

TRANSITION

Securing a sustainable future for your farm business



CLIMATE OF CHANGE

Strategies to help cope
with extreme weather

How to boost your business resilience



Welcome to *Transition* – the quarterly supplement from *Farmers Weekly* to help secure a sustainable future for your farm business.

In this issue, we have a special focus on climate resilience. With winter floods affecting many producers, we look at strategies that can help reduce the risks posed to farm businesses from increasingly unpredictable weather.

We look at the government’s improved offer for the Sustainable Farming Incentive in England – including case studies from some of our Transition Farmers on options that might be worth considering and those that are less attractive.

Turning to other sources of income, we visit a group of Sussex farmers who have formed the Weald to Waves cluster group to exploit natural capital ventures, such as biodiversity net gain, by working with private investors.

To identify similar income sources that could come in handy for your farm business, we run the rule over the Green Finance Institute’s natural capital toolkit – a Defra-backed online source of impartial advice and funding information.

Staff recruitment and retention continues to be a challenge on many farms. So we look at ways you can ensure you employ the right people and keep them happy at both work and home.

There are also expert tips and practical advice for housed livestock businesses, including reducing pollution risks, cutting emissions and improving carbon footprints.

And to help your business make a successful transition, we’ve compiled a theme-based Knowledge Hub, outlining where you can find information about all the different topics covered in the first 10 issues of *Transition*.

As always, we are grateful to all our Transition Farmers for sharing their stories as they strive to secure a sustainable future for their businesses. And we are equally grateful to our Transition Partners for offering their expertise and advice along the way.

For more about our Transition initiative, visit our Knowledge Hub at fwi.co.uk/transition

