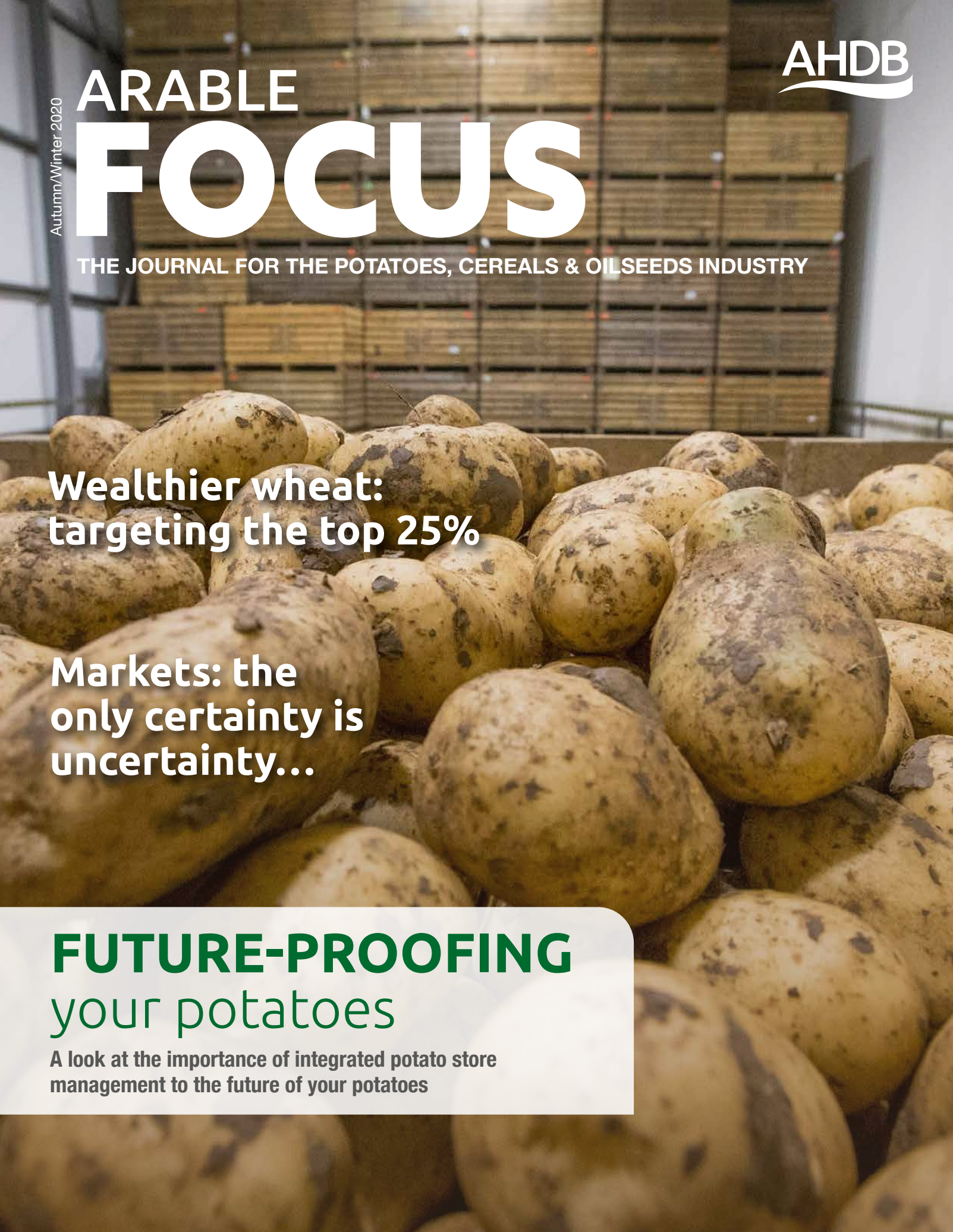

AHDB

Autumn/Winter 2020

# ARABLE FOCUS

THE JOURNAL FOR THE POTATOES, CEREALS & OILSEEDS INDUSTRY

## Wealthier wheat: targeting the top 25%

## Markets: the only certainty is uncertainty…

## FUTURE-PROOFING your potatoes

A look at the importance of integrated potato store management to the future of your potatoes

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Mark Bassett
Tom Jamieson
Paul Reid
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Daniel Matthams

Produced for you by:

AHDB, Stoneleigh Park, Kenilworth, Warwickshire, CV8 2TL

**T** 024 7669 2051
**E** comms@ahdb.org.uk
**W** ahdb.org.uk
**@TheAHDB**

If you no longer wish to receive this information, please email us on the address above.

# Welcome

## Letters from the Chairs

In my business career I have faced some tough times but nothing on the scale of the maelstrom that has hit the potato industry over the last year. Consequently, and more than ever, we need to put investment into initiatives that give tangible value to our levy payers, and this was a big theme coming out of our Open Board meeting back in July.

While retail sales of potatoes remain buoyant, the outlook for food service and hospitality looks tough against the backdrop of a recession and consumer caution about eating out. The 'emergency' marketing campaign that AHDB ran in July was a massive hit, reaching 4.3 million people via social media alone. Especially popular were recipes that gave new ways of creating the classics, underlining the criticality of keeping spuds both front-of-mind and modernised. Spurred on by this, work is underway to develop a new follow-on campaign for early 2021.

Finally, now seems an important time to revisit the scale of the opportunity in exports, especially in non-EU markets. This is particularly so considering the excellent reputation of GB seed potatoes.

Overall, while we have to be somewhat circumspect about what the next year or two holds for the potato industry, if nothing else the maelstrom is making us think and act differently for the future.

**Alison Levett**
AHDB Interim Sector Chair for Potatoes

Trial work on every level remains vital in influencing the decisions we make when dealing with uncertainty. As we look to build resilience against soil and crop management extremes, all trial data, regardless of the growing season, is therefore a key component of the learning process.

However, and frustratingly, the arable annual cycle can be a very slow learning curve particularly when, like recently, weather conditions are so variable and uncertain. In light of these recent conditions, it has been incredibly difficult to put together meaningful trials this year, with weather extremes making growers uncertain about exactly what they should do, what they should grow and how they should treat their crops.

However, we are very fortunate at AHDB as we have great people across the Farm Excellence network, at both our Monitor Farms and Strategic Farms, who share great details about their own learning experiences. I would therefore encourage all our levy payers to engage with your nearest Monitor and Strategic Farm and learn about how you can apply the trial work in your local area on your farm. There is no better way to see what works locally and therefore what may be able to help your own business.

**Paul Temple**
AHDB Sector Chair for Cereals & Oilseeds

# Over the hedge

## News from across AHDB

### AHDB launches five new commitments to levy payers

In response to the recent government-led Request for Views survey, AHDB has announced five new commitments to levy payers as part of its latest reform. Ahead of considerable change for the industry, the new commitments cover various issues from the new strategy to levy collection and the governance of AHDB. For more information, please visit **ahdb.org.uk/commitments**

### Five million children grow their own potatoes

This year, we passed the milestone of five million children taking part in our Grow Your Own Potatoes project in primary schools. The project started in 2005 and we work with over 10,000 British primary schools each year, helping the pupils learn where their food comes from by getting their hands dirty!

### Strategic Dairy Farm network expands

We now have 18 Strategic Dairy Farms across Great Britain representing different production systems, sizes and approaches. The members of this network open their doors for others to learn and share ideas to help drive innovation and increase productivity. Find out more about each farm, including their performance figures and summaries of previous events, at **ahdb.org.uk/farm-excellence**

### Improve soil health with Best4Soil

Best4Soil is a Horizon 2020-funded Agri-Innovation Partnership Programme that aims to improve soil health across Europe. The project has delivered soil improvement resources that levy payers might find useful. For these resources, as well as a diseases database that might help your sectors with rotational planning, visit **best4soil.eu**

### AHDB Cereals & Oilseeds continues digital delivery

Following the success of this June's Strategic Farm Week, AHDB's Cereals & Oilseeds team will continue to deliver content through digital channels this winter. Starting in November, Monitor Farm Mondays will give our Monitor Farms the opportunity to showcase their on-farm trials in weekly webinars. Similarly, November's Strategic Farm Week - Winter 2020 will allow our three Strategic Cereal Farms to present their latest trial results, with Agronomy Week 2020 aimed at discussing important issues in contemporary agronomy. For more information, visit **ahdb.org.uk/events**

### Farm Excellence focus for Beef & Lamb

In October, the Beef & Lamb team is hosting a month-long activity with its Strategic Farms. The participating farmers, who are part of the Farm Excellence programme, will each have a focus week including daily videos, social media updates and an interactive digital event to replace on-farm events. All digital content from the month will be accessible on the AHDB website. For more information, visit: **ahdb.org.uk/beef-lamb**

### Exports efforts continue despite coronavirus

Given this year's travel restrictions, our international agents have played a vital role in promoting British livestock products around the world. However, we have also been looking at other ways to connect our exporters with importers without leaving the UK. As an example, we have filmed exporters as they showcase their businesses to enable importers to 'meet' them in a virtual sense.

