way as crops. It's about those areas of biodiversity being managed in a professional way," she said.

Project Fortress

Reflecting on the learnings from Project Fortress, which has been underway since 2021 as a sustainable farming showcase, Alice says it's become apparent that such approaches take time to establish.

"You don't just plant it and then it's job done. Some people, not necessarily farmers, think it takes a year and that's it. But actually, you have to manage those actions, consider where they're

being established and ensure habitats are connected across the farm.

"Equally, being on farm and speaking to growers to share best practice knowledge is something we have to do more of, as well as helping wider society to better understand the gravity of the issue at hand," she stressed.

Lucy agreed that improving biodiversity doesn't happen overnight. "When monitoring the agro-floristry strips at Project Fortress, we noted a significant increase in invertebrate numbers as they've developed during the years. Not just general invertebrates, but the specific pest-predator relationships that we're looking for such as parasitic wasps.

"That demonstrates the benefits you can achieve year-on-year even in challenging conditions."

Reflecting on Lucy's comment, Andrew raised that for him, the past season has highlighted how critical resilience is, across the whole of his business. "But you could also apply that to the past six years – the new normal is huge weather events with hideous amounts of rainfall.

"We have to build more and more resilience, by increasing carbon in the soils, improving habitats for the environment, and creating a stronger balance sheet on the business, to try and de-risk."

Expanding on Andrew's point, Marek said connected in many ways to resilience, is quality. "If just 5% of farmland is put into quality refuge areas for wildlife, you have the potential to see a yield increase.

"Equally, there's pride – I'm yet to meet a farmer who hasn't created a habitat and been proud of it, just like Andrew at Project Fortress," he concluded. ■

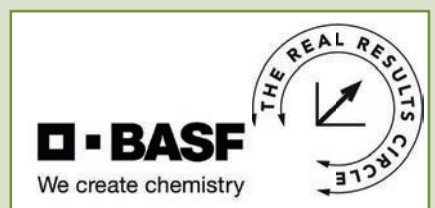
Rawcliffe Bridge Sustainability Award 2025

Do you, or someone you know, deserve recognition for enhancing the sustainability of their farming business? Entries for the BASF Rawcliffe Bridge Sustainability Award 2025 are opening soon.

The competition recognises how farmers are tackling sustainability from all perspectives considering the environment alongside societal and economic sustainability.

It's all part of the Real Results initiative, which brings together growers, industry experts and BASF to create a more resilient farming system that's sustainable for farm business profit, for the people we feed and for the planet we live on. To find out more about the award visit BASF's website.

CPM would like to thank BASF for kindly sponsoring this feature, and for its assistance in providing access to the relevant experts and contacts required to produce it.



“There’s absolutely no reason why, if you have the opportunity, you can’t drill a variety right up until its latest safe drilling date.”

Spring cropping

As winter rolls in and some seed is still yet to meet the drill, *CPM* explores how late is too late for winter drilling and the importance of flexibility when it comes to spring cropping too.

By *Charlotte Cunningham*

Widening the windows

Mother Nature has played another cruel hand this autumn, making for a consecutive challenging drilling campaign for many growers. At the time of writing, a significant hectareage remains undrilled and where seed is in the ground, establishment is looking a mixed picture.

However, for those who have their heart set on autumn cropping, there may still be opportunity...

This is according to Openfield’s Duncan Durno, who says modern varieties mean drilling into the new year

is a realistic proposition, providing a sensible spring cropping plan is waiting in the wings in case the weather worsens.

“Most of the second wheats will now be drilled so the crops that still have to go in will be where people have simply not been able to get on the land, or following root and forage crops such as maize, sugar beet and potatoes,” he explains.

To stand the best chance in such a late window, Duncan advises increasing seed rates to a minimum of 400 seeds/ha.

“A high tillering variety is also important as we’ve lost some vital growing time



Openfield's Duncan Durno says modern varieties mean drilling into the new year is a realistic proposition providing a sensible spring cropping plan is waiting in the wings.

– this will give the best opportunity for crops to reach their full yield potential.”

A good forward growth habit will also be critical to make up some of that time, while also contributing towards grassweed control which can still be a problem even in later drilled crops, he adds. “This is especially the case if you can't get pre-emergents on because of sub-optimum soil or seedbed conditions. Ideally, they'll still have to be applied, but in reality, you can only do what you can do.”

Keeping the faith

In terms of timings, Duncan says growers should have faith in the Recommended List latest sowing dates and use this as a guideline to decide on how late is too late to drill.

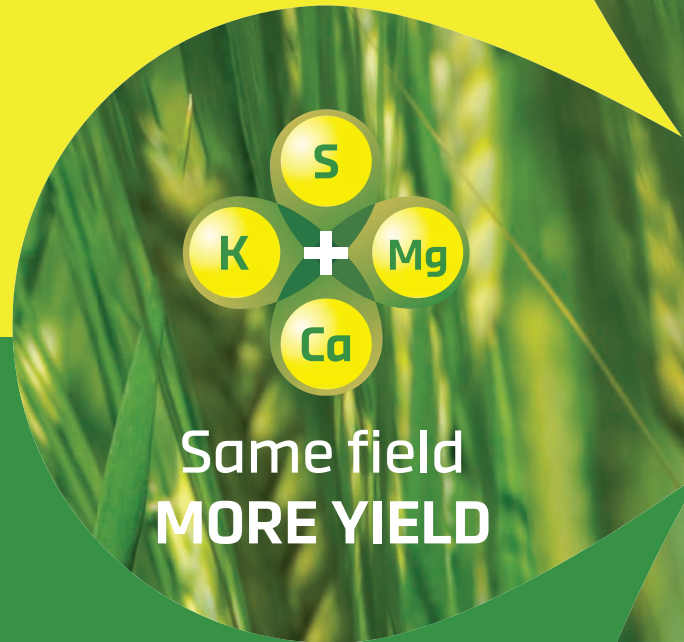
“There's absolutely no reason why, if you have the opportunity, you can't drill a variety right up until its latest safe drilling date,” he adds. “Being flexible about cultivations helps and these should be undertaken based on what the condition of the soil is. Like any crop,

late-drilled wheat benefits from good seed-to-soil contact and a firm-ish consolidated seedbed, but this could be difficult.

“Depending on conditions, the best establishment method could be anything from ploughing to direct drilling. Just look at soil conditions at the appropriate point in time, consider the options and be prepared to be flexible with your approach.”

Looking specifically at which varieties might fare best in the latest windows, Duncan points out DSV Champion as a good example of a modern variety with all the credentials required for a reliable late driller. He says it's proven its value in this slot – particularly during the past year.

“High tillering, good forward growth and a strong disease resistance package come into play even more with later drilling and Champion scores well on all those points. That core resilience means there could also be opportunities to save some money on fungicides later in the season, but you do



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DSV's Sarah Hawthorne says Champion can in fact be drilled safely well past the new year, with the latest 'safe' date in mid-February.

► have to be careful with later drilled crops. You don't want to do anything that could check growth," comments Duncan.

"Champion's early maturity is no bad thing, as is its OWBM resistance. If you have different varieties on farm all with different flowering dates, things can get out of sync from a disease control perspective, so OWBM resistance on the later drilled crops could be beneficial."

DSV's Sarah Hawthorne adds that Champion can in fact be drilled safely well past the new year. "Late-drilled wheats require that 'get up and go' both in the winter and the spring combined with strong disease resistance, which is often a good indication of their overall stamina and resistance.

"Drilled before 25 September, Champion has a yield of 107% of controls according to the 2024/25 RL, and this drops by just 1% to 106% for crops drilled after 5 November; the latest safe drilling date is mid-February.

"Furthermore, it has an outstanding combination of robust disease resistance

and high yield potential and currently holds the Guinness World Record for the highest wheat yield at 17.96t/ha while also being the top-yielding variety in the 2024 AHDB harvest results."

Oxford option

Another option from the DSV stable with similar attributes to Champion is DSV Oxford. "The latest recommended sowing date is the end of January; you have minimal yield loss when drilled after 1 November compared with earlier plus you have similar septoria and yellow rust resistance," explains Sarah. "Like Champion, Oxford also has good eyespot resistance which is important in a second wheat."

Breeder KWS is another advocate for pushing varieties to their latest date when necessary. The firm's Olivia Bacon highlights KWS Dawsum as one which offers rotational flexibility and as such, can help growers choose conditions that suit drilling best without too much concern over final yield potential, provided they remain within the RL's latest

drilling recommendations.

“Dawsum has been proven to deliver high yields across the rotation with a 2024/25 RL yield of 103% in both the mainstream and late sown slots,” she explains. “With a latest safe sowing date on the RL of end of January, I don’t think you have to worry too much whether you drill Dawsum at the back end or into the new year. “Don’t worry either if it looks slow to establish, it will get away quickly in spring.”

“In fact, last year we saw crops of Dawsum drilled in January doing almost as well as those sown early the previous autumn.”

This late drilling performance is underpinned by a robust disease resistance package including a 6.3 for septoria and 9 for yellow rust, which delivers an untreated yield of 91%, second only to KWS Extase on the RL, she points out. “It’s a highly resilient variety plus with a high specific weight of 79.9kg/hl, there’s a lot

of room to play with before it starts dropping down below minimum standard for feed of around 72kg/hl.

“KWS Cranium is another great late drilling option with an RL yield of 104% in the later slot and a latest safe drilling date of mid-February.”

Switching to spring

If the season gets to a point where the final drilling date is looming and crops still aren’t in the ground, Duncan says this is the time to switch to spring varieties. “It’s a good idea to put provisional plans in place with your seed supplier in case things don’t work out as anticipated so there’s a backstop of spring seed in place should you require it.

“The last thing you want to do is think about spring options when you’ve reached the end of the winter wheat drilling window, but by the time you reach mid- to late-February, you should really consider moving over to spring crops.” ▶



KWS’ Olivia Bacon highlights KWS Dawsum as a variety which offers rotational flexibility and as such, can help growers choose conditions that suit drilling best without too much concern over final yield potential.

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Agrii Throws Farm trial data (Harvest 2023)

Variety	Mildew(1-9)	Yellow rust (1-9)	Brown rust (1-9)	Septoria (1-9)	Height (cm)	Lodging (with PGR)
Everlong	8	7	7	6	79	(19)
Cochise	8	4	8	6	77	(2)
KWS Alcium	8	7	6	7	84	(3)
WPB Mylo	8	9	8	7	74	(1)
Escape	8	8	5	6	72	(1)

Source: Cope Seeds

- ▶ And it's not just later sown winter varieties that are piquing interest – spring alternatives with wider windows are experiencing increased interest too, according to Cope Seeds.

With a recommended sowing date spanning into April, managing director Gemma Clarke says the firm's variety Everlong continues to impress both on farm and in trials. "It's clean, easy to manage, and produces the boldest grain of any spring wheat," she highlights.

Everlong on-farm

Among the farmers who've benefited from this wider window is Lincolnshire grower, Colin Chappell, who planted Everlong earlier this year after the wettest winter he'd ever seen on farm.

"By 10 April 2024, 85% of crops still had to be drilled due to a succession of storms kicked off by Babet in October 2023," he says. "We wanted five or six days clear of rainfall and didn't get that until April.

"Much of the cropping area was in standing water until that point – it was a terrible year. I had to re-plant 35ha of winter wheat for Warburtons, and one field three times, after it was flooded out twice during the winter.

"Many farmers were planting spring barley following the wet winter and due to my uncertainty about the resulting barley price, I opted for an alternative spring wheat, grown as a seed crop for Cope," he explains.

Colin planted 15.5ha of the variety on 28 April this year and says he was pleased with the result. "Everlong went well into heavy clay soils that had been flooded and were starting to clear. It felt very late to plant but the seed bounced out of the ground and was away quickly.

"In terms of nutrition, the crop received early nitrogen on the seedbed then manganese, zinc and phosphite, which was repeated, and at tillering it had a second dose



Everlong, from Cope Seeds, has fared well in both the 2024 Agrii alternative and the AHDB RL trials – with the variety claiming a top spot for both treated yield and specific weight.

of nitrogen to total 150kgN/ha.

"As the crop came through it had phosphate, zinc and a herbicide, a fungicide at tillering, and a second fungicide treatment for fusarium 4.5 weeks later due to it being a seed crop," he says.

Colin harvested Everlong on 21 September as the last crop to go through the combine; it yielded 5t/ha. "It was a high-quality crop with high specific weight of 80kg/hl and a protein level of 13.9%, which is unheard of for a Group 4 with only 150kgN," he says.

"Everlong performed well and was easy to grow, it's also a nice bold yellow colour when ripe in the field – which, after the year we had, was

some comfort. If we keep getting this unseasonal weather, alternative spring wheats will be in demand. It's a strong back-up option," he concludes.

In trials, this performance has been reflected, with Everlong faring well in both the 2024 Agrii alternative and the AHDB RL trials – claiming a top spot for both treated yield and specific weight.

In the Agrii Throws untreated spring wheat trials site (Harvest 2023), Everlong demonstrated exceptional disease resistance – achieving a yellow rust score of 1 and a brown rust score of 2 – indicating very low levels of disease compared with other varieties, where lower scores reflect better performance, concludes Gemma. ■

“ Becoming a ‘we’ not an ‘I’ is fundamental for knowledge sharing, progression and moving forward in general. ”

Opportunities for organic with pulses

Pulse Progress

As interest grows in producing pulses on British soils, *CPM* catches up with an organic Lincolnshire farmer to find out why they're an integral part of his strategy.

By Charlotte Cunningham

During recent years there's been an undeniable growing interest in home-grown proteins, marking a significant shift in agricultural practices as more farmers explore the viability of growing beans and peas on their own farms. This trend has largely been driven by a combination of economic, environmental, and market factors, making pulses increasingly attractive.

Aside from their rising market demand, on a farm level, pulse crops have several benefits – from nitrogen-fixing abilities which enable the potential reduction of synthetic fertilisers, to enhancing soil health.

However, mastering pulse production isn't a quick game. It requires patience, trial, and error—something Lincolnshire

grower Paul Barnes knows all too well.

Paul has been estate manager at the South Ormsby Estate in Lincolnshire since 2018. “It's a 1240ha mixed business consisting of livestock, arable and poultry enterprises,” he explains.

After farming conventionally for two years, Paul began transitioning the estate to organic production. This journey has provided valuable insights into creating a symbiotic relationship between cropping, soils, and livestock without relying on chemical inputs, he says.