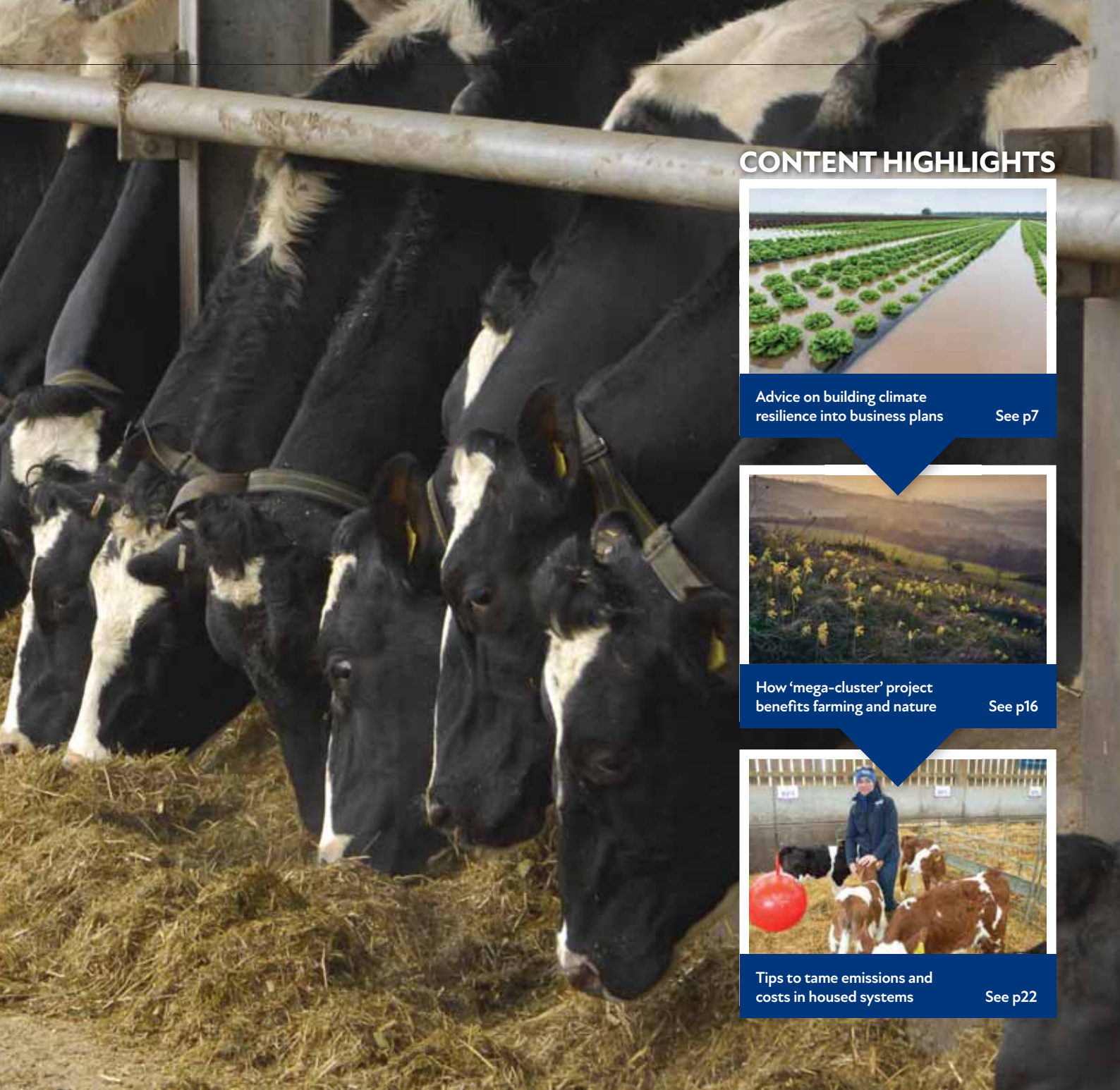
Johann Tasker, *Transition* editor

OUR PARTNERS

The *Farmers Weekly* Transition Partner Network is a UK-wide community of farmers, industry stakeholders and influencers working together to secure a sustainable future for UK agriculture. If you would like to join and want more information, contact Anna Eccleston at anna.eccleston@markallengroup.com



MAIN PHOTO: RICK STRANGE/ALAMY STOCK PHOTO



CONTENT HIGHLIGHTS



Advice on building climate resilience into business plans

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How 'mega-cluster' project benefits farming and nature

See p16



Tips to tame emissions and costs in housed systems

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Feed efficiency drives a sustainable and profitable dairy industry

Continued turbulent weather conditions mean planning for dairy feed requirements throughout the year has never been more challenging. This is precisely why a focus on high feed efficiency is key, not just to your bottom line, but also on farm carbon footprints and sustainability requirements.

"The essential ingredient to a high performance, healthy herd is accurate nutrition, and the ability to achieve the optimum balance is the key to driving feed efficiency," says KW Feeds ruminant technical manager Charlotte Ward.

"Feed selection and profitability go hand in hand – the correct feeding regime makes a significant difference to milk output, milk quality and of course the sustainability of your herd," she adds.

Nutritional and management strategies

Producers should review nutritional and management practices, using data available on farm to drive decision making.

An example is the use of hand held near infra-red spectrometers (HHNIR), enabling KW Feeds' specialists to predict forage nutrient content quickly and accurately.

"Understanding your forage base and supplementing protein/sugar/starch/additives accordingly, means you can focus on optimising forage digestibility and milk from that forage," says Ms Ward.

By looking to alternative product solutions, producers could extend or replace forage, or replace expensive compounds.

"The pre-treatment product **Vista Pre-T** for example, can enable better forage utilisation, resulting in reduced carbon emissions and reduced feed costs," she adds.

Home-grown alternatives and co-products

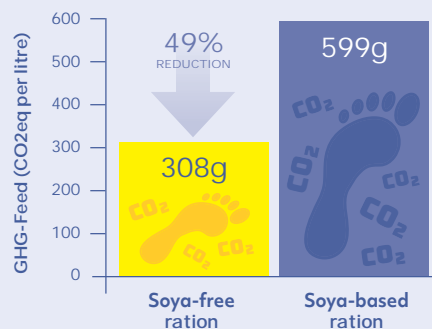
If the driver of the dairy industry is the cost per litre of milk, the challenge is to mitigate the carbon footprint of each litre, while understanding that economic performance and viability is key.

"A stronger focus on sustainably sourced feeds, for example zero deforestation certified soya, also gives rise to potential for both more home-grown alternatives and co-products," says Ms Ward.

"Developments, such as the high-energy rumen-protected protein **NovaPro**, is a good example."

Sample customer ration

Reduction of 291g CO₂e per litre and made more cost effective by removing soya and feeding UK sourced co-products



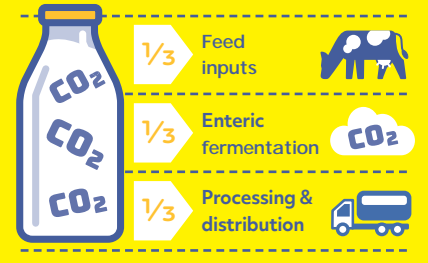
NovaPro is made from UK rapeseed and brings performance benefits, including improving intakes and yields, while removing soya from dairy cow diets. Its carbon footprint is only around 1/7th of the carbon footprint of soya*.