# Students' Union
# Arbuscular mycorrhizae: all Greek to me!

**Amanda Bennett, AHDB Resource Management Scientist for Soils, looks at the crop-friendly fungi focus of one PhD studentship**

If your crop roots are in good nick, there's a decent chance they've cuddled up with some potentially powerful soil allies: arbuscular mycorrhizal fungi (AMF).

The word 'mycorrhiza' stems from two Greek words, *mykos* and *rhiza*, which mean 'fungus' and 'root' respectively. Unlike fungal pathogens, which infect and damage plants, mycorrhiza form symbiotic relationships with roots – in a healthy game of give and take.

AHDB PhD student George Crane has developed a fascination for AMF, which are ubiquitous in nature. AMF colonise root cells, undergo intense branching and form 'arbuscules', the sites for fungus/plant metabolite exchange and nutrient accumulation.

Based at NIAB, George leads on a series of field-scale trials and glasshouse experiments that aim to tap into the potential of AMF for crop production. As part of a UK soil assessment programme, the effect of common farm practices on AMF diversity and abundance has already been examined. For example, deep cultivations influenced AMF species composition, with disrupted soils potentially hosting fewer beneficial species.

Cover crops, which deliver a range of benefits to farming systems (see pages 10-11), can also promote AMF. This aspect is under investigation in two fully replicated trials in Norfolk. Various cover crop species are being tested, sometimes with a helping hand, in the form of commercially produced AMF inoculum (five species). The study has developed its own symbiosis with Innovative Farmers (IF) too, providing a steer for on-farm trials, at six sites, that use cover crops and anaerobic digestate (AD) to influence AMF. So far, all trials have delivered mixed results. However, long-term use of cover crops is most likely to deliver a positive effect on AMF communities.

The work has also refined the use of targeted primers that amplify specific AMF DNA. Such molecular approaches can help detect the presence of fungal species in soil samples. For example, George's work has confirmed the presence of 87 AMF taxa in the UK soil assessment samples.

The PhD, which receives part funding through the AgriFood Charities Partnership, is due to conclude next year: **ahdb.org.uk/research** (search for 'AMF PhD').

**For further information, contact:**
**Amanda Bennett**
Resource Management Scientist – Soils
**amanda.bennett@ahdb.org.uk**

Image: Microscopic analysis of a cover crop root (oat) with arbuscular mycorrhizal fungi (AMF) structures clearly present

# Combine the **'most reliable'** techniques to tackle CSFB

**Research reveals cabbage stem flea beetle's soft (less hard) underbelly, writes Charlotte Rowley, AHDB Crop Protection Scientist for Pests**

**Effective chemistry can stop pest targets in their tracks. Without it, we need to get to grips with pest life cycles to find the chinks in their armour. For cabbage stem flea beetle (CSFB), no non-chemical approach is completely reliable, so a combination of the most reliable approaches is needed to deliver multiple hammer blows and suppress populations.**

Following a review of evidence and new trials work, an ADAS-led team has mapped out the key factors that influence the beetle's life cycle across a growing season and used a traffic light system to indicate those most likely to affect control. Although such information can be used to stack management solutions, only two options received a green light.

Approaches that encourage the crop to emerge quickly, outside of the main risk period, top the list of beetle bothering measures, with sowing dates and soil conditions – especially soil moisture during emergence – being particularly critical.

The researchers also gave a green light to a relatively novel approach: trap crops. Soon after the oilseed rape harvest, shed seed starts to emerge. If left in place, these volunteer plants help trap unsuspecting beetles. Not only do these encourage CSFB within the field to stick around, they can also siphon off beetles from the migrating (flying) population and stop them alighting on cash crops. Once landed, beetles' wing muscles degenerate, vastly reducing their ability to move to other crops.

In trials, the approach reduced adult CSFB infestation (by up to 88%) and damage (by up to 76%). It also resulted in higher plant populations (by up to 56%) and reduced larval populations (by up to 69%). However, benefits were variable and not always observed. It is likely that relatively large areas of adjacent trap crops are more likely to disrupt the pest's life cycle, especially if left in place until after the bulk of CSFB migration has occurred.

## Amber gambler

The researchers also investigated seed rate (amber light). Generally, they found that, in terms of yield, increasing the seed rate beyond that needed to achieve optimal plant populations – 25–40 plants/m$^2$ – resulted in little benefit, unless conditions were dry during establishment. Interestingly, higher seed rates were associated with greater larval numbers per hectare, which could build pest populations across seasons.

CSFB larvae are far more likely to be present in leaf petioles than in the stem. As a result, managed defoliation significantly reduced larval numbers in trials (by 23–55%), with late defoliation, before stem extension, most effective. Linked on-farm trials found that sheep grazing and topping reduced larval numbers by 51% and 25%, respectively. However, researchers did not detect significant yield increases in crops with reduced larval populations.

The research has examined an incredible array of options and provided solid leads for management and research. Details can be found at **ahdb.org.uk/csfb**

**For further information, contact:**
**Charlotte Rowley**
Crop Protection Scientist – Pests
**charlotte.rowley@ahdb.org.uk**

## ON-FARM TACTICS FOR CSFB

**Earlier this year, we announced continued investment, with our research programme aiming to:**

- Improve knowledge of CSFB's life cycle and effects on yield
- Optimise on-farm tactics for CSFB control
- Develop innovative CSFB management techniques (co-funded)

# LIGHT TOUCH for leaf spot?

**Catherine Harries, AHDB Crop Protection Scientist for Diseases, asks if inaction is better than action for light leaf spot**

**Although fungicide resistance in wheat tends to grab the headlines, oilseed rape (OSR) pathogens are certainly not immune from efficacy threats, with problems potentially greater for pathogens that race through several life cycles each year.**

Such 'polycyclic' diseases include light leaf spot (LLS), caused by *Pyrenopeziza brassicae*. The cycle starts with the release of sexually produced spores on crop debris. Dispersed by the wind, such spores can infect OSR in the autumn. Spreading within the crop, the fungus eventually produces asexually produced spore masses on leaves, which show as characteristic small, white spots. The sexual phase occurs throughout the season, such as on senesced leaves.

Because of the season-long threat, crops in higher-risk situations may require two sprays. However, a single chemical group – the azoles – dominates the OSR spray programme and this practice has considerable potential to drive the evolution of resistance in the LLS pathogen.

Mutations that confer insensitivity to triazoles – G460S and S508T – are already present in UK *P. brassicae* populations, so the pathogen has clearly adapted to spray practices already. In fact, our ADAS-led research trials found that azole-insensitive pathogen mutants dominate the UK LLS population. The proportion of G460S exceeded 60% in most field trials, reaching 90% in 2019. Although the horse appears to have bolted, results also suggested that this mutation is not associated with a substantial decrease in field performance. The battle to protect efficacy is not yet lost.

However, hitting a pathogen frequently with a single mode of action is often a recipe for disaster, especially when it targets a single site. The good news is that the same set of trials found that the efficacy of azole and non-azole fungicides was similar. This provides options, which are essential to build resistance protection within fungicide programmes.

Of course, the optimum option is to avoid a spray altogether and the trials provided intriguing results on this too. A yield uplift of between 0.17 and 0.27 t/ha was required to cover the cost of the fungicide programme. Across the three trial years, disease pressure was low. Applying no fungicides was often the most cost-effective option, even on the relatively LLS-susceptible variety used. The result held true regardless of whether fungicides were applied in alternation and mixtures. Even the lower cost and higher resistance risk azole followed by another azole programme often failed to provide a sufficient return on investment.

Lessons from wheat and evidence from OSR in other countries show it is important to avoid complacency relating to the development of resistance. These trials demonstrate clear opportunities to manage resistance threats. Although alternation and mixtures undoubtedly protect chemistry, there is potential to avoid some sprays. Of course, this requires a firm understanding of within-field risks and, preferably, a good crystal ball.

### Lessons for leaf spot

1. Use integrated pest management (IPM) to minimise the spray requirement and improve timing.
2. Make full use of the full spectrum of fungicide mode of actions across the fungicide programme.
3. Keep up-to-date with the latest fungicide performance and resistance management information.

**The AHDB website includes a wealth of information to help guide your IPM decisions, including varietal resistance and the light leaf spot forecast. For more details, visit ahdb.org.uk/lightleafspot**

For further information, contact:

**Catherine Harries**
Crop Protection Scientist – Diseases
**catherine.harries@ahdb.org.uk**

> Applying no fungicides was often the most cost-effective option, even on the relatively LLS-susceptible variety used

# Cover crop solutions in your hands

## Amanda Bennett looks at bespoke cover crop strategies to meet your needs

**With cash crops king, your land may benefit from the royal treatment. However, the princely sum associated with buying, drilling, nurturing and destroying cover crops could deliver a regal reward or a restricted return, with the outcome linked to your farm's strategy and how 'success' is measured.**

Our research-based review of cover crops in 2016 was a significant milestone. It collated the considerable volume of work on this topic and spelt out what we knew about the potential of cover crops to improve soil fertility and structure. It also highlighted their role in the management of pests, weeds and the environment.

