

THE JOURNAL FOR THE CEREALS AND OILSEEDS INDUSTRY

FOCUS

Verticillium resistance ratings

ARABLE

Pod shatter resistance claims

Almost 200 years of malting success

UNDERPINNING VARIETY DECISIONS



Exploring the history and the direction of the lists

Funded by your levy



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AHDB is a statutory levy board, funded by farmers, growers and others in the supply chain. We equip the industry with easy to use, practical know-how which they can apply straight away to make better decisions and improve their performance. For further information, please visit **ahdb.org.uk**

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Welcome



I write this introduction amid one of the wettest and toughest drilling seasons in UK history. Combined with lower prices, the future of profitable cereal and oilseed farming here has rarely seemed as fragile.

Lower and failed plantings and the continued uncertain weather impact on harvest mean that, despite the Government approving a levy increase (from this April), our revenue mirrors those of farmers' own. The increased funds we hoped to be able to invest on your behalf will now only become fully available when cropping returns to a more normal basis. We are as determined as ever to deliver for levy payers, so we have agreed cost savings and reprioritisations, and we will cautiously draw on our limited reserves so we start to make the changes you need to see.

Because we face an increasingly unstable and volatile environment, your sector council believes it is even more important we focus our investments on things that can provide a clear return to your business. The Recommended Lists, celebrating 80 years this year, is a good example. It is our single largest responsibility, and around 80% of levy payers say it helps with on farm decisions. Following last year's review, we are now evolving it for the future.

As ever, we are guided by levy payers' best interests. To that end, we are working on assurance in the cereals sector, and we have commissioned SAOS (Scottish Agricultural Organisation Society) to provide clarity on how it currently works for both domestic and imported supplies. We are also working with farming unions across the UK to carry out a wider review of farm assurance to assess how it provides value for farmers now and in the future.

Finally, we are investing to help farmers retain control of their environmental data and maximise value for both their data and the environmental improvements they make on farm. Please see page 14 for more information.

Tom Clarke

Cereals & Oilseeds sector council chair and AHDB board member

RB209 review

The AHDB Nutrient Management Guide (RB209) is under review. If you are passionate about the future of crop and grassland nutrition, let us know what RB209 does well and how it could be improved.

ahdb.org.uk/rb209 nutrient.management@ahdb.org.uk



The RL enters its eightieth year

8 YEARS | RL 1944–2024

Jason Pole explores the history and the direction of the long-lived lists.



The RL's evolution

The Recommended Lists for cereal and oilseeds (RL) is long-lived, trusted and one of AHDB's most consistently recognised and valued products. The first recommended list, released 80 years ago on 8 August 1944 (by NIAB), was a mere sapling compared to its modern counterpart – a narrative description of 16 winter wheat varieties for England and Wales.

However, it was a major milestone. Farmers now had an evidence-based list to help them make sense of the most commercially important varieties in the UK. Since those early days, the variety trialling project and the world have moved on a long way.

The pace of developments ramped up at the end of World War II. Underpinned by policy, the post-war period saw agriculture relentlessly focus on output. It was a catalyst for improvements in plant genetics and production practices, leading to big uplifts in yield in the second half of the twentieth century. In 1944, average commercial winter wheat yields were only about 2.5/ha – a long way behind today's average of about 8.6t/ha.

In 1991, a new variety evaluation scheme brought two notable developments. Firstly, a farmer levy – via the Home Grown Cereals Authority (HGCA) research and development fund – funded the lists. Secondly, the trials were extended to cover the whole of the UK (with the first national data featuring in the 1993 cereal lists). Ten years later (2001), the responsibility for managing and producing the RL moved from NIAB to HGCA and, subsequently, to AHDB (2008).

The RL today

Over its lifetime, the RL has grown in scope and depth. It now involves several hundred trials each year, spread from Cornwall to Aberdeenshire, and delivers annually updated variety data for 11 crops in recommended and descriptive lists.

- Number of trial plots = 24,735
- Length of plots (combined) = 293 km (almost London to York)
- Width of plots (combined) = 47 km (almost Coventry to Worcester)
- Plot area (combined) = 54.4 ha (75 Wembley football pitches)

Note: Figures are based on AHDB-funded RL trials for harvest 2023.

AHDB has committed almost £10m to the current five-year RL project phase (2021–26). However, the total project cost, which includes cash and in-kind contributions from breeders and processors, is closer to £25m.

The evolution continues

The latest review of the project reconfirmed that the RL is used and highly valued, but it also identified improvements. For example, over 300 farmers and agronomists voted on alternative formats in 2023, with 72% opting for the same option.



Changes to the current (RL 2024/25) booklet:

- Variety data is on a single spread
- Agronomic information is in a more prominent position
- A new fold-out key provides at-a-glance information
- More information about the RL trial system and recommendation process

You also asked us to strengthen our digital tools:

- A comparison feature was added to the RL app
- A variety index tool was published to help you identify when a variety was first and last listed
- Variety selection tool is updated faster

With more resources directed towards digital tools, we will no longer produce the summer edition of the RL booklet. Compared to the winter (first) edition, demand for the summer edition was relatively low.

Our focus on digital resources allows us to respond to new developments. For example, once candidate varieties have been added to the GB and NI Variety Lists (VL), yield and agronomic data can be released rapidly on the AHDB website and the RL app.

Low-input research

Most RL trials aim to limit the influence of (controllable) factors that may hold back genetic potential. For example, the fungicide programmes help minimise disease in treated trials, and nitrogen is applied to maximise yield in feed varieties.

The RL trials also test other extremes, such as in the fungicide-untreated trial series. It is important to test the extremes, but we are often asked to provide information more in line with commercial practice. It was a point raised again in the RL review responses. We have funded two three-month scoping reviews to examine evidence of varietal responses under lower-input scenarios (nitrogen and fungicides, respectively). The projects will report in spring and guide AHDB's investment in this area.

For the latest RL news, visit: ahdb.org.uk/rl

For further information, contact:

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SIGN UP TO HARVEST RESULTS

For the latest data and commentary from the RL variety trials during harvest, sign up for harvest results: **ahdb.org.uk/harvest-results**

Veil lifts on **VERTICILLIUM**



The RL now features verticillium resistance ratings. Paul Gosling explains why they have different categories to other diseases.