Arable rotation

Delving into the arable side of things, the rotation is based on a seven-year temporary clover ley which also includes winter and spring wheat, winter and spring barley, winter and spring oats and pulses all or which are either grown for seed production or human consumption. “We aim to grow a winter cereal after vining peas, but focus on spring cropping because in between crops we're trying to support our livestock rotation,” explains Paul. “The key thing is getting the pulse crop in the middle of the rotation and then take advantage of the top up of nitrogen fixation as this is a key element for an organic farming system”

So why pulses? Paul says it's all about

improving soil health. “Everything starts with soils – look after the soils and they will look after you. Having the pulses as a central, pivotal-point in the seven-year rotation is really important for us,

“If we're relying on the two-year grass ley to fix nitrogen, which of course it will, you're going to start depleting the soils. We can't let that happen,



Growing pulses in the middle of his rotation has become an important part of the strategy for Lincolnshire farm manager Paul Barnes.



Paul has found a plough-based system works best for them as it allows root structures to go down better and enables a slightly earlier window for drilling.

► particularly being organic,” he stresses.

“We therefore have to start looking at having an input crop which also fixes nitrogen, and then we can go again. We’ve had some fantastic years but also diabolic – this year looking to be the latter; it’s been a testing year for everyone.”

Building knowledge

Paul has learnt a lot about pulses from his years of growing them and trialling different techniques and methods, he also joined the ADAS Bean YEN project to further his knowledge. “From what we’ve seen with the spring beans, where we’ve tried to min-till on the organic system, I don’t think it’s given the roots enough space to breathe, shall we say.

“The plough-based system works for us – certainly for the beans – it allows the root structure to go down and gives us a slightly earlier window for drilling. On some of our very fortunate land we can plough and drill in the same day.”

After several years of integration, Paul has found that it’s spring beans and vining peas which fit his system the best. “Spring beans suit our rotation but we’ve just started working with a local

contractor and local vining pea company. So, it’s nice that we have two options for adding pulse crops into the rotation.”

That said, challenges remain. “Weeds are an obvious one when we talk about beans particularly being organic, but for us, they’re not as much of an issue now as we’ve tried to understand the crop and how far we can push it.

“Personally, I find it best to go through with a scratcher harrow when crops are about an inch from emergence and this seems to help stimulate and bring them on. I then go through with two or three passes with the weed harrow before we get too much crop height.”

Paul adds that he’s trialled direct drilling with inter-row hoeing, but this had too much of a negative impact on yield to be a viable option for the farm. “It’s difficult to get the output with an inter-row hoe system too whereas with a 12m weed harrow we can get around the farm in a couple of days – a huge benefit in an organic system.”

He says his biggest challenge at the moment is disease, namely chocolate spot. “We’re considering all sorts of things currently, such as whether we should consider a bi-cropping system,

for example. It’s difficult to come up with new ideas on your own, so it’s something I’ve been discussing with the PulsePEP group I’m part of.

“I don’t get the knowledge sharing when I’m trying to figure things out on my own – you almost become very stale,” he laughs.

PulsePEP is a knowledge exchange hub which has been set up as part of the NCS project – Nitrogen Efficient Plants for Climate Smart Cropping Systems – a four-year £5.9M research programme led by PGRO, involving 200 UK farms and 17 partners.

The project aims to bring about a reduction of 1.5Mt CO₂e per annum or 54% of the maximum potential for UK agriculture through increasing pulse and legume cropping in arable rotations to 20% across the UK, and replacing 50% of imported soya meal used in livestock feed rations with home-grown legumes.

Paul is part of the project too, having been recruited as one of the nine ‘Pulse Pioneers’ – a group of farmers who are being paid to carry out the trials on their own farm. The project kicked off last year, so what’s this involved to date for Paul?

“We sat down pre-drilling and came

Conference to tackle food production's 'dependen-soy'

A new event taking place next month aims to drive the transition to a more sustainable, resilient and secure food system in the UK through reduced dependency on imported soya.

'From Soya to Sustainability' will be held on 22 January 2025 at KingsGate Conference Centre, Peterborough. Its purpose is to bring together farmers, processors, manufacturers, researchers, policymakers and industry leaders to explore innovative strategies for integrating beans and other pulses into livestock diets, reducing the reliance on imported soya.

The headline speaker is Philip Lymbery, chief executive of Compassion in World Farming and author of *Sixty Harvests Left: How to Reach a Nature-Friendly Future*, with other roles including visiting professor at the University of Winchester.

Other speakers include experts leading the charge for reduced use of soya in the UK who'll share the latest research and innovations in the production and use of peas and beans. There'll

also be networking opportunities enabling delegates to connect with like-minded experts from across the supply chain.

PGRO's Roger Vickers, and lead of the NCS Project which is coordinating the event, says the event is a call to action for all in the agri-food supply chain to play their part in the move from soya to sustainability, which is urgently required.

"Growing more pulse crops in the UK and using them in livestock feed would help tackle our dependency on imported soya while also promoting agricultural practices that benefit farmers and the environment. There are multiple wins, but it isn't an easy fix.

"We must have urgent and concerted action across the supply chain if we're to make a difference. I encourage anyone working in the agri-food supply chain to attend and be part of a movement for change," he concludes.

More information can be found on the NSC website: <http://ncsproject.co.uk/>



PGRO's Roger Vickers says this new event is a call to action for all in the agri-food supply chain to play their part in the move from soya to sustainability.

up with a field-scale plan. This year we had a 17ha field and put three trial plots in with an untreated area around the outside of the field, comparing a variety of factors including cropping, the use of biostimulants and whether or not atmospheric nitrogen can impact nodule counts, and therefore, nitrogen fixing.

"It's been really beneficial so far – both the trials and just being part of a group of farmers all trying to achieve the same. You want to learn and understand and you can't always do that on your own. Having a group of like-minded people in different regions enables that – it's the one thing we must keep doing."



To keep weeds at bay, a scratcher harrow is used when crops are about an inch from emergence, followed by two or three passes with the weed harrow before the crop gets too tall.

Promising start

Tom Allen-Stevens, founder of BOFIN and partner in the NCS project says preliminary results from the Pulse Pioneers' year one trials look promising. Tom is a 'Pulse Pioneer' himself and says: "Between us we've been comparing biostimulants, inter-cropping, fungicides and fertilisers. We've also set up trials to compare the impact of pulse and cereal crops on the following crops."

The physiological effects of different agronomy treatments have been monitored and benchmarked through YEN. "This gives us all a clear view of how our crops perform against others

giving us a broader perspective," he adds. "The sampling involved in the Bean YEN also helps to pinpoint which aspect of the crop's growth was below par and exactly when that happened.

"Next step is for the results to be fully analysed and confirmed by the project researchers, but early observations are that year one has shown some interesting findings. For example, some of the Pioneers have seen a yield advantage with their treatments while others haven't. With this being year one of the project and a difficult year for beans, we're just at the beginning of this journey.

"Following our recent recruitment campaign we've doubled the number of trialists for the 2024/5 and look forward to developing our findings further with them on board."

Looking at the longer-term vision, Paul says it's all about trying to achieve added value from the crops he grows. "For us, with beans being one of the key parts in the rotation, I hope to learn how we can profit more from them. By that, I don't just mean as a standalone crop, but how the following crops can benefit from them in the rotation.

"We must share ideas for that to happen. Becoming a 'we' not an 'I' is fundamental for knowledge sharing, progression and moving forward in general. It's all the little things we're picking up along the way which is going to – as an island – help us become more self-sufficient with these proteins." ■

“Cashflow is king in our business.”

Building relationships that last.

Better buying, better selling

Whichever way farmers choose to sell their crops, knowing their grain is marketed with their best interests at heart provides confidence and peace of mind. *CPM* takes a closer look at several farmers and the individuals aiding and informing their grain marketing decisions.

By Melanie Jenkins

What's the most important aspect between a farmer and their accountant, land agent, agronomist, business manager or any advisor, for that matter? Rather than being something tangible or denoted on a CV, it's the relationship they offer – something the team at Openfield says is central to its operation.

Furthermore, with each farm being entirely unique, having access to a tailored grain marketing service is integral to how the farmer-owned cooperative operates. For Olly Harrison, this means receiving daily updates which allow him to make his own decisions for when to sell grain.

Olly, who runs Water Lane Farm in Prescot, explains the relationship started more than 20 years ago with Centaur Grain. “We've since seen it

amalgamate with Grainfarmers to form Openfield but what I really like is the firm is farmer-owned so doesn't exist to make money for its shareholders.”

Fulfilling exercise

Marketing almost all of his crops through Openfield, he's discovered enjoyment from playing the market daily and deciding when to sell himself. “My dad traditionally placed crops in pools but sometimes I speak to our Openfield farm business manager, Jo Eborall, on a daily basis about whether it's a good day to sell or not. She'll also give me a heads up if the markets hit a price I'd want to sell at.”

Because Olly's crops are committed

to Openfield, he can be part of the firm's Crop Fund scheme which allows him to borrow against his commitment before they're sold, even up to one month pre harvest. “This allows us to maintain monthly cashflow and if we wanted, we could divide it to help with other payments such as hire purchases, mortgages or even take from our balance with Openfield in exchange for seed or fertiliser. Cashflow is king in our business and because of this, I don't have to sell my grain just to raise capital.”

While checking the markets daily isn't for everyone, Olly has found he can make an assessment in around 30 seconds to determine if the price is attractive to sell at or not. “If I hear something is



Playing the market is all part of the enjoyment of marketing grain but being part of Openfield's Crop Fund helps to manage cashflow, says Olly Harrison.

Meet the team

Jo Eborall, one of Openfield's farm business managers, is a key point of contact between the firm and a number of its farmer members. Her role involves working closely with growers to understand their businesses and requirements, what Openfield can provide, how to optimise cashflow and create growth, while recommending which crop varieties to grow to maximise profits.

As a farmer's daughter, Jo is especially passionate that Openfield is farmer-owned. "I love this ethos and how farmer-friendly the firm is – it's a really significant part of the role for me."

Part of building a relationship with her farmer clients involves regular face-to-face contact and being available at the end of the phone. "We provide a lot of market information on a daily basis which I'm in frequent contact with the trading team about, and subsequently provide fair advice. We almost work like an extension to the farm office – helping when farmers require cashflow, movements or



As a farmer's daughter, Jo Eborall is especially passionate that Openfield is farmer-owned.

advice about how to best market their grain.

"We're always of a mindset that farmers shouldn't ever have to sell grain for cashflow purposes, and this is where our Crop Fund facility allows commitment of a crop to Openfield, either directly or through pools. Some will take this as a big chunk and others will spread it out – it's all down to each farmer's requirements."

And while some members want regular updates, others prefer less contact meaning Jo tailors her service to suit each farmer. "I have close relationships because every single grower is an individual and very different, and all have unique goals they're looking to achieve."

Team approach

Although Openfield's farmer members are most likely to only speak to their farm business manager on a regular basis, a whole host of colleagues are at work behind the scenes to keep track of global and domestic grain and oilseed markets as well as selling crops.

Glenn Mason, Openfield's head of grain marketing, says he spends a lot of his time hedging farm purchases and sales to domestic consumers such as flour and animal feed millers on the derivative markets, all while monitoring live markets.

His career began in the London Stock Exchange assisting the traders. "This is where I was first exposed to the dynamics of what makes markets work."

From here, Glenn moved to a role as a purchase ledger administrator at multinational agribusiness Bunge & Co where he stayed for 21 years, working his way through the ranks up to the role of trading manager. He joined Dalgety Agriculture in 1996 before joining Centaur Grain in 2003, remaining with the firm as it evolved into Openfield.

"An important part of my role is managing farmers' pool commitments to Openfield and marketing this on their behalf. There's a lot of trust required in this process, but we find farmers commit year in and year out".

Glenn's role requires timely and accurate



An important part of Glenn Mason's role is managing farmers' pool commitments to Openfield and marketing this on their behalf.

communication, as well as being at the forefront of changing markets and evolving geopolitical situations. "Geopolitics is far more influential than it used to be and we're seeing increased activity in agricultural derivative markets by 'managed funds' which can influence market direction."

As a result, markets are becoming more challenging, but through experience it's possible to see recurring factors and patterns, explains Glenn. "It's important to understand the fundamental supply and demand of the global grain market. This is something I impress on our traders so we can continue to provide a service our farmer members can trust."

"And whether growers are allowing us to market grain on their behalf or turning to us for advice on when's the best time to sell, there's a lot of trust involved in this process. I could have retired but I still enjoy what I do, every day is different and presents fresh challenges and opportunities."

happening that could affect the markets, I'll check the price and make a decision."

Another aspect of the relationship Olly finds useful is he can make a single phone call to Jo to check in on the markets or to order seed and fertiliser. "I can either call Jo and she'll have access to all of this information or log in to Openfield's online portal, Insight. But my relationship with Jo is important because she lives and breathes

the industry and businesses she manages. It's a relationship that I hope will continue because it's certainly made farming easier."

Another grower who's built a strong relationship with Openfield is fifth generation farmer, Henry Barnes, who oversees 324ha in partnership with his father and mother in the Cotswolds. The family relocated to Whalley Farm, near Cheltenham, from Staffordshire in

2018 when their farm was compulsory purchased to make way for HS2. "The family had been at the farm for 100 years and we'd diversified into weddings and a farm shop, but we've now set up our new business which we've again diversified."

Throughout the entire move the family remained with Openfield, but how grain is sold has changed somewhat, he says. Henry's father originally sold through



Henry Barnes prefers to sell some of his grain himself while opting to put the rest in pools to help manage risk and workload.



Openfield members have the option to draw down on crops committed to Openfield from 1 July onwards to help with cashflow.

▶ Centaur Grain, largely using pools, finding he was too busy with the diversifications to study the markets – and was quite happy to let the experienced traders at Openfield decide when was best to sell. “My dad’s ethos has always been that you’ll never win this way, but you certainly won’t lose either.”

However, when Henry returned to the family business in 2006 after attending university, he gradually took more interest in how the crops were sold. “I wanted to sell more myself and put less into pools but the first year I did this was 2021, just prior to Russia invading Ukraine. I tried to sell it the best I could myself, but this is when it would have paid to have sold everything at harvest.”

Since taking on the farm in the Cotswolds, Henry’s workload has gradually increased with him undertaking all of the farm work himself except during harvest when he employs seasonal labour. “We’ve diversified into large holiday rentals and industrial lets during the past seven years which has meant things have become increasingly busy. After a number of years selling grain and beating myself up when I didn’t feel I’d sold at the right time, I decided to pool at 30% of everything.

“However this year, we’ve pooled around half of our grain because I just don’t feel I have the time or knowledge to do a better job than the traders, and in theory it feels better to let the professionals sell for us. I also believe a balance between selling some myself and pooling the rest helps to derisk the business and means I’m not going to be hard on myself when

I don’t sell at exactly the right time.”