Completed earlier this year, our 'Maxi cover crop' project built on this foundation. Led by ADAS, the project used three replicated, large-plot field experiments and four tramline trials on commercial farms across England to investigate seven autumn-sown cover crop species, as straights and mixtures, and an untreated control (weedy stubble). The work included assessments of soil properties, cover crop rooting and the performance of two subsequent cash crops (a spring crop, followed by a winter crop).

## KEY FINDINGS

- Early establishment before September is important to maximise the benefits of cover crops, particularly to ensure good cover and nutrient recovery
- Radish, buckwheat and a radish/buckwheat/phacelia mix were quickest to establish
- Rye produced the greatest amount of root material, followed by phacelia
- Straight cereal cover crop (particularly rye, but also oats) had a clear negative effect on a following spring cereal cash crop
- On average, cover crops took up 30–50 kg N/ha
- Highest N recovery was associated with species that fix additional N (vetch and clover) or produce strong early season biomass (radish, phacelia and rye)
- No link was established between N uptake in the cover crop and uptake in the following spring barley cash crop or soil at harvest
- Cover crops were associated with an average gross margin loss of £150/ha across two consecutive arable cash crops
- Greatest losses were associated with poor establishment conditions for the following cash crop, which tended to be on heavy-textured soils

Naturally, the short-term gross margin results need careful interpretation. For cover crops to be successful, the details count. In many situations, cover crops deliver hard-to-quantify rotational and environmental benefits. The success of any strategy hinges on strong definition of the cover crop goals, as this is essential for valuing their place in the farming system.

For top tips on choosing cover crops to reign supreme in your system, visit **ahdb.org.uk/cover-crops**

**For further information, contact:**

**Amanda Bennett**
Resource Management Scientist – Soils
**amanda.bennett@ahdb.org.uk**

## TAKING OUT COVER: A STRATEGIC APPROACH

**Suffolk farmer Brian Barker has a good eye for detail, making him the perfect fit for our Strategic Cereal Farm East. A previous monitor farmer, Brian has long been curious about cover crops. Trials at his farm over the last few years have reinforced the research by showing, in particular, cover crops' ability to reduce nitrate leaching to drainage water (by up to 88%). With more cover crops in the ground this season, Brian now wants to understand the variability associated with the approach, particularly the performance of subsequent cash crops.**

# Precision technology: farming for the future

**Graham Bannister, AHDB Senior Knowledge Exchange Manager, looks at the increasing use of precision technology for monitoring potato crop behaviour**

Technology surrounds us and has shaped the modern world. Although precision technology is not new, potato growers have only started to use it recently to help understand crop behaviour.

As Dr Mike Storey, AHDB's former Head of Resource Management at AHDB, describes: "To me, precision technology is about data and making the best use of that data by linking knowledge about crop biology and the environment with new interpretive technologies as they are being developed."

Crop4Sight, SoilEssentials Ltd and B-hive Innovations are just three of the UK's leading developers of precision technology for potato growers. Their technologies can help growers make the right decisions at the right time while knowing the size of their harvests. Here, we look at some of their products, providing an insight into the future of potato growing technology.

## Crop4Sight

The Dynamic Seed Module platform, based on AHDB studies and commercial data, is the result of more than 30 years of research. It works by using grower-provided seed details to calculate emergence date, when to start irrigation, when to apply maleic hydrazide and predicted yield. It can also provide useful information about crop development, with knowing the tuber size essential for product marketability.

Paul Coleman, Managing Director at Crop4Sight, said: "Our seed forecast is bespoke depending on variety as some can be more chronologically sensitive than others. We work with AHDB and seed houses to generate data for new varieties."

"Our seed forecast is bespoke depending on variety as some can be more chronologically sensitive than others. We work with AHDB and seed houses to generate data for new varieties"

## SoilEssentials Ltd

TuberZone is a crop model, based on satellite or drone images and local weather forecasts, which accurately forecasts potato yield and size distribution two weeks in advance. It can help growers to minimise the number of crop digs and learn which area is the most representative of the whole field.

It is key to have knowledge of the required size as, if left too long, crops can oversize which lowers their value. This is especially so for seed and salad potatoes.

SoilEssentials' Managing Director, Jim Wilson, said: "Knowing the value potential of each crop two weeks ahead makes it easier to decide on when to desiccate and harvest your potatoes in order to achieve best profits."

## B-hive Innovations Ltd

HarvestEye is a camera system that attaches to your usual harvesting equipment or grader. It provides insights into the actual size and counts of crops in any given field.

The system also connects to the Global Positioning System (GPS) and provides relative yield and size variations across the field, giving growers an insight into what is harvested and validation of forecasting tools.

B-hive Innovations' Managing Director, Vee Gururajan, said: "HarvestEye can offer insights on actual size, count and relative yield of crops harvested to reduce crop imbalance and increase crop utilisation within the supply chain."

We are moving to a new technology-based era of farming, which some are calling a 'farming revolution'. From the seed stage to harvesting, technology can help growers make informed decisions about their crops, therefore helping to improve yield and quality of the right sized crop.

**For further information, contact:**

**Graham Bannister**
Senior Knowledge Exchange Manager - Potatoes
**graham.bannister@ahdb.org.uk**

Learn more about precision technology by watching our 'Can precision technology help optimise potato crop potential?' webinar, which formed part of Potato Showcase Week. To watch all the Potato Showcase webinars, visit **ahdb.org.uk/potatoes-events-archive**

# Future-proofing your potatoes business

**Adrian Cunnington, AHDB's Head of Crop Storage Research, looks at the importance of integrated potato store management to the future of your potatoes on grain markets**

Earlier this year, the potato storage industry lost CIPC, a treatment that negated the need for integrated store management. Consequently, life for many potato producers will no longer be the same.

Although alternative sprout suppressants exist, these must be used carefully and probably in combination. This will ensure we get the best from the armoury we now have and the use of maleic hydrazide as a base for in-store treatment is a case in point.

## Looking ahead

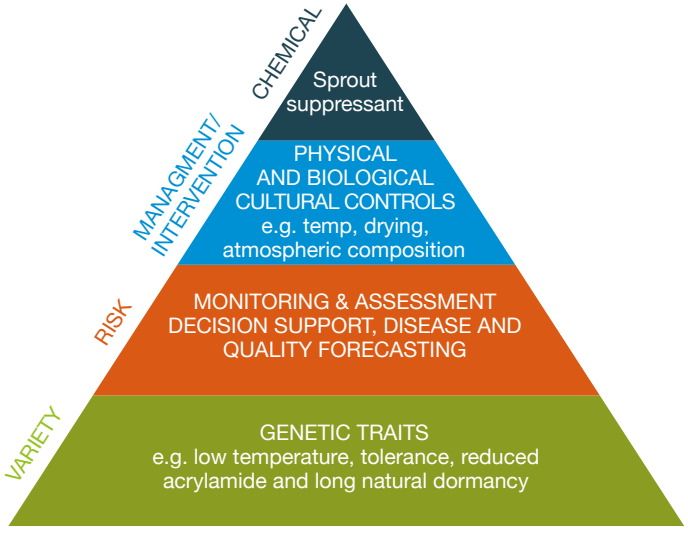
None of the new actives (Table 1) work in the same way as CIPC so there is no direct replacement for CIPC. We therefore need to understand these actives' limitations and how to adjust the store and its environment to get the best possible results.

Table 1. Sprout suppressant status (store loading 2020–22)

| Sprout suppressant | 2020 | 2021 | 2022 |
|---|---|---|---|
| Maleic hydrazide | ✓ | ✓ | ✓ |
| Spearmint oil | ✓ | ✓ | ✓ |
| Ethylene | ✓ | ✓ | ✓ |
| CIPC | ✗ | ✗ | ✗ |
| DMN | ? | ? | ? |
| Orange oil | ? | ? | ? |
| 3-decen-2-one | ✗ | ✗ | ? |

Many of the new chemistry options are very volatile (active in the vapour or gas phase) which should, in theory, help us distribute the products around the store and through the crop. However, if the store is a leaky building, volatility can be a problem as the chemical can be easily lost.

This is a particular problem if there is a lot of air exchange taking place due to excessive flushing regimes. This could also occur through gaps in the store structure, leaky louvres or poorly fitting doors.




Volatility also means that some stores must be closed for 48 hours after application which has implications for $CO_2$ build-up, for example. A product like ethylene is also continuously released or generated, so measures are needed to avoid excess loss through the ventilation system, particularly in ambient stores.

Unsurprisingly, cost is key in developing storage strategies and effective management of inputs will be important to ensure the best returns. Some alternative sprout suppressants cost four times as much as a regular dose of CIPC, so there is no margin for error in this post-CIPC world.