About verticillium

Caused by *Verticillium longisporum*, the disease was first confirmed in oilseed rape in England in 2007, with the established common name adopted – verticillium wilt. It was renamed verticillium stem stripe in oilseed rape in 2016, due to a lack of wilting symptoms (compared to horticultural brassicas).

The disease can result in canopy collapse and seed shedding. In the run-up to harvest, high temperatures and drought stress exacerbate symptoms. In severe situations, it can cause yield losses greater than 30%. Crops in eastern England are often the most severely affected, although symptoms have been reported much more widely.

Because it is soilborne and persistent, the disease builds when susceptible hosts are present. With no fungicide treatment available, the only effective control is to widen rotations. However, as the gap between susceptible crops may need to be more than a decade, tackling it effectively through rotations is often impractical.

Developing a disease rating

It quickly became evident that there were differences in varietal susceptibility, and a review of the RL identified the need for disease-resistance data. In response, over the past decade, the AHDB levy has funded work to develop a robust way to assess the disease in variety trials (with ADAS and NIAB playing important roles).

Average disease severity index data from varieties in the RL harvest 2023 trials is shown in Figure 1, which reveals a range of resistance.





The data is associated with a large least significant difference (LSD) value of 12.6, which is problematic because only differences between variety means that are larger than the LSD are statistically significant at the 5% level – meaning the result is only likely to occur by chance fewer than 1 in 20 times. It is hard to pull apart varieties associated with such a large LSD.

AGRONOMY

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Paul Gosling

Verticillium on oilseed rape



Figure 2. How the three verticillium rating categories are mapped

Following conversations with our statistical partner BIOSS (Biomathematics and Statistics Scotland), it was decided we could not base the disease ratings on the usual 1–9 scale. Instead, we mapped the 1–9 disease ratings to one of three disease-rating categories: moderately resistant (MR), intermediate (I) and susceptible (S). Figure 2 provides a simplified view of the data – in a bell-shaped curve (blue line) – to illustrate the rating process.

As part of the rating calculation, the middle of the LSD is centred in the middle of the curve (on the median value). The LSD range captures the intermediate (I) varieties and highlights the susceptible (S) and moderately resistant (MR) varieties at the extremes. These extreme categories are significantly different from each other (at the 5% level).

Ratings in practice

If you think your field is at risk from verticillium stem stripe, use the winter oilseed rape recommended list to identify moderately resistant varieties and avoid the susceptible varieties.

ahdb.org.uk/verticillium-stem-stripe

If you liked this article...

The AHDB website features more articles based on RL trial data, including:

- How do winter wheat varieties perform when sown very late?
- Does RL data back up pod shatter resistance claims?
- Septoria tritici: A changing view of genetic potential

Does pod shatter resistance work?

Paul Gosling reveals what winter oilseed rape trial data can tell us about breeders' pod shatter resistance claims.

We first added pod shatter resistance information to the RL 2021/22 edition, with winter oilseed rape varieties noted as having (R) or not having (-) resistance. Many hybrid varieties have pod shatter resistance, but the trait does not extend to conventional open-pollinated varieties.

The characteristic is presented as a 'breeder's claim', which is not verified in RL trials. Such claims are usually associated with clear genetic markers. However, pod shatter resistance is associated with multiple genetic pathways, making it relatively hard to assess in trials.

Quantifying pod shatter

Progress in quantifying the trait has been made in recent years. For example, AHDB has supported the development of a laboratory test that can help identify interesting plant-breeding lines. However, the logistics associated with getting samples from trial sites to the laboratory in a suitable condition meant the approach was not suitable for the RL.

AHDB does record observations of seed loss in the yield trials using a 1–9 scale, where 1 represents severe seed loss and 9 represents no seed loss. This data can be used to add value to the resistance data in the RL.

Harvest 2023

With stormy conditions, harvest 2023 provided a stern test of pod shatter resistance claims, with useful data available from multiple trial sites. This is important because observations from a single trial can sometimes be misleading.

Figure 1 is based on an analysis of 11 trials associated with seed loss. Varieties are ordered left to right, with those possessing greater pod shatter resistance shown towards the right-hand side. The varieties with a claim for resistance (dark blue bars) are generally clustered towards this side. Although the best varieties still lose seeds in a tough year, breeders' claims broadly stand up to RL scrutiny.

The data is still quite 'noisy', with a relatively large average LSD value of 0.93 (see Page 6 for information), which means it is not possible to generate a reliable 1–9 resistance rating for the trait in the RL. However, the breeder's claim information is a good guide.

If you would like more information on any claim, contact the relevant breeder or UK contact.



Figure 1. Seed loss for oilseed rape varieties in RL trials for harvest 2023



ALMOST 200 YEARS OF MALTING BARLEY SUCCESS

MAGB provides insight into how the trade association has stood the test of time.

Since 1827, MAGB (Maltsters' Association of Great Britain) has represented the interests of the UK malting industry. Currently, it represents 98% of UK malt production. With around 2 Mt of UK malting barley purchased annually, producing about 1.6 Mt of malt, it is an important sector.

A key to its enduring success is its strong market focus. One of its many activities is to administer the Malting Barley Committee (MBC), the body that evaluates and approves malting barley varieties for end-user suitability. This approval system has worked alongside the RL trials for around 50 years, helping to deliver a one-stop-shop for variety data through the recommended lists for spring and winter barley.

Three crop years of successful micromalting results in a newly recommended malting barley variety being granted MBC Provisional Approval. Commercial-scale malting, brewing and/or distilling trials follow, which, if successful, lead to a variety gaining the sought-after accolade of MBC Full Approval. This industry-led process has ensured a continuous pipeline of top-quality winter and spring malting barley varieties, which fulfil the quality requirements of malt users in the UK and around the world. The recent rise and fall of malting barley varieties, in terms of tonnes purchased across England and Scotland, is illustrated in Figure 1.

Each year, MAGB releases a Total Nitrogen (TN) content Wish List for barley crop purchases from its members. TN is a major determinant of the suitability of barley for specific malt types, from malt for traditional ale brewing to distilling malt. Due to its importance, the Wish List is published in the RL (see Page 25 of RL 2024/25).