Cashflow management

Just like Olly, Henry also sees value in Openfield’s Crop Fund scheme. “Once we’ve committed to Openfield we can then draw down on the value meaning we don’t have to send our grain off farm and wait on payments for cashflow. It means if we’re ever in a sticky situation we could borrow against this committed tonnage – and yes, it would cost us a bit in interest but it’s worth it because it means we can have cash as and when we require.”

This year for example, Henry purchased seed from Openfield without having to invest any money, because the value of the seed was deducted from his account balance. “It was offset against our grain in store – it was so simple, so I plan to do the same with fertiliser in future.”

Equally, Henry finds the accessibility

of online interfaces and digital portals a valuable part of his interactions with Openfield. “These give me a clear picture of how my account stands and makes it easy to keep on top of.”

Jo is also Henry’s Openfield farm business manager, and this relationship provides him with precious insights and information on-demand, he says. “We’ve worked together for quite some time and she’s customer focused and helpful, always attentive and we can chat via WhatsApp which makes things easy and quick.”

He’s also found merit in Openfield’s podcast, which makes it simple to stay on top of grain markets because he can listen to episodes while undertaking other jobs. “Overall, the accessibility, ease of use, relationship with Jo and the ability to have more control over our cashflow is what makes being part of Openfield so valuable.” ■

Better buying, better selling

To remain at the forefront of arable farming and to maximise the value from every hectare of crop grown requires a keen understanding of the grain market, the seed to supply it, and the fertiliser to feed the crop.

Through this series of articles, *CPM* is working with Openfield to provide a market insight and help farmers to focus on these major business decisions to ensure better buying of inputs, and better selling of the produce.

Openfield is Britain’s only national farming grain-marketing and arable inputs co-operative and is owned by over 4000 arable farmers. Openfield’s team works with a

total of 6000 farmers to supply some of the biggest and best-known names in the British food and drink manufacturing industry.

But there’s more than just grain to Openfield, supplying seed and fertiliser, providing grain storage and offering expert advice on grain marketing and risk management. This delivers innovative supply chain solutions to its farmer members and consumer customers.





“ While inheritance tax changes have garnered the most headlines, there are other elements in the budget that have a more immediate impact. ”

Cost of production

Back to basics

With a fall in farm income and the autumn budget creating a perfect storm for a challenging financial outlook, *CPM* learns how growers can get a better handle on what they can control.

Charlotte Cunningham

Although farmers are accustomed to riding the lows and highs that come with food production, to say the past few years have been particularly turbulent feels somewhat of an understatement. And now, with what’s been coined a ‘spiteful’ budget, there comes a new element of challenge – alongside official figures reporting a fall in farm income.

Looking in more detail at the latest Farm Business Income figures which were released in November by Defra, it’s arable farmers who appear to have been hit the hardest.

Based on the period March 2023-February 2024, the results indicate:

- In 2023/24, average farm business income was lower for all farm types except for specialist pig farms and specialist poultry farms. The fall in income followed exceptional highs

- for some farm types in 2022/23.
- For cereal farms, following two years of exceptional highs, farm business income fell by 73% to £39,400. For general cropping farms, average income was 24% lower at £95,300. A combination of lower output prices and yields were a key factor for both farm types.
- The progressive reduction to the BPS was introduced in 2021. In 2023/24 across all farms types the average net payment received was approximately £18,300. This was 21% lower than 2022/23 and accounted for around 40% of farm business income.
- Across all farm types, net income from agri-environment activities increased by an average of 14% to £10,600.

Critical understanding

As growers seek to navigate the changes that lie ahead, having a sound understanding and grip – where possible – on cost of production is vital, says James Webster-Rusk, senior agribusiness analyst at The Andersons Centre. “While inheritance tax changes have garnered the most headlines, there are other elements in the recent budget which for many will have a more immediate impact on cost of production.”

James explains that this includes increases to the National Minimum Wage and National Insurance contributions. “The employment allowance was also increased which will reduce some costs for the smallest employers.”

However, the ‘biggie’ for the coming year is the more aggressive tapering of BPS than expected, he warns. “That’s the one which is really going to pinch cashflow in the most immediate sense. We’re going from what we expected to be a continued steady path of decline towards 2028, to now where we have a hard limit whereby there’s a 76% cap on the first £30,000 – which basically leaves every farmer with a maximum of £7200 worth of BPS.”



Andersons’ James Webster-Rusk says it’s the “aggressive tapering of BPS” which is going to pinch cashflow in the most immediate sense.



Changes to inheritance tax, a reduction in subsidies and increased labour costs were among the key announcements affecting farmers in the recent budget.

► “If I use our model farm example for this, the impact is a £27,000 loss – there or thereabouts – in revenue for next year, before we’ve even thought about cropping.”

So although many now find themselves beholden to a cruel hand of the budget, is there anything farmers can do to put themselves in a better position? Yes, reassures James. “It definitely focuses the mind on ensuring your business is as efficient as possible, and knowing your costs is one of the cornerstones of that.”

Getting to grips with cost of production may seem relatively obvious, but keeping up with changing costs is sometimes overlooked in the busy nature of farming – so where’s the best place to start? “On paper, cost of production is a relatively simple calculation, but to be really accurate, this should go into a more detailed analysis than just approaching costs on a broad basis.

“Perhaps historically, we’ve been very focused on producing tax accounts at the end of the year, but it’s also worth thinking about bringing in management accounts – and cashflow aspects – into the equation,” says James. “Gross



According to the latest Farm Business Income figures released in November, income on cereal farms fell by 73% to £39,400 (based on the period March 2023-February 2024).

margins provide a lot of data, but it’s looking at those fixed costs which are really important. That’s often where a lot of the efficiencies can be found.”

Particularly relevant for arable growers, James says something he often highlights to clients is taking a closer look at machinery costings. “Given recent pricing, I don’t think many people are throwing on excess fertiliser or crop protection spend – lots of farmers tend to be very focused on those costs – but I think sometimes the full cost of machinery is slightly overlooked.”

Segmentation

In an extreme situation, establishing cost centres for every element of the business will give an accurate picture of where potential efficiencies can be found, he says. “Where this feels a little too complex, start by thinking about poorer performing areas of fields. If these are consistently underperforming and increasing your cost of production, then perhaps it’s worth considering an SFI option, for example, so these areas have more potential to earn you money rather than not.”

If it all sounds a little daunting, there are tools to help, explains James – pointing out AHDB’s Farmbench analysis tool.

Only once growers have an accurate picture of the current cost of production can they begin to look to improve it, if necessary, and James

says there are a number of ways to do this. “Even if you’re currently sitting in the bottom 50%, it’s possible to reach the next level of performance and there are a number of things that will be within the farmer’s control.

“This was something we assessed recently in work carried out for AHDB where we relooked at the characteristics of top performers.”

Delving into the detail and some of the key comparisons between top and bottom performers were:

- Agricultural costs: total costs are much lower per hectare and per unit of output on top performing farms. However, top performers spend more on fertiliser, seed and crop protection products.
- Contracting: levels of contracting are significantly higher among the top performers. This has become more noticeable since the 2018 report.
- Debt: the two variables related to debt are both highly significant, with higher debt levels amongst the poor performers.
- Agri-environment schemes: bottom performers have more agri-environment income/ha, but the difference isn’t statistically significant after matching. The difference is much smaller than when this analysis was carried out in 2018.
- Agricultural diversity: top performers tend to be slightly more specialised, but the difference isn’t huge. Poor performers

Budget recap – key changes affecting farmers

The UK Autumn Budget 2024 introduced significant changes for farmers/business owners, impacting everything from taxes and subsidies to investment opportunities. Key announcements relevant to the agricultural sector include:

● Inheritance tax

From April 2026, Agricultural Property Relief and Business Property Relief will be capped at £1M for 100% relief. Assets above this threshold will only receive 50% relief, effectively imposing a 20% tax rate on the remaining value. This will require careful succession planning to manage inheritance tax liabilities, as many farming estates may now be subject to IHT for the first time.

● Capital gains tax

CGT rates are increasing with the lower rate rising to 18% and the higher rate to 24%. This change will affect decisions regarding asset sales or transfers, potentially making diversification or restructuring more costly.

● Subsidy reductions

Direct payments under BPS are being phased out more quickly, with a

significant shift towards ELMs. Payments on the first £30,000 will be cut by 76% emphasising the government's focus on sustainable farming practices, but potentially challenging profitability for smaller farms.

● Labour costs

Employer National Insurance contributions will increase to 15% in 2025, with the threshold for payment also falling from £9100 to £5000. Further, the National Living Wage will rise to £12.21/hour. These changes will increase operating costs particularly for farms with larger workforces.

● Environmental investment

The government allocated £427M for productivity and innovation in agriculture and £75M for water and flood management projects. These funds aim to enhance resilience against climate change and support long-term productivity.

● Furnished holiday lettings

Changes to tax rules for furnished holiday lets, such as removing deductions for financing costs, will impact farms relying on diversified income streams like rural tourism.

have significantly more enterprises from grassland. Top performers have more farming activity from other arable crops (peas, beans, potatoes, etc).

● **Wheat price and yield:** yield is markedly higher with the top performing farms, and the price difference is also significant after matching.

“That last point about yield and how much you can sell the crop for is particularly important,” points out James. “When thinking about a ‘good price’, on paper something might look favourable based simply on gross margins. However, if you have high machinery costs then it might not actually be such a good deal. So it really is important to factor all of these elements into your calculations.

“To improve prices reached for crops, it’s crucial to go back to rotation plans and consider if there are prospects in added value sectors, maybe you’re close to a mill with opportunities to get a better premium delivered into the mill.

“Then there’s thinking about the market you’re supplying. For example, if you’re growing spring barley and expecting it to go for malting, do you have a contract in place? We saw last year that market become very quickly oversupplied and where this happens, price is driven down,” he says.

James adds that he’s an advocate of having a plan when it comes to selling. “Ask yourself, what’s your ‘get out’ price? If you think about when the market is dull or flat – as it is at the moment – then

what’s the point at which you say, okay, this is where I have to sell something? Essentially, this is the point where you can sell and still make a profit.

“The buoyant pricing we’ve had during recent years is very fresh in the memory, but unless we experience further global disruption, we’re unlikely to see those prices again in the immediate future.”

James suggests that making any improvements often requires an element of change, which can in itself feel

tricky. “But there are technologies and resources out there to enhance decision-making and take away some of that burden, which is getting more accessible even for smaller farmers. Embracing change can often reduce spend.

“It’s difficult at the moment, really difficult,” concludes James. “But by keeping an eye on costs and having that focus on attention to detail, farmers can still retain a little control in what’s definitely an unsettling time for many.” ■



Lower per hectare, higher levels of contracting and less debt are among some of the key traits of top performing businesses, according to work carried out by Andersons for AHDB.

“ I think all we can do as farmers, is strive to improve while being mindful at the speed which we’re expected to do so. ”

What does good look like?

Is it possible to define what constitutes ‘good’ when it comes to policy making in relation to sustainability? To find out, *CPM* opens up the discussion for the second of this month’s Real Results Roundtables.

By Janine Adamson

As interest grows in the wider benefits of environmental activities on farm, stakeholders from the sector and beyond are striving to define sustainability and devise associated metrics for its measurement.

At the same time, with a new government in power, it’s arguably more important than ever to ensure policy makers and regulators have a robust understanding of the challenges and demands placed on British agriculture.

But how should sustainability be measured and what constitutes success in terms of balancing long-term farm business productivity and environmental stewardship?

In a bid to explore this topic, *CPM* brings together BASF public and governmental affairs manager, Jon Williams; farm manager of the Raby Estate, Philip Vickers; AIC head of sustainability, Vicky Robinson; and Professor Paul Wilson from the University of Nottingham.

Starting point

According to Paul, who opened the Roundtable, the starting point for quantifying sustainability in farming should be greenhouse gas emissions and carbon. “Unless we solve that challenge, then we’re not going to get anywhere in terms of sustainability.”

Furthermore, he stated that he’s concerned by the relatively simple metrics which currently exist because they report at a per hectare or per farm level. “Therefore, they’re missing the crucial element of a functional unit. For example, knowing the carbon footprint



According to the University of Nottingham’s Professor Paul Wilson, the starting point for quantifying sustainability in farming should be greenhouse gas emissions and carbon.



AIC's Vicky Robinson reminded that aside from environmental impact, sustainability metrics also involve economic and social pillars as well.

of a kilogram of wheat, a microgram of protein in that kilogram of wheat, or the bioavailable nutrient to the human body.

"If we do the opposite and just look at carbon or greenhouse gas emissions per area, farm or region, we end up with a race to the bottom where we may produce nothing and export our carbon consequences to other countries around the world," explained Paul.

In agreement, Vicky added that there's more to sustainability than just environmental considerations. "If we're talking sustainability metrics, you have the economic and the social pillars as well.

"There's a risk of carbon tunnel vision – how do you ensure that you don't have unintended consequences for some of the other natural and environmental assets that we depend on, for example, water or biodiversity? But equally, food production and productivity – it's complex."

To respond, Philip shared his perspective as a farm manager. "Working for Lord Barnard at the Raby Estate, he's very pragmatic and has a responsibility to feed people – you only have to look back at the recent Ukraine crisis for context.

"It's reassuring to work in a country that not only has freedom, but also the ability to produce quality food. As an industry, we don't want to lose sight of that yet at the same time, we have to be smarter with inputs and use all of the tools in the box appropriately and sensibly," he said.

Flexibility

Jon raised the problems which may occur as a result of creating a one-size-fits-all approach to measurement. "In terms of being sustainable and having metrics, you may have on-farm practices which are more impactful on the soil such as potato or sugar beet production. Does that mean that business isn't sustainable?

"Is it about a singular practice or is it cross rotational? If you're a low-input system, are you more environmentally sustainable than a farmer producing vast quantities of calories per hectare?

"Perhaps we could we have 'sustainable intent' – an umbrella which all farm systems sit under and can deliver in some, but maybe not all aspects," he explained.

Philip stressed that flexibility is a must. "I think we have a real risk that if it's prescribed we can't do X, Y or Z, production will take a huge hit.

"At the moment, we're going through extremely challenging weather here in County Durham. It's been wet for a very long time and we still have beans left to harvest [at the time of the Roundtable]. So we can't be put into a straightjacket and told we have to meet stringent criteria – we have to have the flexibility to plough occasionally if its required," he commented.

Key players

The Roundtable discussion then shifted to who should be involved in defining what

sustainable practice actually is, with Jon flipping the concept on its head. "I think it should be more of an industry-led definition of what's sustainable and financial institutes or retailers then buy into those practices.