With the loss of CIPC, important measures are needed to manage its legacy in stores where it has been used for so long. Contamination is a real risk and, although a higher temporary maximum residue level (MRL) is expected for a few years (rather than the usual 'limit of detection'), there is no room for complacency. Intensive cleaning will be required to remove excess CIPC from stores to guarantee their continued use.

## Sustainable storage

Consequently, the route to more sustainable storage will involve integration with the selection of more dormant or cold-tolerant varieties. Better analysis and predictability of storage quality at harvest will also be required as well as smarter control of the store to balance the many factors which can impact saleability and, therefore, profit.

The sooner the industry develops long-term integrated potato storage solutions, the sooner it can look forward to a brighter future. For now, we all have lots to learn, so please use the knowledge and expertise of AHDB's storage team to help you.

**For advice from the Sutton Bridge Crop Storage Research team, contact AHDB's Storage Advice Line on 0800 028 2111.**

**For further information, contact:**

**Adrian Cunnington**
Head of Crop Storage Research
**adrian.cunnington@ahdb.org.uk**

# Protecting your business in a volatile climate

**AHDB's Senior Market Specialist Manager, Vikki Campbell, gives key tips on how to manage your business in challenging times**

**As we move towards the end of 2020, rarely has there been a year in which so many challenges have presented themselves to the industry. The weather, pest damage, a global pandemic and post-Brexit uncertainty are just some of the trials the industry has faced.**

This is even before considering global political uncertainty, US elections, trade wars between various countries and seemingly more extreme global weather patterns affecting global and, ultimately, domestic commodity prices.

In order to try and combat some of the effects of volatility, a pricing strategy is essential. While there is no 'one-size-fits-all' approach for farm businesses, there are some key pointers that will help shape an approach.

## Knowing your cost of production

While this sounds obvious, truly understanding both your fixed and variable costs on a full economic basis will allow you to determine a minimum desired price to keep your business profitable. With many farms now diversifying and operating multiple income streams, a holistic view of all costs is vital. Tools such as AHDB's Farmbench can help you along this journey.

- Storage availability

  Does your business have the capacity to store? Is there the capacity, and what is the cost, to preserve quality? Knowing the cost and physical implications of these factors will allow pre-planned selling timeframes to be identified.

- Cash flow and budgeting

  Prior planning to identify when more liquidity is required can allow forward and intentional sales, rather than forced transactions.

- Sensitivity analysis

  This can help determine and identify your business' desired level of exposure.

- Forward markets

  Use of forward markets can help hedge prices against input costs, although businesses will need more than one season's crop in mind if looking to the longer term.

- Market information

  Knowledge is, as they say, power. The more unbiased information that can be accessed, the better-informed decisions will be. While personal and psychological drivers can shape strategy, decisions based on a breadth of market knowledge should provide more certainty.

AHDB has offered examples of pricing strategies in previous seasons and, while such examples can be used to help guide decision-making processes, they are there to advise on the options available rather than to dictate what should be used. As we have said, one size does not fit all!

A good and sound pricing strategy should look to minimise your farm's downside exposure, while maximising the upside opportunity. When developing a pricing strategy, it is essential to be clear about your business' goals and the relative time and expertise that can be exercised to build, shape and manage such activity.

While individual decisions will be based on different circumstances and drivers, all decisions should be based on sound market knowledge and information, of which there are many sources via multiple mediums. AHDB is one source, providing timely, unbiased and relevant information that can help shape and underpin some of your decision-making processes.

Ultimately, a pricing strategy should be developed to try to minimise volatility, rather than be used as a speculative approach to pricing. With the ever-changing outlook, arguably this has never been so vital.

**For further information, contact:**

**Vikki Campbell**
Senior Market Specialist Manager
**vikki.campbell@ahdb.org.uk**

# **Markets:** the only certainty **is uncertainty…**

## Vikki Campbell discusses export challenges and opportunities over the coming 12 months

**There is no denying how challenging the last 12 months have been for arable farmers. For cereal growers, a long, wet autumn saw swings from winter to spring cropping of a significant scale. This was followed by dry conditions in the spring, which caused further challenges for crops.**

Although the spring conditions allowed potato growers to plant at pace, following a long, drawn-out planting window in 2019, this was in the face of a global health pandemic. Coronavirus has seen demand shifts that could not have been predicted when planting decisions were made and with the Brexit deadline looming, the path ahead could remain rocky for many.

The UK has moved to be a net importer of wheat, following the challenging growing conditions during 2019/20. This is the opposite of the net export position of the previous season. So should this help support the price?

Only to a certain degree. On a global scale, the world is still in surplus of wheat. Therefore, import parity will provide a ceiling for domestic prices. Where we could see more of a dynamic will be in the delivered prices, particularly the further north and west we move across the UK. Buyers will need to incentivise sellers to move their grain across the country.

Barley prices look set to be pressured for some time to come. The growth in the spring barley area in 2019/20 as an alternative to winter cropping, combined with a sizeable carry from the 2019/20 marketing season and reduced demand because of the pandemic, has resulted in plentiful domestic supplies. Malting barley exceeding nitrogen levels could further add to this year's feed barley supply.

So where might homes be found for UK barley? While exports are always an option for many, the impending Brexit deadline and absence of a trade agreement (at the time of writing) could see hefty export tariffs in place for UK barley after 31 December 2020. This may make some EU markets economically unviable, so thoughts could turn to potential third-country markets.

The North African and Saudi markets already have a trading history with the UK. A watchpoint for this season would be how much demand could be generated from these destinations. With governments in many of these countries looking to move to more compound animal feed rather than straights, the demand for feed barley might be pressured. For potential malting barley homes, the high degree of variability in the French harvest this year could provide some a lifeline, should purchasers find themselves short.

The absence of a Brexit trade deal is also proving a challenge for the potato industry. While tariffs remain a concern, phytosanitary regulations remain the biggest headache. At the time of writing, the UK has not yet secured third country equivalence with the EU. In essence, this will result in no fresh or seed potatoes being admitted into EU markets until this equivalence is granted, effectively shutting the EU door on these sectors from 1 January 2021. While negotiations continue, a prudent move might be to explore third country opportunities.

The UK is a net importer of processed potatoes, predominantly from the EU. Given the coronavirus impact on demand both here and in Europe, supply looks set to be plentiful for the coming months. While over 90% of the British processing potatoes area is contract rather than free-buy, 2021 planting decisions may wish to take some of these fundamental factors into consideration.

AHDB's Market Intelligence team provides the industry with current and frequent industry statistics, insight and analysis around the upcoming challenges, aiming to equip the industry with information to help negotiate the waters ahead. For more information, please visit **ahdb.org.uk/markets-and-prices**

**For further information, contact:**

**Vikki Campbell**
Senior Market Specialist Manager
**vikki.campbell@ahdb.org.uk**

# Export opportunity AMID UNCERTAINTY

**As the end of the UK's transition period on 31 December draws near, Patrick Hughes, AHDB's Head of Export Trade Development for Potatoes, looks at export opportunities amid Brexit uncertainty**

**With harvest now behind us, it is essential that we move our crops into overseas markets to both alleviate domestic surplus for barley and achieve best value for quality potato seed.**

With a large exportable surplus of barley and seed potatoes having such a strong global reputation, exports could be one way to secure both a market and price.

As I write this in August 2020, there is no Brexit trade agreement in place. Consequently, exports to non-EU countries are particularly important considerations for both cereals and potatoes considering this Brexit uncertainty. Here, we therefore look at these export opportunities for both cereals and potatoes.

## A home for GB potatoes

In addition to the current lack of a Brexit trade agreement, the UK is yet to receive third-party equivalence status, which is particularly pertinent regarding potatoes. EU negotiators have stated that this will only be tabled either once an agreement is reached or when the UK leaves the EU – whichever comes first.

Should this agreement not be in place for 1 January, it would essentially stop any GB exports of fresh and seed potatoes to the EU. Consequently, exporters may have to consider any shipments of potatoes prior to the 31 December deadline. However, there are alternatives for the future.

Alongside the EU, the major recipients of GB potatoes in the 2019/20 season were the Middle East and North Africa (MENA) countries of Egypt, Morocco and Israel, and also Thailand. With MENA countries already receiving shipments of potatoes, particularly seed potatoes, they could therefore be an alternative to the EU for the sale of GB potatoes. Additionally, sub-Saharan Africa and the Americas are two markets already receiving GB seed potatoes and there is considerable capacity to increase trade volumes to these regions.

Despite the uncertainty, the demand for GB seed potatoes remains as strong as ever, with healthy, high-quality seed potatoes essential for growing vigorous, high-yielding and marketable potato crops. GB seed potatoes' reputation remains unabated, so we must continue to explore these new export opportunities.

## Moving the barley surplus

The persistent wet weather in autumn and winter 2019/20 meant cereal planting was delayed, with some growers unable to drill their intended winter crops and many opting for spring cropping as an alternative, in particular spring barley. Consequently, the spring barley area increased to over 1m ha for the first time, with the total barley area at 1.36m ha – a 19% increase.