The latest MBC Approved List features five new varieties under test for malting: two winter and three spring barley varieties (two for brewing only, one for brewing and malt distilling, and two for malt distilling only). Time will tell whether these will go on to become key players in the malting industry.

Source: MAGB



Figure 1. MAGB barley purchases for England and Scotland (2013-22)

MAGB WEBSITE

You can monitor the progress of varieties through the MBC approval process, see the latest Wish List and access further information on malting barley on the MAGB website: ukmalt.com/home

The 'Acrobat' that juggles pyrethroids



© Gary Naylor Photography

Siobhan Hillman explores the next generation of decision support for aphid management.



Transmitted primarily by the bird cherry-oat aphid and grain aphid, Barley yellow dwarf virus (BYDV) is a major disease of UK wheat and barley. Careful use of pyrethroid insecticides in the autumn is often required to kill aphids, especially in high-risk situations. However, grain aphids with moderate levels of pyrethroid resistance are present in the UK. Additionally, increased pressure to reduce (even eliminate) pesticide usage means reliable risk-based approaches are needed to better target sprays.

In autumn 2019, an AHDB-funded study got underway to improve integrated pest management (IPM) approaches for aphid control and BYDV risk management. Specifically, the ADAS-led project focused on improved monitoring of BYDV risk and the development of the next generation of decision support systems (DSS).

Improved monitoring

The project exploited data from a UK network of suction traps and examined in-field monitoring methods.

Funded by the Biotechnology and Biological Sciences Research Council (BBSRC), aphid catches from the 12.2m suction traps are processed daily during the 'aphid season', with the species identified and counted by the Rothamsted Insect Survey (RIS). It is a strategically important resource. For example, it provides a long-term record of the duration and intensity of the aphid migration period on a regional basis. This project assessed the relevance of suction trap data to commercial crops.

To monitor aphids in crops, the team used plant inspections, yellow water traps (like the trap pictured) and yellow sticky traps. Bird-cherry oat aphids were far more common than grain aphids (in all regions). For the former aphid, yellow water traps were the most effective monitoring method, whereas plant inspections were the most effective method (and potentially the only effective method) of monitoring grain aphids. At the start of the project, each suction trap was considered broadly representative of aphid flight activity over a radius of about 80 km. However, the crop-monitoring data showed that bird cherry-oat aphid numbers from suction traps could only reliably gauge crop infestation within 10–20 km of the suction trap (before any insecticide spray). The result means that in-field monitoring is more important than initially believed.

Interestingly, the work found that suction trap data on the percentage of aphids carrying the virus was reliable over a greater area than previously thought, with accuracy remaining good up to 40 km away. Concerningly, the percentage of aphids carrying the virus was higher than in previous surveys, especially the RPV variant (which has implications for varietal tolerance and resistance).

Decision support systems

The current AHDB BYDV management tool for cereals is a relatively simple (and effective) decision support system. It estimates when the second aphid generation (associated with BYDV spread) is likely to be present, based on accumulated daily air temperatures (from crop emergence or after a spray).

The researchers examined the potential to better predict aphid population dynamics by increasing the input parameters considered by a DSS (which they named 'Acrobat'*), including:

- Aphid pressure data, such as from suction traps (including the percentage of viruliferous aphids) and in-field observations
- Enhanced temperature data, such as minimum, maximum and mean temperatures
- Additional crop data, such as cereal type (wheat or barley), BYDV tolerance status, sowing date, plant populations, treatment costs, predicted yield, estimated grain price and local risk factors

In surveys of untreated crops, Acrobat accurately predicted BYDV risk (based on symptom development). As the DSS can indicate potential risk, it can inform pre-sowing decisions (such as crop choice and drilling date).

In tramline and plot trials, Acrobat-guided sprays provided consistent BYDV control, as good as or better than the current BYDV management tool. The better news is that it did this with fewer insecticide applications and provided yield benefits (where BYDV was present).

With proof of concept established, Acrobat requires development work to produce a web-based or app-based version for industry.

Access the final report and information about BYDV management via: ahdb.org.uk/bydv

*The name Acrobat is derived from the full name of the DSS: ADAS Crop BYDV Assessment Tool.

CABBAGE STEM FLEA BEETLE

Our latest (four-year) investment in cabbage stem flea beetle research ends this autumn. The ADAS-led work is improving knowledge of beetle biology and stacking integrated pest management (IPM) approaches in tramline trials – with companion crops, organic amendments, stubble lengths, seed rates and cultivation intensity all under consideration. The report will be available from: **ahdb.org.uk/csfb**

For further information, contact:

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VESS TO IMPRESS

VESS can tell you a lot about the condition of your land. Joanna McBurnie explains.

Simple observations can tell you a lot about a soil's condition, helping you to prioritise management to the parts of the farm that need it the most.

Developed as part of the soil health scorecard, the AHDB 'How to assess soil structure' publication provides guidance on how to perform a visual evaluation of soil structure (VESS) in a few steps. The main points are summarised in this article.

Resources for VESS

- A spade
- A plastic sheet or tray
- A way to record observations
- AHDB VESS guidance: ahdb.org.uk/vess

When to VESS

Try to assess structure when soils are moist and clumps (aggregates) break apart easily. If the soil is too wet, it may be too sticky and easily smeared by the spade. If the soil is too dry, it may be too difficult to dig. Late autumn (when drains are running on heavier land) to early spring (on a 'drying front') is usually best.

Aim to use VESS:

- Routinely after each rotation on arable land (every two years on grassland)
- After a change in management practice
- After trafficking (or grazing) on wet ground

Where to VESS

- Ensure VESS samples represent a relatively uniform area
- Record the centre point of the sample area (use GPS or what3words)
- Take samples up to 5 m away from the centre point (at random points)
- For VESS (and earthworms), take three samples/reps (illustrated by the orange circles
)



*Note: several random sampling areas are needed for topsoil assessments (illustrated by the blue stars in the circle \bigstar).

TOP TIP

Dig in 'good' (e.g. hedge bottom) and 'bad' (e.g. a gateway or tramline) areas to get familiar with soil structure variability.