"If we look at the transport sector – investment is made in roads and networks to make it better. So is there a mechanism in agriculture where investors could invest in soil to improve it, for example, through building resilience, increasing water retention and preventing flooding?"

In response, Vicky highlighted the commitments already being made by the finance and retail sectors. "With an increasing focus on greenwashing there's a lot of concern around ensuring there's the data and evidence to support claims. As such, that can lead to some very binary decisions regarding inputs such as fertiliser.

"Whereas fertiliser impacts yield, it's also vital for meeting quality specs as well, which means for example, increased milling wheat imports if specifications can't be met.

"What the AIC is hearing from members, is that they feel these drivers are top-down rather than the industry having a level of control. So how do we have open stakeholder discussions where the different sectors come together and speak the same language?"



If farmers are instructed to grow high quality food produced in the best technological manner it'll incur a cost which could exclude some individuals from affording their daily bread, suggested the Raby Estate's Philip Vickers.



BASF's Jon Williams believes there's better departmental communication under the current administration.

Data collection

With measurement, of course comes data. To discuss this further, Jon queried how much data should be gathered to better understand the current situation and what has to occur to make improvements.

"Then there's the element of who owns the data and how it's being used; whether people are making money on the back of information which is owned by farmers. How can we ensure that data isn't used for unruly purposes?"

In reply, Vicky raised the concept of carbon being an 'invisible' product. "You can't see it so it's hard to know whether it is truly 'there'. We have to know what it is we're trying to achieve, what actions are required, and what data will evidence that action.

"It feels at times as though data is being gathered despite not really knowing why, but we've done it so we have it just in case we require it in the future and to show something," she explained.

Philip added that quality also has a bearing on the usefulness of data. "You could say that a little bit of good data is far better than a lot of poor data."

Societal diversity

To continue, Philip stated the entire sustainability debate hinges on what the UK is trying to achieve and that acknowledging socioeconomic diversity is critical.

"If farmers are instructed to grow very high quality food produced in the best technological manner that will incur a cost which could exclude some individuals from affording their daily bread, so to speak."

Paul agreed: "In reality, most people are trying to feed a family on a low budget rather than traveling to a farmers market to buy some sustainable bread.

"The number one driver of food consumer choices is price. People won't change their food habits to look after themselves in terms of their health, so they're not going to instantly change their food habits to look after the planet," he stressed.

Influencing policy

When it comes to influencing future policy, Vicky suggested that it involves both cross sector and cross departmental communication. "We know even within government departments there are silos, let alone across government which again creates a challenge."

In response, Jon said he perceives there to be better departmental communication under the current administration. "Hopefully they're getting their act together and having that dialogue about what good looks like moving forward.

"Equally, the Department for Business and Trade could have a huge influence on new innovation and technology which can help the sustainability piece to become easier to deliver. Aspects like biodiversity net gain, the fact is you require boots on the ground to measure it – is that a sustainable practice long-term? So where does technology come in to measure and simplify the process?"

For Philip, it's back to understanding what the end goal is. "I think all we can do as farmers, is strive to improve while being mindful at the speed which we're expected to do so.

"There is some urgency behind all of the problems we have – climate change seems to have accelerated. So it's timescale, speed of improvement and where the red lines are through guidance from politicians," he said.

Jon reminded of the land-use framework. "As such, it's whether we're happy exporting our asks to Third World nations for food, biodiversity and carbon etc."

Closing remarks

According to Paul, the growing global population will require more protein to feed itself as it develops economically. "Food isn't going to become less important in the next 25 years.

"It's going to become more important and I think the UK in terms of its location, climate and expertise, is very well placed to continue to play a very

key role in feeding ourselves and others around the world," he said.

From Jon's perspective, he believes it's important to highlight that the UK farming community is doing a great job. "The food system isn't broken, it's feeding vast quantities of people and doing it in a responsible manner – environmentally-minded as well as production-minded."

To conclude with a different angle, Vicky stated that businesses should think about what their goals are, understand their own drivers and what matters to them. "Comparing that with where they are now, identifying the gaps in knowledge and consider what is necessary to measure progress," she said.

But for Philip, it's about being appropriate at all times. "Appropriate use of imports, appropriate protection of the environment, appropriate biodiversity, to name a few.

"I think at times we go off on a tangent and are quite extreme whereas we should capture what we want to do, appropriately." ■

Real Results Roundtable

BASF's Real Results Circle is a UK-wide agricultural network now in its eighth year. The initiative is focused on bringing together growers, industry experts and BASF to create a more resilient farming system that's sustainable for farm business profit, for the people we feed and for the planet we live on.

Real Results Roundtable is a new initiative which explores related topics, such as resilient disease control, environmental stewardship and return on investment. Roundtables centre around Real Results Circle farmers and associated experts from the wider industry.

By coming together to openly discuss and therefore face challenges as one, we can find out what really works and help to shape the future of UK agriculture.

CPM would like to thank BASF for kindly sponsoring this feature, and for its assistance in providing access to the relevant experts and contacts required to produce it.



THE FARMERS' OUTLOOK CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE AGRICULTURE



Helen Browning
SOIL ASSOCIATION



Daniel Cross
DYSON FARMING



Ben Makowiecki
LLOYDS BANKING GROUP



Abi Reader
GOLFUSLAND FARM
NFU CYMRU



Sophie Throup
V&M MORRISONS



World Agri-Tech Innovation Summit

Challenges and opportunities for sustainable agriculture was the topic of 'the farmers' outlook' at this year's World Agri-Tech Innovation Summit in London. CPM joined delegates to hear from some of the industry's leading voices.

By Janine Adamson

The annual World Agri-Tech Innovation Summit is badged as Europe's premier event for agri-food tech pioneers – a 'must-attend' for those invested in advancing nature-positive, resilient agriculture and food systems.

Despite much of the main stage line-up looking suspiciously corporate, this year's programme also included 'the farmers' outlook' – a session chaired by CEO of the Soil Association, Helen Browning.

Forming the panel was deputy

Advancing agri-tech

president of NFU Cymru, Abi Reader; managing director of Dyson Farming, Daniel Cross; technical and sustainability director for manufacturing at Morrisons, Sophie Throup; and agricultural sustainability director of Lloyds Banking Group, Ben Makowiecki.

Helen opened the discussion by stating a farmer's role is changing due to being asked to undertake many other tasks beyond food production. "People are looking to farming and land as a solution to their problems. While we can do that, it's a changing environment – markets and the reward system are both still in flux.

"This means it's a tricky time to be a farmer and navigate the risks and opportunities as we strive to improve the sustainability of our sector."

Challenges ahead

Turning to the panel, Helen asked Abi what she perceives to be the biggest challenges that agriculture currently faces. "There are two sides of the coin

– on one hand, farmers want some fresh concrete, decent mobile phone signal, pragmatic regulation and a fair price for the food they produce. But on the other hand, they want assistance to feed the world while sequestering its carbon. It's balancing

“ People are looking to farming and land as a solution to their problems. ”



According to Morrisons' Sophie Throup, one of the roles of a retailer is to understand what customers are looking for and practically support farmers to get there.

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Incentives to implement sustainable approaches don't always reward the initial investment adequately, believes Dyson Farming's Daniel Cross.

▶ those two sides which is really difficult," explained Abi.

To continue the discussion, Daniel stated that although there are a lot of challenges, there are also many opportunities. "What we're passionate about at Dyson is producing British food. In terms of food security, 54% of the food we eat is produced here which is just too low.

"Although consumers who want to buy British help to put value back into domestic food supply chain, it's balancing production with sustainability. I believe technology has the potential to play a very significant role in this."

Technology rules

According to Daniel, appropriately deploying technology could help to make a considerable leap forward during the next 3-5 years. "But for us, it's about connecting with consumers – it's the people in the room who eat – so that's all of us – who decide

where to buy food from and how much to pay for it.

"If we can build connections better, that's the first step in starting to solve some of the bigger problems we face as an industry."

Sophie highlighted that Morrisons is different from other retailers because it has its own manufacturing arm which buys from farmers. "Although we're very close to the growers we purchase directly from, we're in the middle – trying to listen to those who supply us and also the customers who are demanding more sustainable products.

"However, people don't want to pay more for these items or spend time navigating to find them on the shelves. Customers rely on us to do the worrying for them and that's one of the roles of a retailer – to understand what customers are looking for and practically support farmers to get there," she said.

Ben pointed out that the role of banks is also changing. "It's easy to say let's lend money to farmers to use new technologies but actually, I don't think we can lend our way through this transition.

"UK farming has struggled with profitability during the past few years and will continue to do so – a lot of our farming customers are finding it hard to service the debt they already have without us burdening them with more.

"The part we can play is as conveners – we have 45,000 farming customers but also lend to clients throughout that supply chain. So it's bringing together all of those segments, top to bottom, to try and find common ground and a way to reward farmers for making the sustainable transition," he explained.

As the conversation shifted to the Sustainable

Farming Incentive (SFI), Daniel suggested it makes sense to maximise activities which are already taking place on farm to boost biodiversity and pollinators.

“But actions aren’t always accessible – one example we’ve been talking to the government about is precision spraying herbicides. Great, you can do that, but it costs around £500,000 for some kit meaning the incentive isn’t enough to make you want to invest. There are those kinds of disconnects which travel throughout government and policy.

“Because this isn’t something which changes quickly, it’s something we have to work with. So our focus at Dyson remains on getting food production right while undertaking appropriate science and research to understand what else we can do to go further and faster, while sharing that information with the wider industry.”

He added that there’s potential in cooperative models through sharing new technologies, equipment or skills. “Increasingly technology is being created for regions such as mid-west America, Russia or Ukraine

and it’d be impossible to use that future equipment in cereal crops in the UK.

“The worry is we’ll get left behind unless we find alternative solutions. So in the short-term, you can dilute the expense by sharing equipment and collaborating with neighbours which also helps to measure biodiversity by taking a wider perspective across a larger scale,” pointed out Daniel.

Ben continued the discussion by highlighting the positive impacts of regulation for growers. “As a bank, we have huge regulatory requirements for reporting which are in fact creating an opportunity for farmers through ‘carrots’ [incentives].

“We and others are providing these to try and spread the risk from farmers to the wider supply chain, to pay growers premiums for sustainable food. If we don’t do this, regulatory requirements become sticks rather than carrots so it’s important that payments incentivise and therefore minimise risk.”

Proactive collaboration

According to Ben, for this to be a success, collaboration is required across the whole ▶



NFU Cymru’s Abi Reader said there’s a huge appetite among farmers to understand carbon and biodiversity stocks, but the basics have to be right including phone signal, broadband and reliable electricity.

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Those who benefit from farmers being more sustainable should pay for it, said Ben Makowiecki from Lloyds Banking Group.

► supply chain. “Those who benefit from farmers being more sustainable should pay for it. Supermarkets, processors, traders and banks should pay into a pot of money which rewards farmers for not only a single crop, but for holistic management across the whole rotation.

“Part of the problem with policy is it has a short-term approach which doesn’t even cover a cropping rotation, never mind a long-term strategy. One of our asks is for parties to work together to try and create a framework which lasts for 10, 20 or 50 years ideally, bringing together disparate parts of policy across the different governmental departments, the critical one being the Treasury,” he urged.

Sophie suggested there’s a role for government in standardising metrics and reporting. “Farmers have to feed data into several different supply chains and where possible, we should be trying to avoid duplication.

“Growers also require clarity on who owns the data – there has to be confidence and trust in this moving forward, which at the moment, can suppress the willingness to adopt innovation.”

Daniel added that it’s difficult for the government to change when it’s so short-term. “Consequently, we can’t expect the government and Defra to come up with many meaningful solutions. We have to collaborate and group together to do that, an example being the NFU.

“An interesting topic is government procurement – if you’re at school in the UK, you should be eating UK-produced food. It should also be mandatory for

supermarkets to declare the percentage of food that’s been sourced from the UK by volume and value, that’d be interesting and meaningful,” he said.

“During the past 30-40 years, supermarkets have used price as a key marketing mechanism not where food comes from or its nutritional quality. It’s been commoditised as boring food – we have to move away from that and be much more proud of what we produce here and communicate it.”

To provide a reality check, Abi stated although farmers would be proud to service public procurement, it’s not necessarily possible. “It’s a really low-value market; councils are under a lot of pressure. We also don’t have the processing facilities, at least in Wales, to deal with it.

“An example being, at least 80% of the potatoes which go into all Welsh schools are from the Netherlands because they have the processing facilities to peel, cook and prepare the meals. So when they arrive in Wales, they only take a minute to be heated up and cooked because schools don’t have adequate facilities. Unfortunately there are major processing and supply chain issues before we step into the world of supplying locally,” she stressed.

Change required

In reflection, Ben suggested that although this might be the case, something has to change including greater incentives. “It can work, but it doesn’t work in our current paradigm where it isn’t valued,” he commented.

From Sophie’s perspective, the problem is rooted in a lack of connectivity. “As supermarkets, we’re a demand-led organisation and do what our customers want to do. But hey, let’s create the consumer pull to want more nutritious, British food.

“We have powerful voices through social media which has democratised communication – some farmers are incredibly good at it. There’s never been a time where farming is on TV as much as it is now; Jeremy Clarkson has done wonders.

“Use social media for the good to create that demand through knowledge into the effort that goes into producing food – that’s something all of us should be doing – driving passion, driving customers.”

When asked about what gets her

excited, Abi said there are many technologies which appeal, however sometimes, it’s the simple things. “It’s almost going back to the basics from the start before the microchips and data downloads – concrete, decent tyres and the ability to work your yard effectively to free up time to do the data management.

“There’s a huge appetite among farmers to understand carbon and biodiversity stocks but we have to get the basics right including phone signal, broadband, and reliable electricity,” she explained.

Daniel added that the aspect he finds most exciting right now is data. “We’re on the edge of being able to understand and make much better decisions which opens up a lot of transparency.

“For example, Dyson is embarking on a major project at the moment to digitise around 13,000ha to have better control of our inputs and calculate the impact we’re having nutritionally and from a biodiversity perspective.

“This will lead us to having less but more fit for purpose equipment while growing better quality, more nutritious crops,” he continued.

Daniel stressed that although there are good solutions on the market, often they’re for issues which are only half of a problem. “Digitising all of my agronomy sounds fantastic but right now we have a good agronomist who does that well. So does it stack up against the investment required?

“If you have the right data you stand a better chance of coordinating the smaller things which make more practical differences which can stack up to be game-changing.”

In response, Ben said it’s critical that farmers don’t have to produce more data. “The ideal would be one set of information and it sitting centrally for the likes of Sophie and I to extract what we require. This would have to be protected, but one set of standardised data would be great,” he pointed out.