"Fed alongside moist ingredients, such as **C★Traffordgold** or brewers grains, or liquid feeds such as distillery syrups, **NovaPro** also supplies a cost-effective source of rumen degradable protein," adds Ms Ward.

Trials

Trials run by Professor Phil Garnsworthy at the University of Nottingham found rations containing **NovaPro** produced an additional 1.7 litres of milk per cow per day

Carbon footprint of a litre of milk on a supermarket shelf*



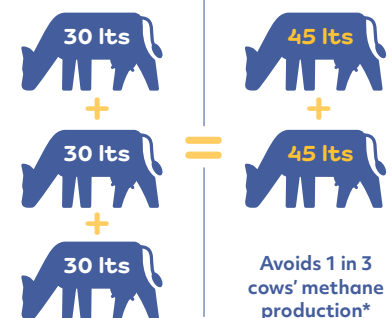
* Approximate calculations

compared to a soya and rape ration, with no significant effect on milk constituents.

"This was coupled with a significant reduction in milk urea, suggesting an improvement in nitrogen efficiency and less direct and indirect emissions from manure," says Ms Ward. Professor Garnsworthy has also published a paper showing UK wheat distillers can achieve a similar reduction in soya. **Vivergo wheat distillers**, sourced from the bio-refinery in Yorkshire, is a palatable, high energy and protein feed, rich in digestible fibre, low in starch and providing a good source of bypass protein. It provides a further sustainable alternative to soya.

The link between efficiency and greenhouse gas (GHG) per litre of milk produced

Maximise efficiencies to boost performance



*Based on the logic that you can produce the same amount of milk from 2 cows as 3 if you boost production efficiencies and therefore lose the maintenance methane emissions from one cow.

More from fewer resources

Our focus at KW feeds is on producing more from fewer resources, safeguarding the natural resources needed for production. Call our teams to find out how we can help you produce the most efficient litre of milk possible.

■ Learn more at kwfeeds.co.uk

NovaPro Vs imported soya

NovaPro's carbon footprint is only around 1/7th of the carbon footprint of soya*

novapro
Made in the UK

520 CO₂e

3559 CO₂e

Soya coming into the UK

* GFLI figure for soya coming into the UK including Land Use Change, NovaPro figure submitted for review into GFLI branded data

Meet our Transition Farmers

These 16 farmers are sharing their journeys with us as they adapt their businesses

Karen Halton

Cheshire



P24

Farm size 240ha

Enterprises

530-cow dairy herd

Transition goals

- Recruit/retain staff
- Maintain animal health and welfare
- Increase direct sales

James MacCartney

Rutland



Farm size 162ha

Enterprises

Beef and sheep

Transition goals

- Reduce disease in sheep
- Be better than net zero
- Establish herbal leys

Vaughan Hodgson

Cumbria



P13

Farm size 244ha

Enterprises

Cereals, grassland, broilers

Transition goals

- Support the next generation
- Replace lost Basic Payment Scheme income
- Adapt to uncertain weather

Alan Steven

Fife



Farm size 138ha

Enterprises

Potatoes, brussels sprouts, parsnips, malting barley

Transition goals

- Reduce cultivations
- Improve soil health
- More resilient rotations

Andrew McFadzean

Ayrshire



Farm size 285ha

Enterprises

350 beef cattle, wheat, beans, barley, fodder beet

Transition goals

- Slash finishing time
- Reduce dependence on inputs using solar energy
- Improve grassland

Rachel & Richard Risdon

Devon



Farm size 151ha

Enterprises

300-cow dairy herd

Transition goals

- Secure adequate labour
- Better understanding of Environmental Land Management
- Reduce carbon footprint