Step 1: Surface assessment

Assess and record the general condition of the soil surface:

- Good: Good cover, with no standing water or deep wheelings
- Moderate: Poor cover, with some standing water or deep wheelings
- Poor: Very poor cover, with severe standing water or deep wheelings

Step 2: Sample (soil block) extraction

- Cut out three sides of a block (about 30 cm deep) – leave an undisturbed side
- Lever out and lay the block on a plastic sheet or tray – undisturbed side up
- If the soil block falls apart easily, dig out a second block (and place it next to the first)

Step 3: Soil assessment

- Gently open the block by hand (like a book)
- If the structure is uniform, score the block as a whole
- If there are layers of differing structure, score the poorest (limiting) layer

Step 4: Soil scoring

Note anything that may influence soil health, such as aggregate size and shape, porosity, rooting and smell. With one hand, break up the larger soil aggregates to assess their strength. Finally, assign a VESS score.

GOOD (scores 1 and 2): soil aggregates are relatively small (less than 7 cm) and break apart easily (with fingers or one hand). The soil is quite porous, with a sweet, earthy smell and many well-distributed roots.

MODERATE (score 3): most aggregates break apart with one hand, with fewer pores. Larger rounded aggregates (up to 10 cm) present, some angular. The soil has no smell, with fewer roots. **POOR (scores 4 and 5):** effort needed to break apart aggregates with one hand, with very few pores. Presence of mostly large angular or platy aggregates (over 10 cm) with few pores and reduced rooting. The soil may have a 'bad egg' smell with mottling (red/orange colours).

The three categories, good, moderate and poor, align with the three statuses in the soil health scorecard: monitor (green), review (amber) and investigate (red), respectively. The 'How to assess soil structure' publication provides more detail on how to score soils.

Step 5: Management

A careful combination of biology (e.g. roots and worms) and metal is often the most efficient way to manage soil structure and remove any barriers to the movement of water, air and roots. To explore the management opportunities, visit: **ahdb.org.uk/arable-soils**

Planning soil management

The full soil health scorecard uses assessment results for core indicators:

- VESS
- Earthworm counts
- Soil organic matter (%)*
- pH*
- Extractable nutrients: Phosphorus, potassium and magnesium (mg/L)*

It compares results to typical ranges (benchmarks) for many UK soil types, climate regions and farming systems and calculates a soil health status for each indicator:

- Investigate (red)
- Review (amber)
- Monitor (green)

Get started with the scorecard: order the new AHDB 'Planning soil management' pack via: **ahdb.org.uk/scorecard**

Pick up a pack at summer events, including Cereals 2024 (11–12 June), Groundswell (26–27 June) and Arable Scotland (2 July).

For further information, contact:

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HOLDING ON TO ENVIRONMENTAL VALUE

Chris Gooderham examines a project that aims to keep farmers in control of their environmental data and its value.

The perceived Wild West of carbon markets highlights the amount of confusion, uncertainty and fragmentation there is in this new frontier. In this complex environment, the Government is increasingly consulting on how to move forward, including work by the British Standards Initiative on nature market standards, the Food Data Transparency Partnership looking at eco-labelling and Scope 3 reporting, and the Department for Business and Trade consulting on mandatory sustainability reporting. Governments are considering what to do about farm-level carbon calculator reporting, and there are important international initiatives due later this year, such as the EU developing a certification framework for carbon removals and Land Sector and Removals Guidance from the Greenhouse Gas Protocol. In this changing environment, we need to be clear what will benefit levy payers and help them capture and retain value.

The focus on environmental performance is not as high in the arable sector compared to the livestock sector – but this is likely to change soon. With nitrous oxide emissions from fertiliser and soil health increasingly in the spotlight, the environmental performance of arable production is becoming a key selling point. Many farmers are exploring markets and payments for carbon sequestration, biodiversity net gain (BNG) and regenerative actions. However, there are increasing concerns about handing over environmental performance data (for free or for payment). A recent, high-profile example is the Greener Farms Commitment, which was proposed by AFS/Red Tractor.

Recently, the Republic of Ireland published figures about the carbon footprint of the country's arable sector, setting out their stall. Government-led conversations are happening across the UK. Commercial companies are already asking for farmers' data (some offering payments).

Such activity will increase as carbon reporting becomes a regulatory or contractual requirement.

In this space, AHDB is looking to provide clarity and simplification, driven by two priorities. Farmers should:

- 1. Know their own numbers you can't manage what you don't measure.
- Own and control their data getting maximum value for the actual data, as well as using it to evidence and get value for environmental improvements delivered on farm.

For these priorities, data collection and use must be effective and fair.

Northern Ireland's Soil Nutrient Health Scheme is one of the world's largest sampling programmes. The government-funded system offers to provide baseline data on soil nutrient status, nutrient run-off risks and carbon stocks for all fields by 2026, with the potential to carbon footprint all farms.

To help farmers retain control and capture long-term value in Great Britain, the AHDB sector councils have agreed to a pilot initiative. This uses the Northern Ireland baselining work as a starting point and will demonstrate best practice to other GB governments and the supply chain. The reason for doing this when lots of companies are doing different things is simple. With governments and companies getting into this space, we (levy payers) need a clear ask, based on independent science and research of what system and approach best benefits levy payers – with trust around data control and maximum capture of value for levy payers.

The pilot will also help change the narrative, which has been dominated by gross greenhouse gas emissions. Part of the problem is the lack of accuracy in measuring carbon stocks and even less evidence of what could be possible when it comes to carbon sequestration. Instead, the pilot focuses on net carbon including carbon sequestration potential, which will help to protect the reputation of our products (both domestically and overseas).

We plan to sample about 170 pilot farms (60 that grow cereals and oilseeds) across GB, reflecting various farming practices and land uses, including mixed farming operations. The aim is to use the latest technology to measure the above-ground and below-ground carbon stocks and sequestration potential. Above ground is done through LIDAR (light detection and ranging) data which maps carbon stocks in trees and hedges. The same data can be used to show run-off risk and capture other elements, such as habitat connectivity.

Below ground, we will be looking to undertake a comprehensive assessment of pilot farm soil samples, including the measurement of soil organic carbon (at various depths), nutrient levels and pH. A common carbon calculator will be used at each pilot farm, with clear action plans developed. It will also consider biological components of soil health, including earthworms, fungi, bacteria and soil respiration. We will also explore what technology can deliver, including the potential for satellite imagery to measure soil carbon stocks. The pilot will develop clarity and consistency in the measurement of indicators associated with the delivery of multiple public goods. For example, it will help farmers gauge their farms' total above- and below-ground carbon stocks and determine the potential to capture more. Ultimately, it will put them in control of conversations about carbon and associated payments.