To round up the discussion, Sophie said the ‘so what’ of data matters too. “Farmers run businesses which have to make money. So how does that data help them to make better business decisions rather than just provide what everyone else wants to know from them.

“That means growers feel incentivised to make changes which are right for their individual business model,” she concluded. ■



nature matters

by Martin Lines

Building bridges

The past few months have exposed significant gaps in knowledge about farming, food production, and profitability among policymakers and the wider public. It's become clear that the challenges facing agriculture can't be tackled by focusing solely on knowledge-sharing within the farming industry. We must also engage with the new government and society at large to foster a deeper understanding of the realities of farming today.

For years farmers have opened their gates to the public, inviting schoolchildren and community groups onto farms. But have we truly shifted the narrative? The disconnect between farming and the public seems as strong as ever. It may be time to rethink how we communicate the positive messages of farming, especially for those who can't visit due to distance, time, or transport limitations.

Rather than waiting for people to come to us, perhaps we should take farming to them – not in protest, but in conversation. Imagine farmers visiting towns and cities to engage with schools, community groups, and urban residents. Many in urban areas, particularly Labour's core supporters, have little exposure to the realities of farming. They may never have visited a farm or even experienced open countryside.

It's easy to see why the public might struggle to

reconcile the sight of a farmer standing in front of shiny machinery worth hundreds of thousands of pounds with the claim of financial difficulty. Similarly, the intricacies of growing crops – investing tens or hundreds of thousands of pounds with no certainty of yield, how the weather will play out, or what price the harvest will fetch – are difficult to grasp for those outside the industry.

For many, farming is simply the first step in a long food supply chain, far removed from the food on their plates.

Historically, the image of farmers has often been one of isolation – focused on producing food while telling others to stay off their land. But the time has come to change that narrative. We must welcome people onto farms where possible, helping them to see the care and dedication that goes into producing their food. And where farm visits aren't feasible, farmers must head into towns and cities to help bridge the rural-urban divide.

Getting angry and cross with the public and politicians for not understanding farming issues won't help to deliver the support or changes we require. Instead, we should focus on honest, accessible communication about the ways we produce food and manage landscapes for nature and climate.

On my own farm, I regularly host groups for walks and talks, explaining the costs, challenges, and returns of farming. I also visit schools, community groups, and urban settings to share our practices and experiences. The questions I receive reveal just how steep the learning curve can be for many, highlighting why it's so important for us to reach out and engage.



Social media can offer a powerful platform for farmers to tell their stories, but it's a double-edged sword.

Social media offers a powerful platform for farmers to tell their stories, but it's a double-edged sword. While some share excellent content which educates and inspires, others inadvertently spread misinformation or use the platform for personal gain. When posting, we must ask ourselves: who's the target audience? Does this help improve the perception of farming? Encouragingly, more farmers are sharing their stories through YouTube and social media, helping to better inform the public and politicians alike.

The divide between rural and urban communities appears to be widening fueled by misinformation and misunderstanding. With a government likely to be in power for the next four years, the importance of keeping the public and MPs on side can't be overstated. Public financial support for agriculture hinges on their recognition of the public goods farmers provide – safeguarding nature, combating climate change, and producing healthy food.

Farming plays a crucial role in shaping the future of our landscapes and the food we all depend on. By stepping out of the fields and into urban spaces, we can help more people understand both the challenges we face and the contributions we make. Honest, open conversations are key – not just to keep farming sustainable, but to build a shared vision for a healthier, more resilient future.

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.

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“ LAMMA is the UK's premier platform for agricultural machinery and innovation. ”

LAMMA preview

Kickstarting both the New Year and the agricultural show calendar, LAMMA 2025 is promising to provide innovation, technology and expertise for the farming community. CPM takes a look ahead.

By Melanie Jenkins

The UK's premier agricultural machinery event, LAMMA 2025 promises to be an all-out showcase of innovation, technology, and expertise for the farming community.

Set to take place 15-16 January 2025 at the NEC in Birmingham, the show will feature more than 600 exhibitors from across the agricultural sector, unveiling the latest advancements in farming machinery and technologies. The show boasts an expanded exhibition space, exclusive product launches, and a packed schedule of activities for visitors.

From tractors and combines to arable and grassland machinery, it'll feature the best in agricultural technology. Visitors will enjoy exclusive machinery launches, UK debuts, and live demonstrations, giving them hands-on insight into cutting-edge

equipment from renowned brands like JCB, Fendt, Massey Ferguson, and New Holland.

A key highlight for 2025 is the return of Kuhn Farm Machinery, attending for the first time in five years. Speaking about the decision to return, the firm's managing director, Sian Pritchard, said: "The show's increasing popularity and wide-ranging audience were major factors in returning to the event for the first time since 2020. We've chosen LAMMA as our premiere event for 2025 as it allows us to display all of our products under one roof, along with the space for detailed discussions."

Kit on show

More than 20 machines will be on the stand and advancements in crop protection and nutrition will be a key focus, with the AERO 32.1 mounted boom fertiliser applicator and largest LEXIS 3800 trailed sprayer on display.

For livestock and grassland producers, two machines will make their UK debut including the widest mounted tedder on the market – the 13.4m GF 13003 – and the GMD 3515 rear vertical folding mower.

Whereas Claydon will exhibit three new products including its new Evolution Front Hopper, a 4m version of its Evolution Drill Toolbar with twin-tine fertiliser placement, and a Claydon Mole Drainer. Claydon will also exhibit a 6m T6 Hybrid trailed drill, a 3m M3F Evolution mounted drill with grain and fertiliser, and a 9m Straw Harrow.

"We'll use LAMMA 2025 to showcase our ability to offer flexible seed/fertiliser

placement, meeting the requirements of the Sustainable Farming Incentive (SFI) schemes and growing companion crops," explains Claydon's David Furber.

Grange Machinery will present a number of new innovations at LAMMA including its Front Mounted Disc Bar, designed to be fitted to the front linkage of the tractor to allow the user to add pre-cultivation pass ahead of a drill or to aid in a primary cultivation system.

It consists of a full width set of wavy discs able to cut through trash and cover crops in front of the drill, clearing the path for the drill to both improve seed-to-soil contact and aid in trash flow. It can also prevent crop residue adhering to the coulters and causing blockages. Also on display will be its new Tine-Drill Toolbar and the new Top-Tilth Cultivator.

LAMMA will be the first reveal of the new Fendt 600 Vario, marking the UK launch of the new generation of Fendt



A key highlight for 2025 is the return of Kuhn Farm Machinery, attending for the first time in five years.



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*Profi tractor test: John Deere 8R 410 eAP;
"Leuchtturm" pages 14 - 21; 08.2024 (www.profi.de)



LAMMA will reveal the new Fendt 600 Vario, marking the UK launch of the new generation of Fendt Former rakes.



One of the highlights on Case IH's stand will be the first UK appearance of an AF10 combine harvester – part of the new AF Series.

► Former rakes. The firm's stand will include the new 920C Former, the Gen 1 600 Vario, and a further selection of tractors including the Gen7 728 Vario. Another LAMMA first will be the chance to see Fendt's Corus 5275C straw walker which features ParaLevel technology.

"LAMMA is a centrepiece of agricultural machinery in the UK and is the perfect opportunity for Fendt to show the new tractors and machinery that's available," says Fendt's Ed Dennett.

The latest Massey Ferguson 5M tractor will be shown in the UK for the first time as the brand returns to LAMMA for the second year in a row. Also at the show will be the UK debut of the MF RK 762 TRC rake, and the chance for visitors to try the PTX Trimble software, following AGCO's acquisition.

"We're delighted to be back at LAMMA in 2025 to showcase our range and present several products to the UK market for the first time," says the firm's Lindsay Haddon.

Case IH is using its presence at LAMMA to introduce innovative new models and technology developments alongside its trusted favourites.

One of the highlights on the stand will be the first UK appearance of an AF10 combine harvester – part of the

new AF Series. The AF9 and AF10 launch completes the Case IH 'Year of the Combine' that began with the Axial-Flow 160 and 260 series release.

Also debuting at LAMMA is the new-look Case IH Farmall C which boasts power and manoeuvrability in a compact design, making it suited to both livestock and mixed farms. As well as a refreshed design, the front loader tractor now has enhanced performance, the option of full precision farming technology and a range of new features to aid loader work.

Interactive stand

Avon Tuning HD's stand at LAMMA will feature an interactive display for visitors to manually configure an ECU and use the Dimsport remapping equipment to mirror the remapping process carried out on farms.

The display will demonstrate the professional and safe nature of remapping to prospective agents and farmers. It will highlight how straightforward it is to read an ECU file from a machine, upload it to the Avon Tuning HD agent portal, receive the edited file back, and apply the upgrade to the machine, typically in under two hours.

Additionally, Valtra will be showcasing its S6 Series range of tractors, while Tama will introduce visitors to the EZ Web, its new round bailing innovation and IMPAX, its 'shock absorbing' twine.

However, LAMMA is more than just an exhibition of machinery, it's a hub for knowledge-sharing and professional growth. A comprehensive seminar and workshop programme will bring together thought leaders from across the agricultural sector to discuss critical topics such as sustainability, AI, automation, and market trends, says event director, Sarah Whittaker-Smith.

"LAMMA is the UK's premier platform for agricultural machinery and

innovation. With more exhibitors and product debuts than ever, the 2025 show is an unmissable opportunity for learning, networking and discovery."

In an exciting crossover of farming technology and gaming, the internationally acclaimed Farming Simulator series will make its return to the show. With more than 30M units sold worldwide, Farming Simulator 22 highlights iconic agricultural brands like Case IH, Fendt, Massey Ferguson, and more. Visitors can explore the game's latest features and dive into the evolution of virtual farming during the two-day show.

The much-loved Demo Arena is back, offering visitors the chance to see state-of-the-art machinery in action. Manufacturers such as JCB and Valtra will be demonstrating their newest developments, showcasing how their equipment is transforming farming operations. Whether visitors are looking to invest in the future of their farm or gain inspiration for the next upgrade, the Demo Arena is designed to help provide useful information and a visual experience.

LAMMA 2025 attendees will have the chance to win a Polaris Ranger Diesel, which is valued at more than £24,000. Designed to handle the toughest conditions and meet the demands of UK farms, this ultimate workhorse combines rugged durability with unmatched versatility.

Visitors will also be able to discover the winner of the Young Engineer Award. A key highlight of the show, the award champions an individual or collective of young engineers, who have created or worked on a piece of agricultural machinery, equipment or technology which significantly improves efficiency, profitability or sustainability on-farm.

Registration is free and now open on the LAMMA website. See www.lammashow.com for more information. ■



Claydon will exhibit three new products including its new Evolution Front Hopper, a 4m version of its Evolution Drill Toolbar with twin-tine fertiliser placement, and a Claydon Mole Drainer.

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Around 347,000 visitors were recorded during the five days of EIMA.

EIMA show

Italian innovation

While perhaps less well known in the UK than France's SIMA or Germany's Agritechnica, Italy's biennial EIMA exhibition offers just as much international interest in terms of arable equipment developments. CPM shares highlights from November's event.

By Martin Rickatson

Perhaps unsurprisingly, it's not only in the UK that the machinery trade is catching a cold from a sharp downturn in farm investment. Policy uncertainty, support cutbacks, higher farm input costs, rising interest rates and large hikes in machinery prices are all causing farmers to keep chequebooks firmly closed in many other countries across Europe and beyond.

Conversely, manufacturers, importers and dealers are struggling with large inventories, the result of component sourcing problems during Covid-19 which led to machine supply delays. While that issue is now largely solved, the release of the bottleneck has led to significant stocking issues with too much kit and too few potential homes

at the prices sought to make a margin.

Global tractor sales have been calculated to be -12% in January-June, compared with the same 2023 period. In Italy, Europe's third largest market, January-September tractor figures compiled by FederUnacoma, the Italian agricultural machinery manufacturers' federation, showed a 15.6% drop in registered units compared with the same period in 2023, plus a 31.9% fall in combine numbers.

The situation has been compounded by delayed confirmation of revised investment support schemes, and accordingly, the country's manufacturers and dealers are having to tighten their belts and ride out a storm that many believe may last globally for at least another year.

Even so, all of this didn't appear to put off the country's farmers from attending the biennial EIMA International farm machinery show – around 347,000 visitors were recorded during the event's five days.

Neither has it stifled the research activities of key exhibitors, many of whom put their latest developments forward for the EIMA Innovation Awards – a scheme covering new products unveiled at the show split into medal winners and those granted 'special mentions'.

Among the 17 halls covering 13ha of the Bologna Fiere exhibition centre, there were some stand-out arable equipment developments.

Tractor and telehandler tech

Among the medal winners was Case IH which introduced a heavy-duty

suspension system for its 2025-year Quadtrac models, a revised line which adopts the styling of the Quadtrac 715 flagship launched earlier this year.

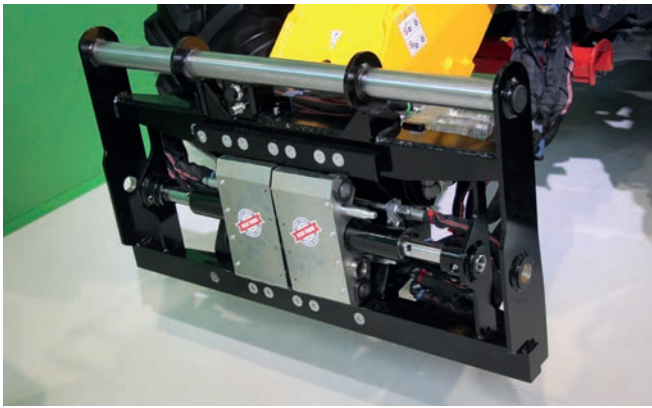
Said to be the first full-suspended undercarriage technology to be made available on a four-tracked tractor, the system is claimed to not only enhance operator comfort, but also increase track footprint and raise workrates through greater potential operating speeds on uneven land, while also helping achieve the ideal operating speed for the implement attached.

The system is completely mechanical and hydraulically-cushioned with no additional sensors or wiring, and the independently suspended idler and mid-roller wheels are said to provide a 42% reduction in vertical acceleration at the operator seat during road travel.

The independent double axis suspension



The new Case IH Quadtrac track suspension system is said to enhance operator comfort, track footprint, workrates and implement performance.



The Fast-Attach system from Dieci is said to be the only system available which connects all mechanical, hydraulic and electrical couplings.

is said to ensure the mid-rollers closely follow ground contours, permitting higher field travel speeds in rough field conditions to enhance workrates and produce the desired results from implements.