Coinciding with this, the coronavirus pandemic instigated a drop in malting barley demand with UK pubs and restaurants closed between March and July. This has contributed to a large barley surplus into the 2020/21 marketing year.

With the possibility of barley export tariffs in the absence of a Brexit trade deal, one potential export candidate is the MENA region. Morocco, Algeria and Tunisia have been severely affected by drought in recent months, while the world's largest importer, Saudi Arabia, relies almost entirely on barley imports to meet its animal feed demand. Should UK barley remain price-competitive on a global scale, there could be an opportunity to strengthen existing volumes into these destinations.

## Looking ahead

With the end of the Brexit transition period looming on 31 December, exporting more barley and seed potatoes to non-EU countries should be considered. We must therefore work closely with trade and investment advisers, supported by the Department of International Trade, to proactively strengthen our relationships with key export stakeholders and partners. This collaborative approach will ensure that we can further develop export opportunities in these existing markets.

**For further information, contact:**

**Patrick Hughes**
Head of Export Trade Development - Potatoes
**patrick.hughes@ahdb.org.uk**

**Dorit Cohen**
Assistant Exports Manager - Cereals
**dorit.cohen@ahdb.org.uk**

# Wealthier wheat: TARGETING THE TOP 25%

**Mark Topliff, AHDB's Farm Economics Lead Analyst, explains why attention to detail is king and – contrary to popular belief – yield is just the prince with regards to winter wheat feed performance**

Changes to the subsidy system, volatility in prices and the impact of the weather are just a few of the challenges for wheat growers. Achieving a top 25% performance will enable you to limit the damage or, better still, produce a profitable crop, even during challenging times.

AHDB has examined farm business performance data in Farmench from the 2018 and 2019 harvests for feed wheat, with net margin referring to crop income less all costs, including depreciation and a value for unpaid labour, rent and finance but excluding subsidies:

- Generally, for the difference in net margin between the top 25% and the rest, 50% is due to higher income and 50% is due to lower total costs
- Wheat yield was the biggest influence on crop income
- Higher wheat prices did not guarantee better net margins if costs were high
- Machinery and equipment costs have a bigger association with net margin than either yield or price

This does not mean that other costs are not important, but simply that they have a smaller effect on the bottom line. However, smaller adjustments across the whole cost structure could add up to a similar result and other factors from the whole farm business need to be considered.

## Top 25% targets at a glance

Table 1 shows what the top 25% achieved on average and the range for harvest 2018 and 2019, focussing on conventional winter feed wheat.

Table 1 – The average top 25% achievements for harvest 2018 and 2019

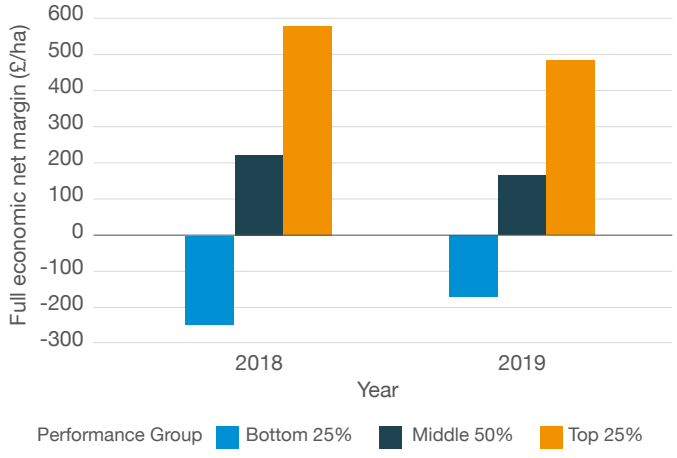
| | Two-year average of top 25%[1] | Range within the top 25%[1] |
|---|---|---|
| Yield (t/ha) | 10.1 | 7.5–12.8 |
| Crop income[2] (£/ha) | 1,685 | 1,177–2,400 |
| Variable costs (£/ha) | 470 | 255–697 |
| Gross margin (£/ha) | 1,215 | 819–1,932 |
| Overheads (£/ha) | 680 | 344–1,072 |
| Total cost of production (£/ha) | 1,150 | 817–1,495 |
| Net margin (£/ha) | 535 | 346–1,095 |

[1]Top 25% of conventional winter feed wheat ranked by net margin performance

[2]Grain and straw income

## The analysis

In the last two years, the top 25% group had a net margin that was 170% higher than the middle 50% performing crops and over three times higher than the bottom 25%.




So, is yield king and costs secondary or is price a more significant factor in reaching top 25% margin performance?

## Is yield the key difference?

On average, the top 25% achieved higher yields, but with a wide range of 7.5–12.8 t/ha.

Table 2 – Winter wheat yields (t/ha)

| Year | Bottom 25% | Middle 50% | Top 25% |
|---|---|---|---|
| 2018 | 8.0 | 9.0 | 9.8 |
| 2019 | 9.2 | 9.8 | 10.4 |

Many of the bottom 25% and middle 50% of crops produced similar yields to the top performers. Equally, the same margin can be achieved with different yields. For example, a £460/ha net margin was achieved with 11.8 t/ha of one crop and just 7.7 t/ha of another crop within the same year (see chart below). Consequently, rather than yield being king, it is more like prince.


## Don't rely on just getting a better price

The top 25% received £7–10/t more for the wheat than the bottom 25% and £5/t more than the middle group. It could therefore be assumed that higher prices guarantee better net margins.

Table 3 – Winter wheat prices (£/t)

| Year | Bottom 25% | Middle 50% | Top 25% |
|---|---|---|---|
| 2018 | 159 | 164 | 169 |
| 2019 | 143 | 145 | 151 |

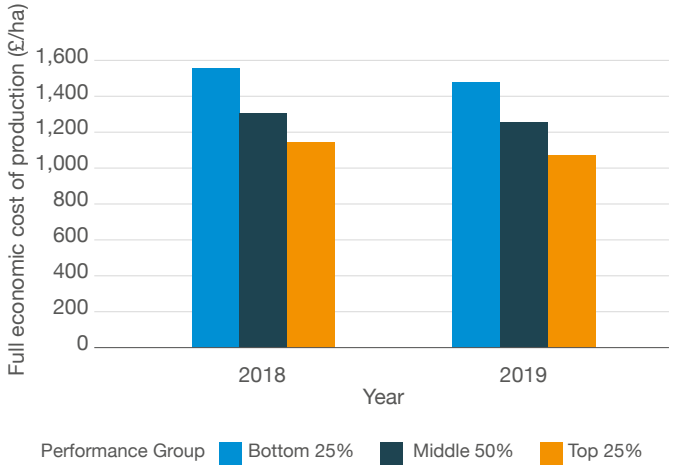
However, this is not necessarily the case. For example, there were individual results in the top, middle and bottom groups, all with a wheat price of around £140/t. However, all those in the bottom group made a loss at that price and all those in the top group had a positive margin.


It is certainly true, in this case, that averages can hide more than they reveal. Price alone will not achieve a positive net margin if costs are high and a combination of price and yield, as well as any income from straw, is a strong contributor to being top 25%.

> "Achieving a top 25% performance will enable you to limit the damage or, better still, produce a profitable crop, even during challenging times"

## Low costs pay

The top 25% had a total cost of production at around £1,150/ha in the last two years. This is approximately £400/ha less than the bottom group, with total overheads accounting for over £330 of the difference.




It is no surprise that labour and machinery costs make up the majority of these costs. This analysis has therefore shown that labour and machinery costs are a stronger driver of net margin than yield or price alone.

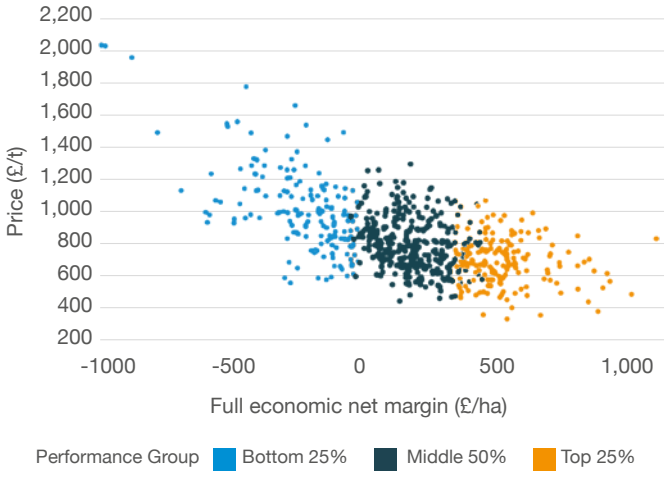



Table 4 – Winter wheat labour, machinery and equipment costs[#] - £/ha

| Year | Bottom 25% | Middle 50% | Top 25% |
|---|---|---|---|
| 2018 | 159 | 164 | 169 |
| 2019 | 143 | 145 | 151 |

[#]Includes paid and unpaid labour, fuel, depreciation, hire, contracting, spares and repairs

## What does this all mean?

Optimising yields to the level of inputs and keeping a tight control on machinery and equipment costs will go some way to achieving top 25% performance. Paying attention to detail in these areas, plus others such as your marketing strategy, growing for a market, production system, crop rotation and so on, will take you all the way to the best performance.