The pilot will develop a measuring, reporting and verification system to a 'gold standard'.

This requires high-integrity data, which is costly – so the work is contingent on co-funding and the coordination of other, often fragmented, initiatives.

The work will lead to recognised, trusted and controlled data, which will be compatible with, for example, the greenhouse gas (GHG) National Inventory and GHG emission declarations (such as Scope 3). Critically, the pilot will be responsive, with activity shifting to ensure it delivers the biggest benefit for the sector. Success will be demonstrating and getting support for a clear approach that allows farmers to trust how their data will be managed and able to capture as much value as possible.

For further information, contact:

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FURTHER INFORMATION

The AHDB Cereals & Oilseeds sector council has agreed to commit, on average, about £134,000+VAT per annum over the next five years to the baseline pilot (with spend front-loaded).

For information about work (including how to get involved) and other AHDB initiatives in this area, visit: ahdb.org.uk/environment

Last autumn, the UK experienced far higher rainfall than usual. It made planting winter crops extremely challenging, with falls in plantings and planting intentions captured in November's Early Bird Survey (EBS). In general, crop condition was also poor, especially for winter wheat and winter oilseed rape.

Wet weather throughout the winter continued to severely hamper plantings and crop condition. In response, we re-ran the survey in March 2024 to provide a better indication of the cropped areas for harvest 2024.

The updated survey quantified what many already felt: the poor weather caused major crop losses and prevented plantings, drastically exacerbating the falls in the estimated winter crop areas (compared to the November survey).

UK area estimates for harvest 2024

Wheat: area down 15%* to 1,463,000 ha (the smallest area since 2020), which includes a small but greatly expanded spring wheat area.

Winter barley: area down 22%* to 355,000 ha (a much steeper drop than the 7%* fall in the November estimate).

Winter oilseed rape: area down 28%* to 280,0000 ha (the smallest area since 1984). In addition to wet conditions, this crop continues to be challenged by pests, such as cabbage stem flea beetle.

Spring barley: area up 29%* to 881,000 ha (still far lower than the 1,042,000 ha in 2020).

Oats: area up by 26%* to 209,000 ha (just shy of the 210,000 ha in 2020). The fall in winter oat plantings has been more than offset by a sharp rise in spring oat planting intentions.

Continued concerns

There may be many people who hold on to winter crops, if they feel they are just good enough to take to harvest or simply because there aren't any other viable options. The patchy condition of many winter crops is very likely to impact yield potential, especially for wheat and oilseed rape.

Because of the lower wheat areas and poorer crop conditions, the market is already expecting a marked fall in UK production in 2024. Wheat imports are likely to rise as a result, with prices already reflecting this.

Understandably, there was a clear intention to plant more spring crops, though the intended areas were still lower than for harvest 2020 (which followed another very wet autumn in 2019).

Survey captures drastic winter cropping falls

Helen Plant explains how a re-run survey quantified the impact of dismal weather on the UK's cropping plans.

MARKETS AND INSIGHTS

By early spring, grain and oilseed prices had fallen more than input costs for the 2024 crop. This, along with uncertainty about seed availability, likely deterred farmers from maximising their spring crop areas. Furthermore, soggy soils and continuing rainfall cast uncertainty over whether all these crops could be planted, meaning that final spring crop areas may fall below the areas in the re-run survey.

Arable fallow was already expected to expand sharply in the November survey (up 25%*). The re-run survey estimates that the fallow area is now up by nearly 80%* (to 558,000 ha). Any further areas that fail to be planted as intended are likely to push this figure even higher. This fallow area will include a significant (unmeasured) proportion of growers switching into agri-environmental options. The difficult soil conditions and profitability concerns are likely to make such options more appealing.

The Planting and Variety Survey (PVS) results will provide the first post-planting view of UK cropped areas, with results issued in midsummer. You can find out how to get involved in the PVS and access results on the AHDB website: ahdb.org.uk/pvs

*Note: area changes compared to harvest 2023.

For further information, contact: Helen Plant Senior Analyst (Cereals & Oilseeds) helen.plant@ahdb.org.uk

INFORMED DECISIONS

A challenging and shifting situation makes it tougher to make the best decisions. AHDB has resources to help you, including:

- Arable Business Groups and Farmbench can help you explore and cost out options: **ahdb.org.uk/abg**
- The latest information on agricultural policy, including Environmental Land Management Schemes: **ahdb.org.uk/elms**
- Analysis of domestic and global grain markets: ahdb.org.uk/cereals-oilseeds-markets
- How to adjust nitrogen management plans in response to excess winter rainfall: **ahdb.org.uk/ewr**
- Practical advice, guidance and support for your wellbeing: ahdb.org.uk/support-for-farmers

TOP-PERFORMING FARMS FOCUS ON COSTS

Matt Darragh explains how an analysis of farm businesses data has revealed the characteristics of top-performing farms.



In 2018, we worked with The Andersons Centre to define the characteristics that set the UK's top-performing and bottom-performing farms apart. The good news is that most of the difference between them (more than 70%) was found to be within a farmer's control.

Despite this encouraging statistic, farming's nuanced nature means determining the best way to move up the performance ladder isn't always easy. The full report went on to underpin numerous debates among farming groups about what success looks like in a fast-moving production environment. In fact, there has been so much change in the intervening years that we commissioned a refresh of the work, with three sectorspecific reports (for AHDB Cereals & Oilseeds, Beef & Lamb and Dairy) published earlier this year.

Farm business data

Researchers used Farm Business Survey (FBS) data to match pairs of similar farms from the top 25% and the bottom 50% of farm businesses, with performance measured as farm income divided by associated costs (the return on turnover). The group between the top 25% and bottom 50% was excluded to provide a clear separation, revealing what underpins performance differences between otherwise similar farms. While the results are derived from farm businesses in England, the findings apply to the whole of the UK.

On average, farms in the top 25% made about £100K more per year than the bottom 50%. One might expect similar enterprises to have similar financial results. However, the performance spread between farms of similar size and geography was broad.