Whereas enhanced ground contact is also said to maximise each track footprint, translating more engine output into pulling power and spreading the tractor weight over a greater area to minimise ground pressure and soil damage. Drive wheel diameter is up by 11%, while each track is 5% longer.

To minimise servicing time, the system is grease-less, and has maintenance-free bushings and pins and automatic track tensioning.

Elsewhere in tractors, McCormick unveiled a 360° vision system designed to benefit both safety and implement hitching/monitoring. It uses a combination of four cameras to provide an all-round view, feeding a central processing unit equipped with specially-designed software.

It offers five main functions including a radar view to identify the distance from obstacles, a 360° view around the tractor, and a projection of the tractor trajectory. The feed from each camera can also be viewed with zoom, and at the front and rear the view can be used to aid implement hitching and monitoring during work.

While not a big name among UK telehandler buyers, Italian maker Dieci's EIMA Innovation Award-winning Fast-Attach system was nonetheless worthy of note. While its creation isn't the first from a manufacturer seeking to automate and speed up the changing and connection of buckets, grabs and forks, Dieci's development is said to be the only one which connects all mechanical, hydraulic and electrical couplings.

Based on a hook-type headstock design, the standard system's faceplate connects the implement mechanically and plugs in a single hydraulic service. Optionally, this can be extended to include a second hydraulic supply, a double-acting feed, and electrical and digital connections.

Also in telehandlers, the Smart Weighing System (SWS) from Manitou earned the French firm an Innovation Award. A fully integral connected system, it features a rapid tare function that means no calibration is required, regardless of the attachment fitted.

The system is configured from the operator touchscreen and users can define the type of weighing required including basic, cumulative, target and ration functions. Weighing data can be recorded in manual or automatic

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mode, and data is transferred to and accessible from a myManitou app; accuracy is claimed to be within +/- 2%.

Italy's predominant telehandler maker, Merlo, won a medal scheme 'mention' with its TFe43.7, which brings the advantages of zero-emissions handler to a full farm-scale size. Previewed a year ago at Agritechnica and now entering production, the machine is capable of lifting 4.3t to 7.0m.

Run time is said to be eight hours in 'average' operations whereas charge time is 3.5 hours and top travel speed is 33km/hr. A TFe30.9 variant on its stand included an upgraded lithium-ion battery pack that powers individual electric motors for the boom, other hydraulics and the transmission.

Cultivation equipment

For farms where the power harrow is still preferred for a final land preparation pass before drilling, the awards scheme entries of two Italian firms caught the eye. While such machines have until now topped out at 8.0m working width, Maschio Gaspardo has taken this to 10.0m with its Jumbo X.

The task of creating a machine that folds to within 3.0m wide/4.0m high European transport requirements was shared with the Italian School of Design (SID). Covered by six mechanical and electronic patents, the Jumbo X is formed of a reinforced frame consisting of three main sections arranged around a telescopic and folding design for road transport, which is aided by a patented four-wheel transport system. An ISOBUS-based control system includes the ability to automatically manage headland sequences, including outer wing lifting.

Alpego, whose products are now imported to the UK by Opico, displayed a



Maschio Gaspardo's Jumbo X design takes power harrows into 10m working width territory for the first time.

more conventional power harrow design but with a very different drive system. Created to match what the firm sees as power transmission technology likely to be found in tomorrow's tractors, it's operated via a 700V DC electrical supply.

Each of the five electric motors drives an input gear, and from here, as with a conventional power harrow, the rotors are connected to by a series of gears. In this way, each electric motor is electronically controlled to provide the power and torque required by each rotor, says Alpego, with this independent from the load on the gear. As the system is developed, this may allow automatic real-time adaptation to changing soil conditions resulting in fuel and wearing metal savings, it claims.

In terms of non-powered cultivation equipment, Kuhn was a medal winner with its ISOBUS-based Smart Soil Technology for its Optimer 6.0/7.5m cultivators, which allows all cultivator settings to be controlled from the tractor's ISOBUS screen.

Functions include Steady Control Ultimate which provides automatic adjustment of the cultivator's contour-following to ensure an even working depth across its full width, using pressure and position sensors to determine the optimum pressure in the hydraulic rams.

Kuhn suggests the system's major innovation is its Auto-Line function, which continuously corrects the cultivator's alignment to address the effects of slopes, changes in soil type or alterations in working depth, and keep it tracking true behind the tractor.

To do this, a sensor mounted on a coulter in the centre of the implement constantly measures implement position in relation to forward movement. The data is sent back by a sensor mounted on it then used to correct the machine's alignment via the gauge wheels and press/roller to balance the lateral forces on the front and rear discs. To ensure even stubble cultivation, the system allows a maximum depth difference of 3cm between the front and rear discs.

Section control enables automatic headland raising and lowering while a headland turning mode can be enabled to take load either on the carriage via the transport wheels or on the roller to reduce soil compaction; there's also an automatic folding sequence. A 'geo' function can be used to modulate working depths using a map entered beforehand, or to record the working depths achieved.

Baling and forage equipment

A 'special mention' in the EIMA Innovations Awards was granted to New Holland for the CropSpeed system developed for its latest FR Forage Cruiser self-propelled forage harvesters. Designed to help operators exploit the full capacity potential of the machines without risking blockage, the system is based around a spout-mounted



The CropSpeed system on New Holland's latest FR Forage Cruiser self-propelled forage harvesters uses a spout-mounted radar to monitor crop flow and reduce blockage risk.

radar sensor that monitors the crop flow leaving the machine, detecting any change in its rate in relation to forward speed.

If the rate should drop, the operator receives a warning to slow the forward speed. New Holland says this helps reduce blockage likelihood and makes dense blockages far less likely to occur, while also helping less-experienced operators drive more confidently to maximise output.

Kuhn was a Technical Innovation award winner with the Baler Automation systems designed into its VB7100 round balers, which combine the benefits of Tractor Implement Management (TIM), Task Controller (TC-BAS, TC-GEO and TC-SC) and Auxiliary Control (AUX-N). The VB 7100 series are said to be the world's first balers with Section Control and a GPS-controlled automated pick-up that's automatically raised when there's no crop present to bale.

The system automates mapping, recording and documentation of data including bale numbers per field/job, customer (for contractors) and field information, yield and bale weight. It also incorporates Tractor Implement Management (TIM), allowing the baler to control the tractor and automate the entire baling cycle including automatically

stopping the tractor when the bale chamber is full, and automatic bale ejection once netwrapping is complete.

Other automated functions include tractor stopping in the event of a blockage along with full automatic unblocking, automatic knife cleaning and automated lifting of the pick-up when reversing.

Spraying technology

Aimed primarily at liquid fertiliser applications, the medal-winning Orion Pro from Arag is an integrated system for regulating and measuring the amount of product applied. Using an electromagnetic flowmeter, a solenoid valve and control unit, the system measures rather than calculates flowrate.

Primary advantages beyond more accurate and targeted application, and hence lower costs through greater efficiencies, include reduced environmental impact for the precise distribution of liquid fertiliser.

Immediate operator notification via the sprayer operating terminal of clogged or defective nozzles is the benefit of Altek's nozzle flow monitor, which continuously monitors individual nozzle flow rates while spraying.



Kuhn's Baler Automation systems designed into its VB7100 round balers combine the benefits of Tractor Implement Management, Task Controller and Auxiliary Control.

Granted an Innovation Award scheme 'mention', it combines a measuring device and sensor unit integrated into the boom clamps of the Altek's Multi-eSpray and Multi-cSpray nozzle bodies. Flow monitoring is possible through all nozzle positions of multi-nozzle bodies, and a warning signal is given when application rate deviates from the expected flow, with the system capable of monitoring rates of up to 11 l/min through all nozzle positions. ■

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IDEAS FOR
OUR FUTURE

Seeing green

Hydrogen fuels

– the future of hydrogen

Hydrogen is the most abundant substance in the universe and it could help to pave the way towards net zero within agriculture. However, this means generating it in a sustainable and affordable way which isn't as accessible as it might seem. *CPM* investigates.

By Melanie Jenkins

The potential for green hydrogen to change energy and fertiliser production as we know it is boundless, with one quick Google search resulting in a myriad of results – many likely to be from well-known firms as they seek to get ahead of the game. But what can it bring to agriculture?

Despite its apparently unlimited nature, accessing hydrogen in a usable form isn't that straightforward, but even so, it's widely used across different industries, explains Cenex's Nick McCarthy. "Hydrogen is essential to our civilisation; from its use in the manufacture of fertiliser to the de-sulphurisation of fuel for vehicles, it's used in food production, glass making and a

range of other chemical applications."

However, there's an issue with this. Although hydrogen itself can provide a clean and green source of energy, in the majority of cases it's produced using natural gas or coal, he highlights. "How hydrogen is produced is often categorised using a colour code but green is the only one that's produced entirely using renewable energy. When producing hydrogen from coal, it'd be better to burn the coal for electricity in the first place."

Operator familiarity

One of the key advantages of adopting hydrogen as a fuel is that the experience of operating with it is similar to what currently exists in liquid fuelled vehicles, says Nick. "As far as its potential to replace diesel internal combustion engines in agriculture goes, there are two options available or in development, depending on the machine and manufacturer in question.

"Hydrogen can either be used in a fuel cell or in an adapted internal combustion engine. In a fuel cell, an electrochemical process similar to that of a battery takes place, where the discharging of electrons produces energy.

"Where the internal combustion engine is concerned, JCB has been at the forefront of developing this technology. Unlike in fuel cells, the hydrogen used in adapted internal combustion engines doesn't have to be as clean and because these are already the standard engines produced, it's a much easier adaption

to make than creating a new engine because the infrastructure already exists."

But one of the biggest barriers to adopting this technology may be a lack of accessible locations for refuelling. "In the UK we have around 12 hydrogen refuelling stations, many of which are located on universities or behind security gates. And while there are firms producing mobile refuelling units, these are expensive and there are a number of legal and regulatory hurdles still to overcome.

"It's not yet clear whether it'd be possible to take a hydrogen bowser onto a farm because the farm will count as an industrial zone. Or it might be possible to have it on farm but not to drive with it on public roads



Hydrogen is lighter than air and even when it's compressed and contained it doesn't weigh much.

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Hydrogen fuels

► to access the farm, based on current laws.”

Nevertheless, the EU is working to overcome this with its Ten-T corridor policy which sets out road and other transport networks surrounding and adjacent to towns that are critical to the economics of the EU. “To allow for the integration of hydrogen as an accessible fuel across the EU, it’s been agreed that a hydrogen refuelling station will be built at each node of this network as well as one every 200km (124m).

“Before Brexit the UK was included in this policy, and although we aren’t now, the overall economic gravity it has hasn’t changed. So it’s essential that the UK aims to provide a similar frequency of refuelling stations to allow for the rollout of the technology and continued economic cohesion.”

The refuelling process itself is simple and would be very similar to adding a



Refuelling hydrogen vehicles would be very similar to adding a liquid fuel to a vehicle.

Green fuel

Refuelling hydrogen powered tractors is something Fendt is exploring in Lower Saxony, Germany, with its H2Agrar project. This project has involved building infrastructure to produce and supply hydrogen locally using wind turbines, to two Fendt Helios tractors, explains the firm’s Ed Dennett.

“Hydrogen fuelled machines are still a long-term project for us and from a manufacturer’s perspective, there’s a lot of hedging going on in regard to where the industry will be in terms of fuel sources in the future. As Fendt sees it, hydrogen machines could fit the market above 130hp, however, making hydrogen power commercially available and successful is a challenge.”

While Fendt began trialling its hydrogen fuel cell tractors in 2023, the H2Agrar project

commenced in 2021 with the installation of a hydrogen production station in Haren. The energy sourced for the hydrogen comes from 16 community wind turbines.

Two specially installed electrolyzers, each with an output of 1MW, produce up to 900kg of hydrogen per day. At the same time, there are two battery storage units on site with a total capacity of 4MWh for buffering electrical energy. The hydrogen produced is fed into the local natural gas grid and supplied to the hydrogen filling station; there’s also a Green Charging Park for trucks and cars with a charging capacity of 480kW per charging station.

Each Helios tractor used in the project has a hydrogen tank on the roof holding 4.2kg at 700bar (10,153psi) which totals 21kg of hydrogen. This is reduced to around 10bar

(145psi) to be added to the fuel cell where it’s converted to approximately 350kWh of electricity. The tractor has another 25kWh battery giving it a total of 105kw, which allows it to undertake 4-7 hours of work.

“The whole idea behind the project is local generation of hydrogen,” explains Ed. “We see it as similar to a biodigester that can be located anywhere but with hydrogen. Farms are already producing their own renewable energy and making money from it, so this project explores how feasible it is to produce and use hydrogen on a localised scale.”

Although the firm still very much sees itself as a machinery manufacturer, the project helps to determine the possibility of widespread adoption of hydrogen machines in the future. “There’s a lot of investment going into green hydrogen across different industries and we feel it’s important to be a part of this so we can help shape its future and determine how it could be commercially viable,” says Ed. “It also demonstrates to our customers that when purchasing a Fendt machine, they’re investing in the future.”

But in order for this technology to progress, there has to be interest from investors and demand from customers, he says. “We can’t bring a product to market that no one wants, or one that’s too expensive. But by exploring the feasibility and economics of the localised production of green hydrogen it demonstrates there’s potential for farmers to be in control of their own fuel supply in future – it’s all about being open to what’s possible.”



Refuelling hydrogen powered tractors is something Fendt is exploring in Lower Saxony, Germany, with its H2Agrar project.

liquid fuel to a vehicle, says Nick. “The connectors would lock into place and would likely be cooled to ensure there’s no overheating and the process is quick – all-in-all it’s about a five-minute task for a passenger car sized fuel tank.”

Work performance

But how does hydrogen’s work performance compare with diesel? In terms of energy density comparative to mass, hydrogen is fantastic, says Nick. “Hydrogen is lighter than air and even when it’s compressed and contained it doesn’t weigh much, however, it has a very low volumetric energy density meaning it’s the storage of the fuel which takes up space.”

According to the University of Michigan’s Center for Sustainable Systems, its volumetric energy density is 8MJ/L for liquid hydrogen, 5.6MJ/L for compressed hydrogen gas at 700bar (10,152psi) pressure, compared with 32MJ/L for gasoline at ambient conditions.

“In essence, this means that the number of hectares you can plough in a day is good, but the volume of hydrogen you can take with you to that field is limited,” explains Nick. “I estimate 20kg of hydrogen would be required to achieve a day’s work from a tractor. It’s likely this would be stored on the roof of the cab but there’s then the challenge of maintaining balance.”