## ABOUT THE FIGURES

- These figures are derived from AHDB Farmbench data (**ahdb.org.uk/Farmbench**) from the 2018 and 2019 harvests
- Figures used are conventional winter feed (group 4) wheat, excluding any seed or hybrid variety crops
- They are based on over 630 separate crop enterprise results
- Benchmarks are ranked on full economic net margin
- The performance groups were kept separate for each year, rather than representing an average over the two years
- 'Full economic' means they include all non-cash costs to the business. These are the costs you cannot see going out of your bank account (e.g. machinery and buildings depreciation, unpaid labour and the rental value of owned land)


For further information, contact:

**Mark Topliff**
Lead Analyst – Farm Economics
**mark.topliff@ahdb.org.uk**

FARMBENCH

# Business Improvement Groups: understand your costs

With a host of new Monitor Farms joining the Farm Excellence network around the UK this year, now is the perfect opportunity to join your local Business Improvement Group (BIG) to understand more about your costs.

These groups use Farmbench, an easy-to-use online benchmarking tool, to help you identify where strengths and weaknesses lie within your farm business. The tool covers beef, lamb, dairy, combinable, potato and sugar beet enterprises.

## Why should I join a BIG?

These groups allow discussion between like-minded farmers, enabling them to take an in-depth look at each business' performance in a safe environment. Members learn best practice from each other and form plans for the future of their businesses.

By uploading your own data to Farmbench, you take ownership of your account; you need only share what you are comfortable with sharing.

> "It wasn't a case of seeing who was the best or worst, it was about looking at the figures and learning from other people's experiences and letting them learn from ours"
>
> **Roger Hudgell, Southend Farm, Hertfordshire**

> "We had a great group and everyone was open to discussing everything from seed rate to machinery purchases. We got a lot from it – and it was nice to meet up with like-minded farmers in an independent situation"
>
> **Jason Llewellin, Trewarren Farm, Pembrokeshire**

## How do I get started?

- Contact your local Farmbench Knowledge Exchange Manager: **ahdb.org.uk/farmbench-contacts**
- For more information, visit **ahdb.org.uk/farmbench**

AHDB

# Monitoring **MAXIMISED**

**Emily Pope, AHDB Senior Knowledge Transfer Manager, summarises Strategic Farm Week, which highlighted the value of on-farm monitoring**

# FARMEXCELLENCE

**A series of informative webinars was at the heart of Strategic Farm Week, which took place from 1–5 June. Inspired by activity across our three Strategic Cereal Farms, one common element linked together the wide variety of technical topics discussed: the need to assess and monitor throughout the season.**

## Monitoring crop development

For Brian Barker at Strategic Cereal Farm East, crop monitoring has helped him benchmark fields over multiple seasons. For example, in 10 representative areas of the field, he counts the total number of plants along a 30 cm stick. When multiplied by the width of the drill coulter width, he can calculate the average number of plants per square metre to see how varieties, soil types and agronomic decisions influence field performance.

## Reducing chemical inputs

Brian is also keen to reduce inputs and find alternative ways to protect crops. He believes this often requires a change to the system and mindset, as well as working with nature. Last year, he tested the genetic resistance of winter wheat varieties and followed three fungicide programmes to establish which gave the best margin.

He said: "Weaning myself off inputs hasn't been easy. However, in 2019, the lower-input programme produced the best full economic cost of production (£61/t) and yield held surprisingly well (10.6 t/ha)."

## Detecting and controlling pests and diseases

At Strategic Cereal Farm West, Rob Fox aims to walk crops for two hours every day. Along with many other arable farmers, he faces the challenge of managing slugs, aphids and adult cabbage stem flea beetle in the autumn, and beetle and weevil issues in the spring and summer. Rob monitors pests closely to gauge when populations reach spray thresholds. He also considers the impact of spray decisions on beneficial species and the wider biodiversity on-farm, not just on the target pest.

For more information, visit **ahdb.org.uk/pests**

Rob also assesses disease across his fields throughout the season to understand levels and to monitor the success of the disease management strategy. Such observations can highlight where changes to variety selection, rotation or drilling date could be beneficial. To develop a monitoring strategy for your farm, follow these five steps:

1. Use forecasts.
2. Make observations regularly throughout the season.
3. Monitor before and after fungicide applications.
4. Compare within and between fields.
5. Share and learn.

For more information on disease management, visit **ahdb.org.uk/cereal-dmg**

## Assessing soil

Before implementing any drainage or soil loosening techniques, monitor ground and surface water and use scoring systems, such as the Visual Evaluation of Soil Structure (VESS) for topsoil and subsoil (below 30 cm). The results will help you to track soil profile changes and target interventions at the appropriate soil depth.

Remedying problems at depth is particularly difficult. For mechanical soil restructuring to be sustainable, it must enhance the natural actions of roots. This requires long-term rotational improvement to encourage roots to get deeper in the soil and promote biological activity, such as earthworms, to alleviate deep compaction.

David Aglen, Strategic Cereal Farm Scotland, said: "Our future lies in how we treat our soils, so it is essential to repair and improve our soils. We need to allow them to work at their best, so we can expand cropping opportunities and build a more resilient production system."

Access our soil management resources at **ahdb.org.uk/greatsoils**

To access the content from Strategic Farm Week and to register for future events, visit **ahdb.org.uk/events**

**For further information, contact:**

**Emily Pope**
Senior Knowledge Transfer Manager – Cereals & Oilseeds
**emily.pope@ahdb.org.uk**

# Flail to prepare OR PREPARE TO FLAIL

**Claire Hodge, AHDB Knowledge Exchange Manager, reviews the first season without diquat and the end of 'one-size-fits-all' haulm destruction with our three SPot farmers and two agronomists**

We recently spoke to five growers and agronomists who grow a range of crops, including seed, ware and organic potatoes, meaning they face different challenges when desiccating. Here, they reflect on how they approached the season.

## THE GROWERS - OUR SPOT FARMERS

**Name:** Will Gagg
**Farm:** SPot North
**Location:** North Lincolnshire
**Crop:** Ware

**Name:** Jim Reid
**Farm:** SPot Scotland
**Location:** Montrose
**Crop:** Seed

**Name:** Mike Shapland
**Farm:** SPot East
**Location:** Suffolk
**Crop:** Seed and ware

## THE AGRONOMISTS

Dr Mark Stalham is Head of NIAB CUF, the potato research division of NIAB.

Eric Anderson is Senior Agronomist for Scottish Agronomy Ltd.

### How do you approach burn down this season?

**Eric Anderson (EA):** "There is no blueprint. Each crop and field needs to be assessed and the appropriate treatment chosen."

**Mark Stalham (MS):** "We found big differences in the rate that different options killed off the canopy but, interestingly, far fewer differences in skin set than you might have expected by looking at the canopies."

### Did you use mechanical flail on your farm?

**Jim Reid (JR):** "I can understand ware growers having a flail, but for seed growers we don't fully understand the change in hormones it causes. We have trialled a flail; the crop definitely bulks when it is flailed green and there's always regrowth. It also slows down the harvester. We've ended up with more aggressive settings, which we'd really like to avoid."

**Will Gagg (WG):** "We flailed, but through gritted teeth, quite frankly. We would have rather used chemicals, but on our soil types we weren't confident of getting the kill. We are seeing more damage as a result and we're working to move away from the flail in the long term."

**Mike Shapland (MSh):** "We were largely flail-based. We have been for a number of years; it is a good option on our very light soils. With ware crops, we often ridge roll with the flail – it helps reduce greens, which can be a problem on our light soils."

### Is using mechanical desiccation in combination with sprays the best way to get results?

**MS:** "Crops that are beginning to senesce naturally have begun the process of setting skin, so if we can convince the plant that it is beginning to die, maybe with a chemical desiccant pre-flailing, that may enhance the rate at which the skin sets.

"Hopefully after a flail you are left with only a short piece of stem left behind. That has got to be tackled with a chemical desiccant to dry out the stem otherwise it delays skin set quite considerably, particularly when soils are wet."

### What have you learned about timing, equipment and application?

**EA:** "Growers will need to get used to the different ways alternative products perform and initiate burn down three to seven days earlier than with diquat.

"Desiccation work is about four main principles: choosing your product, timing, nozzle choice and the skill of the operator. More than 50% of the result will be about the latter three: think application, application, application."

### Are disease control and crop hygiene becoming more important?

**MSh:** "We know the flail can be a problem for spreading bacterial infections around the crop. This year we tried using Gozai in combination with a fungicide and a methylated rapeseed oil – we were looking to dry the crop up and will have to monitor the results closely."