MARKETS AND INSIGHTS

Headline characteristics

The headline characteristics of top-performing cereals and oilseeds farms were:

- Minimise overhead costs
- Spend money on variable costs that increase output (new)
- Set goals and budgets
- Compare yourself to others and gather information
- Focus on detail
- Have a mindset for change

Within a commodity business, margins are inherently tight. So, it is unsurprising that the top three points reflect the importance of good cost management. Top-performing farms have lower total per-hectare costs, helping to increase their profit margin. This outcome may seem obvious, but it isn't as simple as it may first appear.

Cost control

Keeping overhead costs as low as possible was rated as the top characteristic of top-performing farms in the original and latest reports. Poorer-performing businesses spend more than one-third extra on overheads for every £1 spent.

As well as a focus on overhead costs, the latest report has elevated the importance of variable cost management, which now features as a new and second-most important characteristic. Top performers spend proportionately less on fixed costs compared to variable costs, in contrast to the bottom performers (Figure 1).



Figure 1. Fixed and variable costs as a proportion of total agricultural \mbox{costs}^{\star}

TIPS FOR TOP PERFORMERS

Appendix 1 in the report for cereals and oilseeds cites 50 points to consider. As it often helps to talk things through with peers, why not consider joining the debate at our Monitor Farms and Arable Business Groups?

ahdb.org.uk/top-performing-farms-2024



Figure 2. Performance-group expenditure*

Top performers also spend more on variable costs that improve yield and turnover per hectare (Figure 2). This included targeted use of inputs, such as seeds, fertilisers and plant protection products. However, it is the significantly higher contracting investment that stood out. Since the previous report, it is far more noticeable, due to sharp rises in machinery capital and maintenance costs.

Helping hands

Hiring somebody else to do the job may feel expensive. It wraps up all operation costs in the fee charged by the contractor, but it may not be a false economy. Owning machinery that is unused for most of the year incurs a considerable cost (although not as explicitly visible as a contractor's cost). Furthermore, the contractor supplies the labour too. The research found that top-performing farms are more likely to nurture effective relationships with contractors, who can bring the best machinery and skills to match the task/ season at hand. Where machinery was owned, top-performing farms found ways to reduce the associated costs, such as maintaining it for longer and keeping staff trained.

In practice, fine lines separate the top and bottom performers. The report says that "the top-performing farms do most things that poor-performing farms do – they just do them a little bit better."

Improvement of farm business performance is often due to the cumulative impact of marginal gains. It is also the details behind the headlines that matter, with the best approach dependent on the business in question.

For further information, contact:

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*Data source: The Andersons Centre and the Farm Business Survey

Over the hedge

News from across AHDB

Farm-to-fork assurance review

In 2000, the agricultural industry faced a consumer-confidence crisis. Following the BSE, salmonella, and foot and mouth outbreaks, people were confused about the origins of their food. Against this backdrop, farmers and industry leaders established a scheme to increase consumer confidence in farming produce. Originally known as the British Farm Standard, it marked the beginning of the Red Tractor Food Assurance Scheme.

In 2008, following an industry consultation, AHDB put levy funding into Red Tractor to help consolidate farm audits and develop a single label to represent trusted production standards. With Red Tractor financially self-sustaining, AHDB stopped these annual funds in 2021. At this time, AHDB also provided feedback to Red Tractor from levy payers about the perceived strengths and the weaknesses associated with the assurance scheme.

To make sure assurance schemes are fit for purpose, AHDB has now joined forces with the National Farmers' Union (NFU) to facilitate a robust review of all relevant schemes. It will examine:

- How farm assurance can deliver value back to scheme members
- How standards are developed, the markets they serve, and sector diversity (in the context of a global marketplace)
- How assurance members are engaged with (including the development of standards) and inspected
- How technology is used
- How assurance schemes fit with regulation and government schemes

An independent commission is overseeing the review to ensure full transparency and provide the opportunity for farmers and industry to have their say.

The world is very different to when farm assurance schemes started in the UK. It is important to ask fundamental questions about all farm assurance schemes to ensure farmers' needs are met.

AHDB, NFU, NFU Cymru, The Ulster Farmers Union (UFU) and NFU Scotland (NFUS) will all form part of the Assurance Review steering group that has overall responsibility for its delivery.

GOVERNANCE REVIEW

In 2023, Red Tractor announced plans to introduce a stand-alone module dealing with environmental protection – the Greener Farms Commitment. It faced considerable opposition among farmers with plans for it subsequently ceased. In response, NFU commissioned a rapid governance review. In February, the review concluded that Red Tractor's governance is sound but complex, as it aims to ensure wide representation and engagement across the food chain.

However, it identified potential areas for improvement, including recommendations for the introduction of training (for Red Tractor Board and Committee members) and the development of a Board Member Code of Conduct and a Governance Handbook. It also identified the need to improve communication to address perception gaps.

These findings will be addressed in the interim until the full AHDB/NFU review of farm assurance reports its recommendations.



Combinable crops digital passport update

An industry-wide consultation on the combinable crops digital passport received over 400 grower business responses and more than 50 merchant, haulier and processor business responses. This generated over 80 new questions and feedback points, ranging from fundamental aspects about the purpose of the passport to technical queries about its operation.

A need for greater clarity regarding the costs and benefits was also identified. The Leadership Group will now ensure that all questions are addressed (with responses communicated in full) and update the business case.

ahdb.org.uk/digital-passport

ahdb.org.uk/assurance-schemes



AHDB levy rate increases

Levy rate increases for all four AHDB sectors were implemented from April 2024. It followed no levy increases for more than 10 years for AHDB Beef & Lamb and Cereals & Oilseeds and 20 years for AHDB Dairy and Pork. The increases will help AHDB focus on delivering the objectives set out in the five-year sector plans (2022–2027).