Kit Speakman

Essex



P12

Farm size 275ha

Enterprises

Mixed arable, beef and sheep

Transition goals

- Bridge income gap
- Fully diversified business
- Widen the rotation

Eddie Andrew

Sheffield



P28

Farm size 73ha

Enterprises

Dairy, milk delivery service, ice cream parlour and farm shop

Transition goals

- Co-operating to reduce costs
- Establish a new dairy
- Reduce carbon footprint

Irwel Jones

Carmarthenshire



Farm size 375ha

Enterprises

1,500 ewes on owned and rented land, suckler cows and followers, root crops

Transition goals

- Manage natural woodland
- Plant hedgerows
- Rely less on volatile inputs

Andy Bason

Hampshire



P14

Farm size 800ha

Enterprises

Cereals, spring beans, oats, linseed and oilseed rape

Transition goals

- Cut carbon emissions by 30%
- Establish 10ha of agroforestry
- Establish 10ha of woodland

Duncan Blyth

Norfolk



Farm size 2,650ha

Enterprises

Cereals, oilseed rape, sugar beet, pulses, grassland, woodland, wetlands

Transition goals

- Improve soil health
- Develop natural capital revenues
- Achieve net zero by 2030

Fergal Watson

County Down



Farm size 285ha

across three units

Enterprises

170-cow suckler herd, beans, wheat, spring barley, oats

Transition goals

- Recruit/retain farm staff
- Restructure suckler herd
- Improve business resilience

Philip Vickers

County Durham



Farm size 1,250ha

Enterprises

Winter wheat, oilseed rape, spring barley, spring beans, lupins, rotational grass; share-farming agreement with tenant sheep farmer

Transition goals

- Maintain margins while changing approach
- Improve soil health and resilience
- Enhance natural environment

Kate and Vicky Morgan

East Yorkshire



Farm size 1,700 breeding sows

Enterprises

Weaning 1,000 pigs a week – finished on-site and through B&B arrangements with local farmers, 140ha rented out

Transition goals

- Facilitate structural change in supply chain
- Establish more influence over own destiny
- Diversify

Ed Shuldham

Wiltshire



Farm size 1,800ha

Enterprises

Cereals, oilseed rape, oats, forage and grain maize, peas, solar, biomass, anaerobic digestion, events and property diversifications

Transition goals

- Help shape Sustainable Farming Incentive through participation in pilot
- Make more use of data
- Take natural capital

Matthew Williams

Shropshire



Farm size 1,100ha

Enterprises

Cereals, oilseed rape, winter beans

Transition goals

- Improve profitability and margins
- Continue to improve soil health
- Control and optimise input use

Making best use of new agricultural policy schemes

Changes in agricultural policy are gathering pace. The transition from Basic Payment Scheme to Environmental Land Management in England is now well underway, and new support schemes are set to start in Scotland and Wales in 2025.

Following the recent 'relaunch' of the SFI and with new applications now open, Agrovista Rural Consultancy is seeing a very positive engagement with the new scheme.

SFI offers the opportunity and flexibility to pick and mix actions and to vary areas of rotational options entered each year. This gives much needed scope to enable the scheme to work alongside year-to-year on-farm variances, writes Hamish Wardrop, Agrovista's national rural consultancy manager.

The first live agreements are now coming through and the quarterly payments will provide a valuable cash flow boost to many of our customers.



Hamish Wardrop
National Rural Consultancy Manager

We have now seen the additional actions which will be available later this year. Payments for no-till establishment and actions for precision farming will benefit many of our customers. In addition, new environmental options available through the combined environmental land management offer will allow many farms to provide further targeted environmental benefit alongside their farming operations.

Maintaining profitability

It is our job to help our customers make the most of these payments and ensure the best mix of actions is chosen for their farming system.

This requires very careful consideration. In many cases overall levels of support will be lower than farms had been receiving under BPS, so it is essential that farms implement actions that can increase profitability.

Taking advantage of grants to fund more efficient practice, providing environmental benefits on less productive areas and using actions which benefit soil health are all areas which can contribute to the overall resilience of a farming business.

Pick the right partner

Given what is at stake, we would recommend working with a partner, such as Agrovista Rural Consultancy, that can draw on the necessary technical and business expertise required to fulfil those aims.

Agrovista has an enviable track record in crop production, with more than 60 years of experience in the field. In addition, we have had a Rural Consultancy arm for the past 20 years offering an extensive range of services across all sectors of farming, with a particular emphasis on stewardship schemes, nutrient planning/ compliance and grants.

Technical approach

Our agronomists can, in many cases, draw on years of cropping information, including mapping and yield data, which they can share with their Rural Consultancy colleagues. This gives us and our customers the information we need to decide together which options are most suitable and how we can incorporate these as seamlessly as possible into the farming business.