### How much additional tuber bulking are you seeing after treatment?

**MSh:** "We typically see a maximum 5 mm increase in tuber size after the flail; we have a lot of experience of flailing including our salad and new potatoes. If there is good moisture and a vigorous canopy they will continue to move by up to 5 mm over five to seven days."

**MS:** "There is a lot of anecdotal evidence of 'passive bulking' with some of the slower-killing chemicals. Our work in 2019 didn't show that, in that the alternatives were all similar to Reglone."

### More information

We will present results from 2020 trials at winter results days and at **ahdb.org.uk/strategic-potato-farms**

For further information, contact:

**Claire Hodge**
Senior Knowledge Exchange Manager - Potatoes
**claire.hodge@ahdb.org.uk**

# REVIEWING SOIL HEALTH

**Fiona Geary, AHDB Knowledge Transfer Manager, reports on the monitor farmers who have put their soils to the test**

**The importance of soil health is no secret to the industry, but how do you score soil health? Seven Monitor Farm hosts have tested the soil health scorecard, which was developed as part of the AHDB and BBRO Soil Biology and Soil Health partnership. For the majority of soil health parameters, the results were as expected, but for most Monitor Farm hosts there was some element of surprise.**

## Research in practice

Monitor farmers from Canterbury, Diss, Huggate, Loppington, Pembrokeshire, Saltash and Vale of Belvoir had six fields sampled and analysed using the scorecard. The scorecard offers a visual indication of how soil health parameters measure up, taking into account the crop and soil type. Each indicator is scored against thresholds, using either red, amber or green. Green scores are within the normal threshold range, amber shows that monitoring is advantageous and red highlights where further investigation may be needed.

## The scorecard in perspective

Understanding the context of the scorecard is important. For a couple of farmers, the timing of the assessments impacted the result. Richard Ling, Diss Monitor Farm host, said: "We had just gone into a wet patch following a dry spell, so I knew that would be reflected in the earthworm count."

> "I went out with a spade a few weeks after and the earthworm numbers had increased to what I had expected"

Tom Rees, Pembrokeshire Monitor Farm host, also had a similar experience with the earthworm count: "The timing wasn't ideal for earthworm counts but seeing the green values on some fields gave me confidence. Even when numbers could have been low, they were quite high."

## Field-to-field comparisons

The scorecard can reflect differences between fields and reveal the effects of management decisions. James Parker at Vale of Belvior Monitor Farm was curious about the impact of cultivations on his soil.

For the past 20 years, James has min-tilled. However, last year, he decided to plough a field in response to brome pressures. The scorecard results from the newly ploughed field (Holme House) and a similar unploughed neighbouring (Footpath) field surprised him. PMN, P, $CO_2$ burst and earthworm values were noticeably lower in the ploughed field. He uses the scorecard with caution because there might be other influencing factors, but this is something he would like to discuss in future Monitor Farm meetings.

## Vale of Belvoir scorecard

| Field name | Footpath | Holme House | Caravans | Furlongs | Egglestone | Colli |
|---|---|---|---|---|---|---|
| Current crop | Cropping – combinable crops | Cropping – combinable crops | Cropping – combinable crops | Cropping – combinable crops | Cropping – combinable crops | Cropping – combinable crops |
| Texture | Light | Light | Medium | Medium/heavy | Heavy | Heavy |
| pH | 6.9 | 7 | 6.8 | 7.8 | 6.7 | 7.8 |
| SOM (%) | 5.5 | 4.1 | 6.7 | 8 | 14.3 | 9.2 |
| Ext P - mg/l (Index) | 32.4 | 49.8 | 24.6 | 27.4 | 43.2 | 28 |
| Ext K, mg/l (Index) | 406 | 279 | 324 | 417 | 269 | 653 |
| Ext Mg, mg/l (Index) | 110 | 170 | 249 | 229 | 450 | 340 |
| PMN (mg/kg) | 82.76 | 18.4 | 81.1 | 105.8 | 118.1 | 148.22 |
| $CO_2$-burst (mg/kg) | 93 | 66 | 111 | 102 | 123 | 96 |
| VESS | 2 | 1 | 2 | 2 | 3 | 3 |
| Earthworms (No/pit) | 13 | 3 | 6 | 8 | 5 | 7 |

## Confidence in decision-making

The scorecard breaks soil down into its component parts to focus attention and guide management. For many farmers, it gave them confidence in their decisions. James said: "I was pleasantly surprised by the organic matter levels. It's reassuring after so many years of minimum tillage."

William Smith from Canterbury Monitor Farm had similarly pleasing results: "The organic matter levels have increased since the testing we did 10 years ago.

"We have been growing cover crops, adding manure and reduced tillage, so I'm pleased that it's reflected in the soil organic matter. The scorecard confirmed what we thought was happening underground, while the crops looked good above ground."

## Discussing the findings

The scorecards have raised various questions for monitor farmers, such as whether variable rate application is best for the business, which type of drill will fit the system and how much soil testing is really needed. Discussions will be continued with fellow farmers in future Monitor Farm meetings. If you would like to be involved, visit **ahdb.org.uk/farm-excellence** to find your nearest Monitor Farm.

More information on soils work can be found at **ahdb.org.uk/greatsoils**

For further information, contact:

**Fiona Geary**
Knowledge Transfer Manager – Cereals & Oilseeds
**fiona.geary@ahdb.org.uk**

# Preventing pests: THE TRIALS AND TESTS

**Emily Pope introduces the Strategic Cereal Farm activity for harvest 2021**

**This season, there is something for everyone at our Strategic Cereal Farms. The harvest 2021 trials include a focus on the prevention, detection and control of pests, weeds and diseases, while improving the farmed environment. Here, we provide an overview of the latest round of on-farm trials.**

## Reduced pesticide use

Brian Barker at Strategic Cereal Farm East is testing fungicide application timings on disease control and cost of production under standard, low and untreated agronomy strategies: "Fungicide performance research and Recommended Lists provide farmers with valuable information.

"We have the opportunity to see how the outcomes of this research can be integrated into a commercial farming system."

For Strategic Cereal Farm West, Rob Fox is looking at how the winter wheat varieties KWS Extase and KWS Siskin hold up under standard, low, biorationale and untreated agronomy programmes. Another trial uses replicated tramlines to investigate cultural controls for autumn black-grass. Through making these comparisons, Rob hopes to develop integrated approaches using both cultural and chemical control effectively.

Lastly, David Aglen at Strategic Cereal Farm Scotland wants to understand the relationship between plant health and disease: "Using tissue tests, we want to understand seasonal plant health changes and crops' vulnerability to disease."

This will help David to time nutrient applications correctly and boost plant health without the need for fungicides.

## Pests and natural enemies

All farmers have a responsibility to the environment and wildlife. Consequently, Rob and Brian have established in-field, flower-rich grass margins, boosting resources for pollinators and natural pest control. The abundance, diversity and effect of beneficial invertebrates and natural enemies within these strips and the surrounding crop will be monitored.

## Cover cropping to reduce leaching and enhance soil organic matter

Cover crops can typically recover between 60–80 kg N/ha, but is that nitrogen used by the next crop, or is it released and leached later? Strategic Cereal Farm East's split field trial compares cover crops versus no cover crops in both plough and one-pass establishment systems to help answer this question.

Brian said: "I can see cover crops being crucial for the environment going forwards and valuable for improving biodiversity. However, from a farming perspective, we need to balance long- and short-term costs and benefits."

Uncertainty also exists regarding cover crops' effectiveness on soil organic matter. Consequently, Rob wants to see how various amendments, including cover crops, can improve soil organic matter: "I want to boost organic matter and improve spring cropping, which we are using for black-grass control."

Part of our Farm Excellence platform, Strategic Farms provide independent research, the sharing of experiences and encourage farmers to incorporate evidence-based innovations into their businesses.

For the latest trial updates, join us for Strategic Farm Week - Winter 2020: **ahdb.org.uk/sfweek-winter-2020**

## Cultivation

Rob is hoping to understand the effect of different cultivation systems on crop rooting and yield in a six-year trial: "It is hard to predict what the season will be like and to tailor your cultivation appropriately.

"I would like to work the soils shallower, but in wet years, I cannot get the water away."

## Marginal land

The environment is already important for Brian Barker, but he wants to further develop his environmental credentials and maximise his land's agricultural value, while also delivering environmental benefits: "We have a wealth of farm data, including yield maps, soil tests, drainage maps and soil scans.

"As farmers, we need to know how to use these to calculate the true economic and environmental cost of production of our fields and to design rotations that will maximise both."

## Baselining

For the first year of Strategic Cereal Farm Scotland, baseline soil and crop performance data will be collected. This will involve using AHDB's soil health scorecard to understand the biological, chemical and physical status of the soil.