- Cereal grower: 46p/t to 58p/t
- Cereal processor (human/industrial): 9.50p/t to 12p/t
- Oilseeds: 75p/t to 94p/t
- Cereal buyer: 3.80p/t to 4.80p/t
- Cereal processor (feed): 4.60p/t to 5.80p/t

ahdb.org.uk/levy-information

The levy rate increase will help the cereals and oilseeds sector fund more independent research, improve services (such as the RL and RB209), promote farmer-to-farmer learning and deliver guidance on carbon, biodiversity and other environmental markets. A new research committee is being established to allow levy payers to drive the research agenda, by setting the research questions, reviewing research proposals and making funding recommendations to the AHDB Cereals & Oilseeds sector council.

ahdb.org.uk/sector-councils

Spoilt for cover crop choice

An online cover crops guide developed by farmers can now be accessed via the AHDB website. It includes an interactive species selection tool to help you assess the suitability of brassica, legume, cereal and other cover crop varieties for your situation. Each species is profiled for its winter hardiness, rooting depth, grazing potential, and nitrogen-fixing and nutrient-storing qualities. The tool also includes information on sowing period and depth, and seed size and seed rate. AHDB provided evidence-based information on cover crops to the team behind the guide. AHDB will continue to curate independent cover crop guidance and build on the guide's foundations.

ahdb.org.uk/cover-crops

AgriLeader Forum offers inspiration

February's AgriLeader Forum – Farming your network, playing your field – attracted nearly 200 farmers for 24 hours of networking and thought-provoking discussions. Sponsored by Agri-Tech Centres, the event was designed to push people out of their comfort zones and inspire them to make changes. Attendees were treated to engaging presentations, stimulating activities, lively discussions and valuable networking opportunities. It also included a trip to the National Football Museum with the welcome message from former England Lioness and We Eat Balanced ambassador Anita Asante.

ahdb.org.uk/agrileader



Anita Asante photographed for the award-wining AHDB Eat Like a Lioness marketing campaign

The Norfolk farm with practical research at its heart

The latest Strategic Cereal Farm East will build upon its own data and research connections and establish new trials to optimise input use. Joe Martlew explains.



AGRICULTURAL FOUNDATION WWW.tmaf.co.uk

The second Strategic Cereal Farm East (2023–2029), at Morley Farms Ltd., is a 750-ha arable farming enterprise (combinable crops and sugar beet). However, the commercial farm comes with a twist. Hosting trials since 1965, it has a rich research history and a passion for developing practical results for farmers.

The Morley Agricultural Foundation (tmaf.co.uk), which owns the land, invests directly in agricultural research, professional development for farmers, educational initiatives for children and student studies.

Host David Jones wants the Norfolk-based farm to dive deeper into trialling and continue its commitment to bridging the gap between research and farming. Recently, the farm set the aims and the work needed during the six-year programme. The reduction of inputs is at the top of the farm's wish list.

Led by NIAB, in collaboration with ADAS and Harper Adams University, the first-year trials and assessments are underway, which tackle three topics.

Cultural weed control strategies (rye-grass target)

Keeping herbicide-resistant weeds at manageable levels is a challenge for many farmers. AHDB's black-grass guidance is based on a relatively good understanding of the control levels associated with various techniques, as well as the boost associated with layering controls. This work will start to develop a similar understanding for Italian rye-grass, which is particularly problematic on the farm. The field trials, which exploit variations in grassweed pressures, include:

- A control (farm-standard treatment)
- Cultural control methods, such as drilling date, seed rates and variety choice
- Non-chemical control methods, such as inter-row cultivation and weed surfing, combined with cultural control
- Non-crop stewardship options

To measure success, weeds (including the seedbank) will be monitored, with crop performance and costs/gross margins assessed (where applicable). The significance of any weed seed transfer across the farm, via cultivation equipment, will also be determined.

Integrated pest management (BYDV target)

This work will assess BYDV levels in resistant and susceptible winter wheat varieties (in adjacent fields). It will also build on recent AHDB research to examine the role of decision support tools (see Page 10) in reducing or eliminating insecticides. The field tramline trials will examine:

- T-Sum model (targets the second generation of aphids)
- Pilot ACroBAT model (considers aphid population dynamics, BYDV pressures and crop risk)
- No insecticide application

The work will monitor aphid virus vectors, natural enemies, disease spread, yield impacts and provide cost–benefit information on the approaches.

Efficient nutrient use (nitrogen target)

Nitrogen variability

Like many farms, Morley Farms has a large variability in economic optimal nitrogen application rates, nitrogen use efficiency (NUE) and yields. Understandably, the farm wants to pinpoint the causes of variation.

Thankfully, the farm has Morley Soil and Agronomic Monitoring Study (SAMS) sites to hand. Each site is about 150 m², with the network covering areas with high, low and variable yields (and headland sites). They are a treasure trove of data, providing long-term (2018–23) information on soil assessment results, grain nutrients, yield and management records for 29 arable sites.

NUE is already assessed at eight sites, with Old Hall Piece Field particularly interesting. It is the only SAMS field (with five SAMS sites) in winter wheat for harvest 2024 and has historically variable yields and soil electrical conductivity (EC). EC is a useful measure because it can help estimate soil texture, which is linked with NUE and yield variation. The field will host replicated nitrogen response trials in three contrasting management zones.

Variable rates

Some farmers use N-sensors to vary nitrogen application rates, which often apply more nitrogen to areas associated with lower biomass. The theory is that this will boost growth and level the playing field. As this may not be the best universal approach, the farm will compare variable-rate approaches (against the farm standard) to determine the best way to exploit this technology.

Foliar-applied nitrogen

Comparisons of foliar-applied, controlled-release nitrogen with a traditional soil-applied nitrogen dose at the final split have recently been made at the farm. A replicated tramline trial will build on this work to provide a solid foundation to help unpick nitrogen responses and deliver the greatest NUE.

The research will investigate all elements of NUE, consider other major nutrients (phosphorus and potassium) and foster collaboration with other major research projects (for all three topic areas).

Did you know?

The first Strategic Cereal Farm East (2017–2023) was based in Suffolk.

You can learn more about the network of farms at: ahdb.org.uk/strategic-cereal-farms

For further information, contact:

Joe Martlew

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Opportunities pitched in FARMER MARKETPLACE

Laura James discusses an initiative that matches farmers with on-farm research.

AHDB's position in the agricultural landscape provides unique opportunities. For example, we are often approached to get farmers involved in many research initiatives (from the weird to the wonderful).