In addition to this, hydrogen has to be held at high pressures, with most non-road hydrogen prototypes storing the gas at 350bar, while on road this is 700bar to be able to store enough to operate. “That’s a lot of pressure to contain which means the thickness of the walls of the cylinders has to be considerable to store it safely.”

But safety is of utmost importance to manufacturers, with cylinders undergoing incredibly stringent testing, says Nick. “Tests include placing a cylinder in a bonfire for eight hours to see if it explodes, dragging them behind a truck on a 20ft chain, and firing rifles at them. Hydrogen cylinders are built to pass these tests and there are UK firms installing them which expect their cylinders to outlast the vehicles they’re designed to go in.”

Access to green hydrogen is a further obstacle but in theory, the UK is one of the places in the world where there’s potential to produce cheap hydrogen, suggests Nick. “The UK has an incredible wind resource available and if this was pursued – privately or via government incentivisation – the UK could potentially produce hydrogen cheaply and be able to transport it domestically in a cost-effective manner.” ■

Green fertiliser



June 2024 saw Yara open a new renewable hydrogen plant in Herøya, Norway, the biggest hydrogen production facility of its kind in Europe.

Hydrogen is already fundamental for UK agriculture due to its use in the manufacturing of any nitrogen fertiliser product, be that liquid, urea, ammonium nitrate or NPK, reminds Yara’s Mark Tucker.

Up until recently, the industry has been producing hydrogen from fossil fuels but it’s now working to shift this to another source to decarbonise the supply chain. In Yara’s case, it’s through the use of electrolysis. “This is both a challenging and expensive transition but we can produce ammonia without the unwanted consequence of climate change, then we have to use renewable sources to drive processes such as electrolysis, at scale,” he says.

June 2024 saw Yara open a new renewable hydrogen plant in Herøya, Norway, the largest hydrogen production facility of its kind in Europe. “It’s involved a huge investment and technological challenge, but is now able to help cut up to 41,000t of CO₂ emissions annually.”

The 24MW plant will produce fertiliser products for Yara’s Climate Choice portfolio to help decarbonise the food chain and reduce the climate impact from fertilisers. Although there’s limited supply at the moment, Yara aims to produce 40% of its fertiliser from its Climate Change portfolio by 2030 – not solely from its Norwegian plant, but from other sites and renewable sources elsewhere around the world.

But Mark highlights that the adoption of fertiliser produced from renewable sources isn’t an excuse to be blasé. “It’s important that we’re still combining this with a reduction in the amount of fertiliser being used, because if we apply it in wrong ways at the wrong times, then this undoes all the efforts of producing it using a low or no carbon method.”

Yara’s Dale Turner points out that it’s essential to coordinate green fertiliser with optimised field applications. “It’s equally important that yields aren’t sacrificed to lower your carbon footprint, because that’ll undo what you’re trying to achieve overall.”

But due to the unknown position of hydrogen in the future of fertiliser production and fuels, securing investment for further research and development is a sizeable challenge, says Mark. “We’re talking about billions of pounds that’s gone into this so far to allow for a green product to become available for farmers. So far this has been funded by ourselves, the Norwegian government and our market partners such as PepsiCo and Simpsons Malt.”

Unless these partnerships can develop across the supply chain it could lead to limitations in investment, says Dale. “We want to ensure there’s a meaningful, collaborative approach across the board, which should include partners from farm level to food companies and processors.”

To this end, he advises exploring how the adoption of green fertilisers could add value to food produced from it. “It’s important that its use can be measured and verified accurately through carbon auditing. However, without standardised methodologies the impact can be difficult to accurately verify.”

Although Yara has already reduced its emissions by 45% since 2005, it’s still going to be some time before the agricultural industry can transition to a point where most, if not all, fertiliser is produced using green hydrogen, says Mark. “We’re talking about decades before there’s millions of tonnes of fertiliser produced from green hydrogen across the world.”

“The benefits we’ve realised since owning the Espro have far outweighed our old system.”

On farm opinion

Choosing a versatile one pass drill to replace a trusted power harrow system has not only increased drilling output for one farmer, but supported a flexible approach to different soils and the adoption of technology to ensure even establishment. CPM explores.

By Melanie Jenkins

After increasing his contract farmed land four years ago, Northumberland farmer John Thompson knew his intensive plough and power harrow establishment system wouldn’t allow him the capacity to maximise the tight weather windows, so he took the decision to find a suitable alternative.

John, who farms with his father James, runs an operation consisting of arable and SFI with an extensive horse livery yard business. The arable hectareage

Achieving even emergence

extends to 260ha of owned land and contracting, and up until a few years ago, had been cultivated intensively.

Although the system was faithfully reliable, its downsides were it required multiple passes, was generally quite slow, and used significant amounts of diesel and labour in the process, explains John. “The power harrow system was great and always allowed us flexibility to establish crops, but increasing our hectareage meant it wouldn’t cope with the additional work so we’d been looking at drill options for some time to boost work rates when the weather allowed.”

Seed depth consistency

Maintaining consistency of seed depth was of paramount importance, along with a drill that was easy to use and had the flexibility to handle a variety of soil types and weather conditions, he adds. Two local dealers provided John with a Kuhn Espro and the equivalent Horsch version to test, but a strong relationship with Ripon depot manager, Andy Whitfield, eventually sealed the deal on the Espro.

“We’ve known Andy for several decades and trust him when he says this is what we require. We use Ripon a lot and having that trust in a dealer makes a huge difference. He recommended the Espro and took the time to show us its features.”

The 4m Kuhn Espro 4000 arrived at

Hall Farm on the outskirts of Seaton Sluice in Northumberland in 2021 – an ex-demonstration unit that had seen little use at the time of its arrival. The farm didn’t require a split tank drill so the full 2t hopper is a single tank for seed, meaning increased time between fill ups. Whereas another aspect that impressed John during the demonstration process



John Thompson moved away from a power harrow system to a Kuhn Espro 4000 when he increased his contract farmed area.

was the consistent seeding depth offered by the Kuhn coulters design.

“The layout of a drill’s components has a significant influence on consistent establishment. The drill’s row of press wheels are in front of the coulters, rather than behind, as is the case on some other models,” he explains. “This means consolidation and levelling of the seedbed is carried out by the wheels leaving an even seedbed for the coulters to work into. The middle transport wheels are sat further forward than the press wheels on the wings, which helps the soil to flow and avoids the drill becoming easily stuck.”

The coulter design has two angled discs that are slightly offset to allow soil to flow easily through and limit disturbance. The leading disc creates the channel with the following disc widening it sufficiently for the seed to be placed at an accurate depth, which is easy to set via spacers on hydraulic rams. John believes this design has been essential for even germination.

“Across our fields we have uniform crops that are at the same growth stage with even emergence, which makes management much easier. I believe this is down to the consistent drilling depth and consistent pressure across the width.”



The Kuhn Espro is a universal seed drill which is designed for use after ploughing, minimum tillage or directly into crop residues.

The Espro also has the optional levelling paddles on a front bar which can be adjusted for aggressivity, or removed completely from work depending on conditions.

The establishment system at Hall Farm now relies on a 3m Kuhn Performer with a combination of legs, discs and

consolidation to provide a tilth following harvest. The Performer and Espro combination have significantly lowered the fuel bill compared with before and offered the farm more options, says John.

“We have two tractors – a John Deere 6155R and 6215R – and both easily pull the drill. The 6215R is preferred as



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Emergence is uniform which makes managing crops much easier, which could be down to the consistent drilling depth and even pressure across the width of the Espro.

it has additional power for the hills and can increase forward speed when the conditions allow. The Autopwr gearbox and engine combination in the 6215R operate at just 1500rpm and we can easily do a couple of days on a single tank.

“Comparatively, the old power harrow drill would be comfortable at 7km/h, whereas the Espro is usually set at 12km/h but can rise to 14km/h in dry conditions. This, coupled to the additional 1m of drilling width, means outputs have increased considerably,” he adds.

Another positive has been the larger seed tank on the Espro, which can hold four 500kg seed bags allowing John to keep working for double the amount of time as his previous drill. This has reduced trips back to the farm but also meant support

for loading seed has been reduced.

Integration between tractor and implement can be a common problem, but the Espro’s ISOBUS display through the John Deere Starfire terminal has allowed John to refine settings to the point where he presses a single button at the start and end of each run.

“The drill runs through John Deere’s Greenstar GPS and this allows several areas of accuracy to be refined,” says John. “The synchronisation with Greenstar allows the Espro to work in a more efficient way.”

He sets a boundary 19m into the field from his outside headland edge to provide the drill with a reference point for turning on and off, ensuring no missed areas and as little seed overlap as possible. John has also fine-tuned the

Technical perspective

The Kuhn Espro is available in 3m, 4m, 6m and 8m options when choosing a single hopper, while the split hopper version comes in either 4m or 6m, details the firm’s Edd Fanshawe. “Those selecting the split hopper have the option to include fertiliser or companion cropping seed alongside their main crop.”

With the split hopper options, the drill can either have two rows of coulters, whereby the fertiliser coulters are ahead of the press wheels and the seed coulters at the back. Or both seed and fertiliser can go down the same coulters.

For those requiring further seeding capacity, an SH 1120 hopper can be fitted to the drawbar. “The 110-litre seeder feeds into the same venturi, and therefore the same coulters as the main hopper. Furthermore, seeders can be fitted to the rear for the application of Avadex, slug pellets, companion crops and more,” he adds.

“We’re seeing increasing movement towards companion cropping with growers wanting to plant a mix of different seeds. If they opt for the twin hopper, with the small seed hopper on the drawbar and another on the rear, there’s the ability to drill up to four products at three different depths.”

In terms of the distribution head, full Vistaflow is available, says Edd. “This is the full seed monitoring and universal tramlining system, but customers can also select two-by-two tramlining or half width shut-off. With full Vistaflow, contractors with the 6m drill, for example, have the option to work across varying tramline widths by adjusting the settings on the digital display.”

The Crossflex seeding element consists of an offset double disc system, with one leading disc that allows the drill to work in less-than-ideal conditions, he explains. “It’s very versatile and

means you can go in directly after the plough, into min-tilled soils or even directly into stubbles in the correct conditions – it can suit anyone in most situations. We’re seeing wetter autumns and a drill like the Espro can run a lot later into the season than other disc drills because the seeding element is behind the press wheels.

“The drill can exert 80kg of down pressure on the seeding unit, which allows it to operate in less favourable conditions, however, it is primarily a min-till drill,” he highlights. “But for those wanting to use it to drill directly into soils, the two rows of cultivation discs can be lifted out and operators can then just go in with coulters when overseeding with grass, for example.”

For headland management control, the front tools, cultivation discs and seed coulters can be individually lifted in a staggered sequence on the headland and when setting back into the field, says Edd. “We often specify the drill with the Kuhn CCI A3 ISOBUS joystick which can be plumbed through the tractor joystick to control this.”

The drill has the option of track eradicators, full width press wheels, press wheels with track eradicators or a front levelling board.

The press wheels of the Espro are different to many other options on the market, coming in at 900mm and offset by 20cm. “This means the drill requires less horsepower to pull it because there’s no bulldozing effecting on the soil,” explains Edd. “In effect, the 6m drill requires 200-215hp, which is pretty low for a trailed drill. The 3m drill requires 160hp and the 8m version can be pulled with upwards of 270hp.

“There’re also two press wheels per axle, so when turning on the headland, one wheel is moving forward and one backward. This means it’s easier to turn and the



According to Kuhn’s Edd Fanshawe, the Espro is a versatile drill meaning it can go in directly after the plough, into min-tilled soils or even directly into stubbles in the correct conditions.

headland won’t be scrubbed up as badly.

“The mid-gang of wheels also lift up during transport so the drill is only running on the outer wheels. The camber of roads is always raised, meaning the weight of the drill would be on the central wheels if these were running on the road,” he says. “By lifting these wheels and running on the exterior ones, the drill tows more like a trailer and is legally allowed to be driven on roads at 40km/h with a fully laden hopper because these wheels are braked.

“In addition, where machines have the wheels in one gang on one axle it’s often the middle wheel which suffers from punctures meaning all wheels have to be removed to address this. On the Espro, with two wheels per axle it makes this process much easier.”



The Espro's coulters design has two angled discs which are slightly offset to allow soil to flow easily through and limit disturbance.

settings to reduce the tractor speed as he crosses the boundary, allowing the drill to switch on/off with greater finesse.

"The benefits to setting a boundary like this means it removes operator error and contributes to saving seed. On entering a run I can set the drill down into work way ahead of the mark, but the radar will only start the seed flowing once the drill crosses the line. I've set it to start seeding 1.2 seconds before the line and stop seeding 0.8 seconds after it crosses the boundary. I've refined these over the years, and it's about right now."

Memory settings for the individual

components are also possible. This means when John changes the depth of the discs, the new depth setting is instantly memorised and will return to work at the same level.

All-in-all, the Espro has become an essential tool on the farm, handling all cereal drilling, SFI establishment and grass drilling for the equine yards, says John. On average, it covers around 320ha a year and he says he wouldn't go back to his old system.

"We kept the power harrow combination for the first year of owning the Espro as a 'just in case' drill but we didn't use it at all so ended up selling it this year. The benefits we've realised since owning the Espro have far outweighed our old system and I wouldn't be without it now," he concludes. ■



The Espro's row of press wheels are in front of the coulters rather than behind, as is the case on some other models.



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talkingtaties

by Andrew Wilson

Choppy tides

A lot can change in a few weeks and sometimes that's a good thing – since my last column, we've had triumph, challenge, disappointment and disaster!

The triumphs include a spring bean result far better than I've previously experienced. Yield touched 7t/ha at 23% moisture, quality was good so attracted a premium for human consumption which paid for the drying, and we planted the following wheat in good order before the next deluge. I even sold them reasonably well.

We harvested a third of our sugar beet on 30 October which for a May-sown crop, wasn't too shabby at 64t/ha. Sugar average was 17.33% and dirt 3.2%, both the right side of the respective factory averages.

So, potatoes. Despite better-than-expected quality, yields are the worst I can remember for some years – we're 30% down on target which is going to hurt cashflow and enthusiasm.

There's no major reason that I can pinpoint – late, cold and wet planting, seed issues, a fortnight of high heat then two months of cold wet dreary weather before

another heatwave that shut some crops down when they should have been bulking hard. Still, our markets seem to be in denial and are slow to take responsibility for the elements that they control, which is a contributing factor to both current results and future vision.

The industry has survived on eternal optimism for too long, in my opinion. I'm old enough to remember when we had the following year's contract prices by June to enable us to negotiate land, source inputs, plan and forecast – they were at a level that left a profit worthy of making investments in too.

All that seems a long time ago in today's world of volatility, escalating costs, data harvesting, manipulated weather, foreign competition and clipboard epidemics. I believe the tide's turning, but not anything like quickly enough to be meaningful, not yet anyway.