**For further information, contact:**

**Emily Pope**
Senior Knowledge Transfer Manager – Cereals & Oilseeds
**emily.pope@ahdb.org.uk**

# Qualifying with BASIS: **progression,** pride and profit

## Gaining their BASIS qualification has helped two farmers to improve their businesses and cut costs, writes Philip Dolbear, AHDB Senior Knowledge Exchange Manager

**Arable farmers Jason Llewellin from Haverfordwest and Ashley Jones from Saltash, have reaped the rewards of having more control over their agronomy. Here, they discuss the trials and tribulations of gaining and using the BASIS qualification and explain why they would encourage other farmers to consider the same investment.**

Having qualified in 1998, one year after leaving Harper Adams University, Jason saw BASIS as progression and an asset to his ability to farm well. Ashley left a longer gap between university and BASIS qualification, but wishes he had completed it when "the brain was younger". Both farmers wanted to better understand the technical side of growing crops, rather than just doing what the agronomist advised.

Prior to completing BASIS, Jason and Ashley would walk with and learn from their agronomists. Jason then weaned himself off gradually, while Ashley went solo straight away. Both were nervous about taking on the responsibility of their agronomy, but there have been no major mistakes.

Jason says: "It is easier to tailor my plan with one less link in the chain". Overall, he has not used fewer chemicals, but has taken more risk with some applications. Ashley has already reduced growth regulators, which he feels he used too much of in the past.

For Jason and Ashley, isolated decision-making is not a problem, as they keep up-to-date with NIAB TAG membership, talk with other agronomists and attend commercial and AHDB events. Ashley said: "It is useful to bounce ideas around with your neighbours and walk each other's crops together."

Jason says the benefits of being qualified include "the satisfaction of making informed decisions and growing the crops yourself". Meanwhile Ashley, who invested £4,500 in his two-and-a-half weeks of training, has calculated savings in the region of £60/ha for harvest 2020. Consequently, he earned his investment back in just one season.

Both farmers now hope to complete the FACTS qualification, while Jason is also considering the LEAF BASIS IPM course, thus proving that you are never too young to stop learning!


For further information, contact:

**Philip Dolbear**
Senior Knowledge Exchange Manager – Cereals & Oilseeds
**philip.dolbear@ahdb.org.uk**


A professional workforce is vital for improving your business performance. For more information on AHDB's skills programme, visit **ahdb.org.uk/skills**

# Could REGENERATIVE AGRICULTURE reduce input reliance?

**Harry Henderson, AHDB Arable Knowledge Exchange Manager, reports from the No-till On The Plains 25th Annual Winter Conference, which he attended in the USA earlier this year**

No-till has moved on to a completely new level across the pond and regenerative agriculture is the new kid on the block. I admit that, even for an old cynic, it makes a lot of sense – so how can regenerative agriculture help?

With rural payments changing and income from Environmental Land Management schemes being used to manage the schemes themselves, the way farming is funded will be different. This is where regenerative agriculture comes into play.

At the heart of regenerative agriculture is the desire to work with nature, soil and seasons. This reduces reliance on inputs and puts control back into the farmers' hands.

Starting below ground, caring for your soil is key. It can help to increase the soil microbiology that can fix nitrogen, make locked-up minerals available and enhance plant energy reserves.

Above ground, it is all about promoting healthy plants that are better able to defend themselves from disease, while plant diversity is also key. The more diverse the plants sharing the soil, the more mycorrhizal fungi (see page five) and micronutrients are potentially available to all plants.

Regenerative agriculture can also be used with potatoes, albeit not with a no-till system. Buckwheat in potatoes attracts ladybirds to control aphids, while peas in the same crop fix nitrogen. Neither interferes with harvest but reduce inorganic input requirements.

It all sounds good, but you cannot buy regenerative agriculture 'off-the-shelf'. The major take-home message from the conference was that it is up to the farmer. Can UK farmers adopt regenerative agriculture? Certainly, and some are moving close to it already.

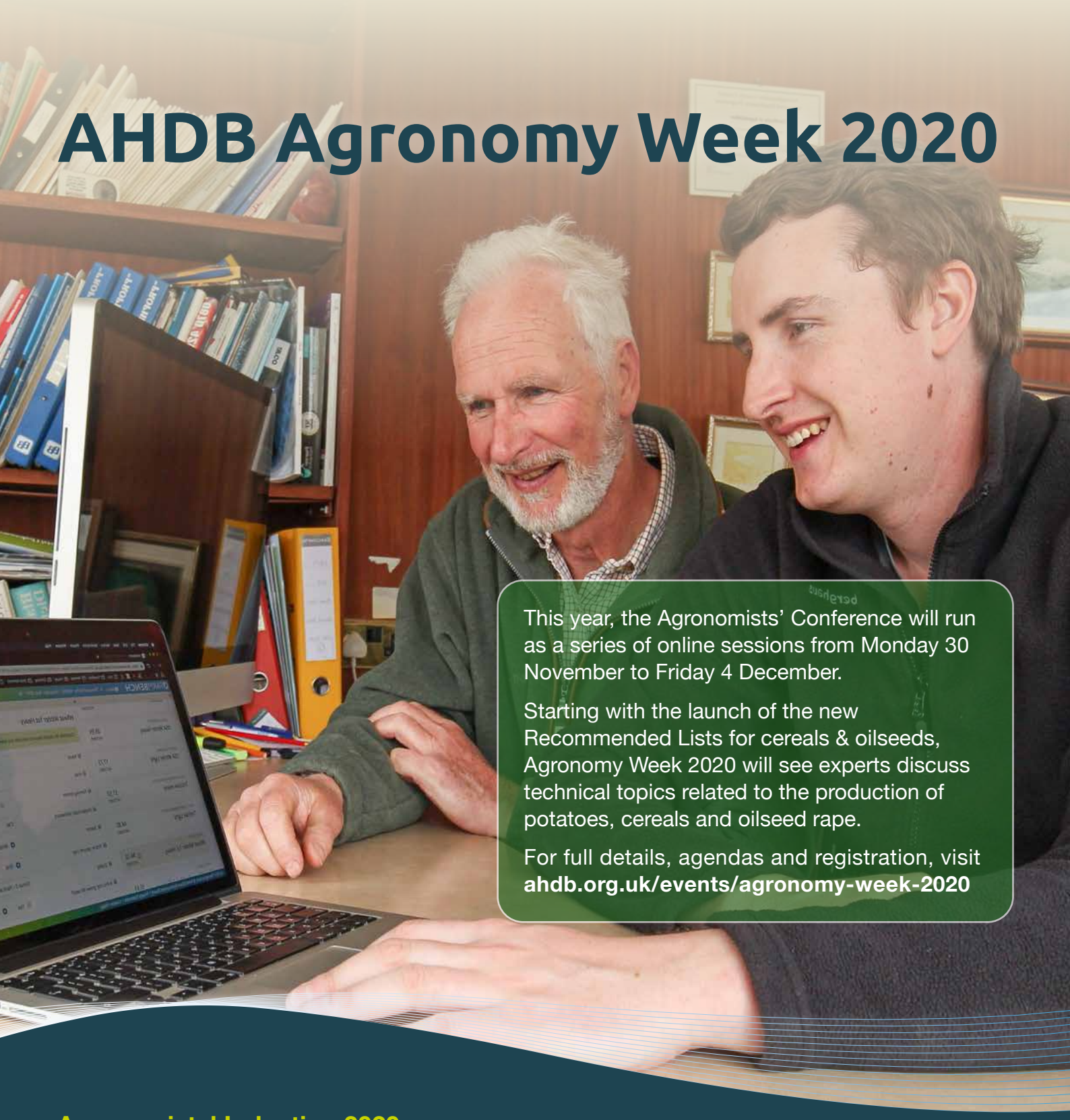
## TEN TAKE-HOME MESSAGES FOR UK FARMERS:

1. If you don't have a spade in your truck, you are not a farmer.
2. Don't do the cool stuff first; you're likely to fail and never do it again.
3. Don't address symptoms – fix problems.
4. Don't commit 50% effort and expect 100% result.
5. You cannot conserve or regulate soil moisture without soil cover.
6. Why pray for rain when you have not prepared to receive it?
7. The most important thing in system change is a mirror.
8. The silver bullet is between your ears.
9. Cover crops can make good farmers better and bad farmers worse.
10. What happens on farm stays on-farm; clean water and clean air.

For further information, contact:

**Harry Henderson**
Knowledge Exchange Technical Manager – Cereals & Oilseeds
**harry.henderson@ahdb.org.uk**

# AHDB Agronomy Week 2020



This year, the Agronomists' Conference will run as a series of online sessions from Monday 30 November to Friday 4 December.

Starting with the launch of the new Recommended Lists for cereals & oilseeds, Agronomy Week 2020 will see experts discuss technical topics related to the production of potatoes, cereals and oilseed rape.

For full details, agendas and registration, visit **ahdb.org.uk/events/agronomy-week-2020**

## Agronomists' Induction 2020

Early-career agronomists can learn all about AHDB, our products and services without having to leave home. New intake agronomists and advisers will have exclusive access to key webinars that will introduce them to our tools, services and staff during Agronomy Week. For more information, visit **ahdb.org.uk/events/agronomists-induction-2020**

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