With about 25 commercial farms in our Farm Excellence network (Monitor Farms and Strategic Cereal Farms) at any given time, it is easy to see the appeal, especially as each one is fronted by a passionate and curious host farmer. The network is a potential hotbed for innovative research.

A key success of the network is the farmer-led, farmer-driven agenda. It is a 'ground-up', not a 'top-down', initiative. So, we have piloted a Farmer Marketplace initiative that honours this key principle.

Much like TV's Dragons' Den, researchers rapidly pitch opportunities to farmers. The participating farmers retain the power to opt 'in' or 'out' of any opportunity, deciding which trials they want to implement on their farm.

The AHDB knowledge transfer team triages the opportunities first, picking the ones most likely to appeal. We also expect the projects to release the main findings freely to all farmers.

From this subset, we invite each researcher to pitch their project. The short (5-minute) pitches are expected to clearly outline the project, the requirements (including costs) and the benefits. Following each pitch, attendees ask probing questions.

To test the approach, we invited farmers and steering group members from across the Farm Excellence network to attend the inaugural meeting in January – a total of 15 farmers (including all Strategic Cereal Farm hosts) attended to hear three pitches.

Research pitches

Project: Climate Farm Demo (climatefarmdemo.eu) Pitchers: Stephen Briggs and Ian Knight – Abacus Agriculture

Patter: This pan-European network (28 countries) tackles climate change. It helps the agricultural sector adapt to the impacts and contributes to carbon-neutral strategies. Participating farms get a free climate mitigation plan, tailored by a Climate Smart Advisor. Each farm is required to host two events across the project, but these can tie in with another meeting. Across the UK, the researchers need to recruit 130 farms (1,500 across Europe).

Project: Leguminose (leguminose.eu) Pitcher: Jerry Alford – The Soil Association

Patter: This pan-European project takes an evidence-based, farmer-led approach to develop viable production systems where legumes are intercropped with cereals. The project needs farms to host simple strip field trials. In return, the farmer gets free grain, soil and other data analyses, peer-to-peer support and some compensation.

Project: Framework for improving nitrogen efficiency (FINE)

Pitcher: Clive Blacker – AgAnalyst

Patter: Very high levels of nitrogen use efficiency (NUE) are theoretically possible. However, knowing how to improve NUE without an unacceptable hit to grain yield or protein is a challenge. This project provides the expertise and exploits the tools needed to optimise NUE in wheat. It is about the right amount of nitrogen, in the right place, at the right time. Commercial field sites are required to test treatments (which include prescribed rates), with access given for soil and crop analyses.

Next steps

At the end of the pitches, the researchers left the meeting to permit open, frank and farmer-led discussions about the value of getting involved.

The Farmer Marketplace was well received, with several participants interested in learning more and potentially getting involved. We will keep an eye on developments and the success of the approach, reporting on those projects that have been included in Monitor and Strategic Farm activities.

The beauty of connecting research with our on-farm network is that it provides ready-made opportunities to showcase the work with many farmers, through our regular on-farm events. It also unites fragmented research in a well-established network.

The potential to widen out the Farmer Marketplace to more people is being considered. If you have a research project to pitch to farmers, please get in touch. There is no schedule for the Farmer Marketplace, with the event being driven by the availability of farmer participants and suitable projects.

David Jones, Strategic Cereal Farm East host, said, "The Farmer Marketplace was very worthwhile, with good speakers. I hope it happens again. I'd also like to hear from those who got involved, to talk about the successes and the failures."

66 Much like TV's Dragons' Den, researchers rapidly pitch opportunities to farmers. The participating farmers retain the power to opt 'in' or 'out' of any opportunity, deciding which trials they want to implement on their farm. 99

10 years of the UK Monitor Farm programme

Farmers tell us what they think about Monitor Farms.

Monitor Farm meetings bring together farmers to share performance and best-practice information to improve their businesses.



MONITOR FARMS 2014-2024

To find your nearest farm meeting, visit ahdb.org.uk/monitor-farms

Infographic based on 227 responses from the 2023 survey of Monitor Farm attendees (excluding Scotland). Scottish Monitor Farms are managed by QMS and funded by the Scottish government.

What do previous Monitor Farm hosts think?



Monitor Farm meetings are open, relaxed and comfortable. You're not just going to listen... you feel like you can ask questions and talk with like-minded farmers. All in all, we've got a lot out of it and completely evolved the farm.

Gary Shipley Huggate Monitor Farm



Benchmarking presented many opportunities; we could see our production costs and those of similar-sized farms around us. It has been a massive learning curve. The programme pushed the business a long way – for example, we've completely changed our approach to sprays.

Ashley Jones Saltash Monitor Farm



Partly why I wanted to be a monitor farmer was to get more comfortable with public speaking. I recently spoke in front of a climate action group. I wouldn't have done that before

Rory Lay Loppington Monitor Farm



Attendees enjoyed our Monitor Farm, with the farm ideally suited because of its good location and diverse rotation. We've gone a fair way into regenerative farming, with people curious to see the approach in action.

Bill Webb Hale Village Monitor Farm



We've basically changed everything we do on the farm. That's not all because of the Monitor Farm, but it draws people in for in-depth discussions on many topics and provides more confidence to make changes. Farming can be isolating, but I now have a good list of people I can talk to and meet up with now and again.

Michael Parker Vale of Belvoir Monitor Farm



We joined the programme to progress and push the farm. It must have worked, as we've now taken on an extra 600 ha of work. It's massively improved our business, taking us from an average farm to probably a top-25-percenter.

Richard Ling Diss Monitor Farm

FARMEXCELLENCE Find your nearest **Strategic or Monitor Farm**



1 Scotland David Aglen





North David Blacker



Beverley Will Jones



Bingham Joe Fisher



Wolverhampton Jack Houghton



Norwich Michael Balls

New for 2024

A North Yorkshire Joe Dugdale

B Altcar Moss Cameron Edwards

C Lincolnshire Joe Vickers

D Hereford Chris Greenawav

Monitor Farm England, Wales and Northern Ireland



East



















David Miller

E Kingsclere Tim May

Pilton Neil and Michael Christensen

G Camborne Pete Olds

HKent Tom and Debbie Reynolds





(16)

To find your nearest farm meeting, visit: ahdb.org.uk/cereals-oilseeds-ke-events

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