Twelve years ago I made a list of kit that I could line up in a field and sell, should I decide to cease my lifetime's run of being a potato grower. Back then we grew significantly more than now, but it came to more than a grand an acre. That same equation now results in more than double that figure.

Add to it the working capital tied up in the crop and the total would clear every debt we have, allow significant investment in assets and still leave the bank statement printed in black ink.

Tempting? Definitely. Likely? Not impossible, but it's a big part of me and I'm stubborn, determined and proud. I'm also tired, fed up, skint and not afraid

of change. Conversing with other growers, I'm not alone – will the penny drop with those with the power to turn the tide?

Some readers will undoubtedly be aware of my drill collection which was at times, an eye-roller for my late father, but it gives us options, flexibility and capacity.

Our direct disc-drilled cover crops this year look universally dreadful due to a combination of hot dry conditions for the earlier sown fields and cold wet conditions in those later sown. One must console one's self that the good stuff happens underground.

Our strip-till drill has covered more area this year than in 2022 and 2023 seasons combined, and continues to impress as we learn how and when to use it. One such occasion recently was to patch in wheat that was flooded off back in early October, whereas another was sowing a wheat and bean intercrop as part of a nitrogen use efficiency trial upgrade.

Minister Steve Reed says we must do more with less, but as usual he's behind – we've been doing that for years!

Politics are notoriously short-term in thinking and forever an incompatible bedfellow to a long-term industry like farming, however can't be ignored. I try to not worry about things beyond my control but it's easy to ponder 'what next'. IHT seems to be a decoy to shroud things such as an impending fertiliser tax, which will undoubtedly filter through to aspects like steel and cement which alongside the NI hike, is

going to hammer our supply industry and customers to an equally destructive level.

Speaking of bureaucracy, last week I had a quarterly vet inspection of my pigs – something I've no objection to and feel should be more than adequate to cover anything the four additional pig assurance schemes could ever wish for. Alas, this isn't currently the case and an hour later the Red Tractor pig inspector arrived. We passed both.

I guess it's a warm-up for the marathon that'll be my ACCS and AP inspection next week – last year it was a nine-hour endurance, it's just a shame it doesn't bring a reward to mirror the level of headache.

May I take this opportunity to wish you some festive regards – take comfort in the solidarity that we're all navigating the same choppy tides and give the calculator a few days off while we tuck into some proper British produce – while we still can. *Happy Christmas.*

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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“ We have to assume that any chance to improve insulation, do it.”

Potato webinars

Storage finesse

With the knock-on effect of the wet spring delaying harvest for many, plus the burden of high energy costs, it could feel as though the odds are stacked against efficient and effective potato storage this year. CPM attended a series of webinars which explored mitigation tactics.

By Janine Adamson

Growing potatoes in the UK is becoming increasingly risky business. Before even considering the cost of inputs, extreme weather during the past few years – from drought to flooding – has meant in some cases, growers have had no choice but to turn their backs on the crop, despite the nation’s continued demand.

This year has been no different – delayed planting due to the wet spring has meant a late harvest in many cases, which brings about its own challenges, including in-store. And at that point

in the crop’s lifecycle, there are high energy costs, aging infrastructure and navigating the nuances of newer sprout suppressants to contend with.

Recognising the perfect storm of challenges this season is what instigated UPL to deliver a series of webinars, collaborating with industry experts and growers to share advice on store management and maximising returns.

Hosted by technical lead Geoff Hailstone, one area which the presenters agreed requires more attention, is improving store insulation.

Study insights

As such, Norfolk farmer Mark Means explained the techniques he’s deployed. “I was fortunate to be involved in a study in 2011/12 with the British Potato Council about energy useage. We had a meter installed and plotted the tonnage we had in against the energy we used, which highlighted the more we could improve insulation, the better we would do.

“We learnt from that study, which compared the farm against around 10 different stores on different farms, that we weren’t anywhere near the best.

“Following this, we re-foamed one of our stores (50mm), which happened in 2019 just before the electricity price hike. That dropped our consumption for a more ambient store of 8oC by 25-30% because it prevents cold

air from getting in,” he said.

Mark shared that he believes it’s worth the investment. “At one point when energy was cheap and renewables were the focus, I thought we didn’t have to worry so much, but I’m glad we pursued it.

“Another learning was when we built one store, which has 100mm of insulation on the roof and 80mm on the sides composite panel, they can leak. So I asked Adrian Cunnington to assess the building using an infrared



Grower Mark Means recommended checking the specification of store roof fans as some can cost more in electricity to run than they’re actually worth.



Although maleic hydrazide appears expensive to apply within the growing season, if it's evaluated more broadly, it's around half the price of an in-store suppressant, advised Simon Faulkner of SDF Agriculture.

► camera to identify the weak spots.

"Following this, a foaming company injected the gable ends – from the roof section meeting the side section, and around the doors. But not long after, we realised we'd sealed it too tightly so added a venting system to keep CO₂ levels down.

"We have to assume that any chance to improve insulation, do it, but subsequently, make sure you regularly monitor CO₂," he stressed.

Simon Faulkner of SDF Agriculture agreed that thermal imaging is a useful diagnostic tool. "You should be making notes during the storage season and assessments for remedial work when stores are empty. You'll know throughout the season where weak spots are, where the warmer tuber temperatures are located, then undertake corrective action in the summer," he advised.

Besides insulation, Mark raised there are other techniques which can reduce energy costs by improving air movement around stores. "We use curtains to concentrate the air through the pallet ends.

"In a couple of stores we've even explored having the fridge pointing away to try and improve the consistency of speed. Perhaps a little unorthodox, but having done this in my longest term store, it's better for weight loss because the speed of air crossing over the top of the tubers has improved in evenness."

He also explained that the farm has received grants in the past to install inverters on the main fans, the compressor and condensers, as well as electronic

expansion valves. "It's even as simple as the fans in the roof – check their specification. Some can be running for a long time during the season and cost more in electricity than the fan is worth. You have to monitor your energy consumption.

"Remember for any inverter or electric fan it's R³ – so if you can reduce its requirements from 100% to 80%, that's 0.8 x 0.8 x 0.8, equivalent to a 50% reduction in energy consumption. However, if you do that on your evaporator fans then they could be colder and the temperature difference (TD) and therefore risk of weight loss increases. This reinforces the importance of working with a fridge engineer," he explained.

Positive ventilation

Simon reminded growers that the consideration should be to aim for positive ventilation, or as close to it as possible, before embarking on building new stores. "Making the most of what you have is a cost-effective compromise. In the case of over-head throw stores, you can install curtains around the sides and over the top of evaporator fans to ensure the air is coming back through the pallet ends, continues through the potatoes and doesn't short-circuit down the side of the building.

"The reversing of the fridge could sound bizarre, but it improves airflow back into the coil reducing 'dead spots' in front of the coil when facing the conventional way. It aids movement out of the corners – another 'dead spot'.

"These techniques plus insulation and inverters will all help to reduce costs or kilowatt consumption at least," he added.

Mark admitted it's a complicated subject and involves investment of time. "You have to understand what you're trying to achieve or you can land in quite a muddle.

"And I don't think you can necessarily do it remotely – I still want to visit stores, smell, feel and touch, to give it a proper look over. There's no substitute for seeing a light has been left on or a door left ajar, you have to be in a store quite regularly," he commented.

Aside from energy, another costly potato store input is sprout suppression. Although applied in-field, Simon highlighted the growing popularity of maleic hydrazide (as in Fazor and Crown MH), particularly in long-term storage scenarios.

"It's been around for years but as growers become more adept in using it, it's become a no-brainer for ware crops.

"MH does look to be an expensive

product to apply within the growing season, but if you evaluate it more broadly, it's around half the price of an in-store suppressant. If it can save one in-store treatment, it's been worthwhile," he urged.

One such option available to growers is ethylene which although is cost-effective, can compromise fry colour as well as require greater management of CO₂ levels, said Simon.

Adrian Cunnington of Potato Storage Insight added that ethylene is a plant hormone and therefore evokes a different response depending on the variety, particularly in relation to respiration rate. "Those marketing products are therefore trying to adapt the introduction of ethylene to stores. Nonetheless, it's a good option for some markets so an important player to have in the mix," he advised.

Exploring other available in-store suppressants, Adrian pointed out that DMN (1,4-dimethylnaphthalene), spearmint oil and orange oil are all volatile active ingredients. "Spearmint oil has been around for about a decade and is used considerably in the fresh market. It had a year after the loss of CIPC when it was used extensively and demonstrated its flexibility in that season.

"Subsequently, other players have come into the market most recently DMN and orange oil. All are volatile and have to be applied carefully – I stress



UPL's Geoff Hailstone hosted a range of webinars which collaborated with industry experts and growers to share advice on store management and maximising returns.

wherever we use these volatiles that we can't assume it's the same as a CIPC application; it's completely different."

He explained that DMN should be applied relatively early during a storage period as a 'dormancy enhancer' whereas spearmint and orange oil offer contact action and are effective at controlling existing sprouting.

"DMN seems to have found its niche – a lot of crops are being treated with it and it seems to have gone on well during the past 2-3 seasons which is encouraging as a product to supplement MH. However, it doesn't suit all markets and is relatively expensive," commented Adrian.

"For orange and spearmint oil, you potentially require multiple applications due to their volatility and therefore they don't remain in-store for long periods of time or offer the same residual control as MH. There are also differences in shelf-life and harvest interval to observe for all of the volatiles."

Suggesting a sprout suppression programme, Adrian said MH could be perceived as a base treatment with DMN being applied early during storage followed by orange oil towards the end.

In response, Simon stressed the importance of monitoring. "One of the

unintended benefits of losing CIPC is store management has become better with improved attention to detail, store design and box layout – that's enabled these newer products to work well.

"Check with your customers regarding their preferences – mint oil has a strong smell and although that's no issue, it can put people off. But again, it comes down to monitoring – you don't want to be treating a store with mint oil if it's being unloaded the following week. Customer discussions are important as we get deeper into the storage season.

"This is why MH is so critical and testing stored tubers for residue levels will help to make better storage decisions on crops stored later in the season."

Adrian added that getting the best out of all of the available sprout suppressants remains a challenge. "You have to understand how the products are going to respond to being applied within your specific store. If you have a leaky store, volatile products can prove a short-term treatment and you'd have to go back again.

"And that's not ideal, so you may want to look at changing the type of product, or of course, do remedial action and rectify.

"Whereas in box stores, application



Potato Storage Insight's Adrian Cunnington highlighted that getting the best out of all the available sprout suppressants remains a challenge.

can be governed by how effectively the boxes have been loaded and whether they're orientated correctly to maintain air control and deliver chemical to the tubers. Any compromise will show up quickly in terms of sprout control," he concluded. ■

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lastword

by Janine Adamson

Succulents the life from me

Why is it I spend my life writing about crops, yet cannot seem to keep a houseplant alive? I'm a certified failure – a monstera murderer, kalanchoe killer, orchid obliterator. Yet in the hands of others, they thrive?

I've given up touching anything in a plant pot bar the weekly 'Thursday watering spree'. From a simple cheese plant which is now smothered in spider mites, to a living stone (Aizoaceae) which exploded last year, it seems I do not have green fingers. Oh the irony!

Even the Venus fly trap ate itself and died – admittedly I may have encouraged it to snare a blue bottle – RIP.

The thing is, I adore plants. I'd go as far to say I need them in my life and at the risk of sounding like I've completely lost my marbles, I can feel their energy.

I do all of the correct things – study their environmental stipulations and strive to select the perfect spot, note their watering requirements, feed them as per the label, re-pot them as necessary. Yet the only true survivor is an ancient aspidistra that belonged to my late nan – it's a good 20 years old – and must have gone at least 12-months without being watered, prior to my possession.

It even took a tumble down a whole flight of stairs after

some modest festive drinks spiralled out of control. Whereas the carpet didn't fare too well, said plant simply dusted itself off and continued on its plight of survival.

In some ways, perhaps I am that plant and maybe you are too? It's resilient and dedicated to the cause – the ultimate low maintenance pal. It keeps going and doesn't make a scene yet delivers the goods. There's definitely something to be said for those who keep a lower profile, propping up the system with gutsy iron will alone.

Might I add, I'm feeling quite inspired having investigated the history of the humble aspidistra. According to the RHS, our friend Will (I've decided that shall be its name, given its willpower), is a 'must-have houseplant'.

Furthermore, aspidistras thrive in dark corners and other tough spots, requiring little attention and adding a tropical appearance without any fuss. 'No home should be without at least one'. I'll take that – I can be tropical...ish!

What's important to note is unlike many popular houseplants, Will isn't overly flashy and doesn't bloom – in some ways, it blends into the background. But its absence would be distinctly felt and it's that which we must remember.

I suppose what I'm meandering around to get to is, don't underestimate the power of being the ordinary within what can feel like an extraordinary world. For 20+ years Will has silently contributed to this home when other plants have come and gone (admittedly not helped by my botanical misdemeanors). Because in many ways, consistency is more effective and impactful than being a flash-in-the-pan.

Simply put, the world can't function without reliable grafters. At times it might feel as though no one would notice if you weren't there, but my goodness, they would. Utter chaos would ensue – you wouldn't build a mansion with no foundations – bangers are nothing without the mash.

Having been the editor of *CPM* for a year, not a lot has changed in terms of what makes me tick. I still find orchestrated networking abhorrent, overthink every interaction with another human being, and 100%

continue to question why anyone would find what I say remotely interesting.

But I'm still here doing it, dodging the balls and being authentically me. And while I know I'm rather different to others in my trade, as long as I can publish insightful magazines which people enjoy reading, hopefully you don't mind if I'm being unequivocally 'Janine' along the way.

So to all of you out there who consistently show up to do life, who align with a sparrow rather than a peacock, I'm in your corner – you've got this.

Journalism awards



Although personal bragging makes my insides groan, I've been told it's important to share good news with our readers. Besides, it's testament to the quality of this magazine at the end of the day, and it's that which I'm truly invested in.

CPM picked up two accolades at the recent Guild of Agricultural Journalists Awards held in London. Melanie was awarded runner-up in the Omnia digital farming category for her feature 'Smart tech: connecting the dots' which

ran in our June 2024 issue.

Then, much to my surprise (especially so given my column this month), I was announced the winner of the Guild's arable award in recognition of the feature I wrote about industrial hemp, which you can find in our February 2024 issue.

I'm delighted for both myself and Melanie, and also, for *CPM*. The magazine continues to uphold the highest standards while exploring topics which inform and intrigue. Having a pat on the back is appreciated at the end of the day.



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