Agrovista is in the main a technical company, focused on growing crops as successfully and profitably as possible. We maintain this technical approach in choosing SFI actions that deliver an environmental benefit whilst complementing the productivity of the farm.

Maximising SFI benefits

In order to extract the maximum benefit from SFI we believe that it is essential to **fully embrace all of the actions** rather than treating them as box-ticking exercises to attract a payment.

For example, providing multi species winter cover crops attracts a payment of £129/ha and, whilst most farms can implement this action for less than the payment rate, the real benefit comes from unlocking the soil health benefits which cover crops can provide if done correctly.

Another key example of this would be producing an Integrated Pest Management Plan (IPM1). **This action attracts an annual payment of £1,129 per annum.** Whilst the payment itself is attractive we encourage growers to use this opportunity to revisit modern IPM practices.

We look to apply IPM to all areas of production from the soil up, as growing healthy competitive crops is an essential part of process. With fertiliser use, our research programme has identified products and practices which can greatly reduce reliance on bagged fertiliser whilst maintaining yield and improving soil health. **Practices such as these not only provide considerable cost savings, but also have a positive environmental impact.**

Thanks to our comprehensive and well-established resources, we are well placed to do this. For example, Lamport AgX, Agrovista's flagship trials site in Northamptonshire, has been carrying out and evaluating trials work for the past 13 years, including soil health, cultural weed control and alternative/reduced inputs, all of which are now key areas within agricultural policy.

This transition period presents both challenges and opportunity, and with the right advice, we believe farms can harness this new era, seeding improvements that can help boost a farm's productivity and resilience.



Advice on building climate resilience into business plans

A difficult, wet autumn, and early winter has highlighted the vulnerability of the agricultural sector to changing weather patterns. **Louise Impey** finds out more

Urgent action is needed to build greater climate resilience into farming systems so productivity isn't compromised, and farms remain viable, experts stress.

According to the UK Climate Change Committee, climate change poses a direct risk to crops, livestock and trees, through increased expo-

sure to heat stress, drought risk, waterlogging, flooding and fire, as well as pests, diseases and invasive, non-native species.

While that verdict was given back in June 2021, following a report entitled *Independent Assessment of UK Climate Risk*, there have been subsequent updates with the same tone. More recently, the committee has warned that the rate of adaptation progress is too slow.

Extreme weather events are already challenging the way that farms are run, highlights Adas. The four named storms – Agnes, Babet, Ciaran and Debi – that hit the UK in autumn 2023 brought exceptionally wet and stormy weather, with flooding and wind damage affecting all four nations.

Current situation

There's no denying that agriculture sits at the cutting edge of climate change, says Dr Andrew Cottrell, senior applied climate scientist at the

Met Office, who has been looking at what farmers can expect in the coming years, and what that will mean for their businesses. "The headline findings are that there will be hotter summers and warmer winters," he reveals, with temperatures typically being 1C warmer than >

RAINFALL IN AUTUMN 2023

The wet autumn saw parts of the country receive more than 150% of its long-term average rainfall, although overall, the UK recorded a seasonal rainfall total of 409.8mm – 122% of the 1991-2020 average.

According to the Met Office, the mild and wet autumn is consistent with the ongoing pattern emerging as our climate continues to change.

CHANGING CLIMATE RISKS

- Species and habitats – risk from pests, pathogens and invasive species
- Soils – risk of seasonal aridity and wetness
- Natural carbon stores – risk to carbon sequestration and risk of greenhouse gas emissions
- Productivity – fall in agricultural output
- Aquifers and land – risk of sea level rise and salt water intrusion
- Landscape character – risk from extreme weather events



QUICK WINS TO ADAPT TO FLOODING AND WET CONDITIONS

All farms

- Improve water run-off, containment and drainage
- Develop a flood contingency plan
- Review power supply

Livestock

- Consider vaccination against new and prevalent diseases
- Develop a control plan with your vet to avoid key issues, such as lameness
- Plan grazing to ensure spare fields are available in wet periods
- Improve feed bin cleanliness and design to reduce deterioration
- Install free-draining material around housing

Crops

- Increase use of compost, green manures and mulches
- Increase soil organic matter

maturity and new crops.” Andrew stresses that what really matters to farm businesses is the weather in a particular year. “You will always get variability. But we are predicting an increased likelihood of extremes – what are now quite rare events will become more common.”

On-farm actions

Charles Ffoulkes, director for climate adaptation and resilience at Adas, has been assessing the adaptation actions that farms can take. Working with the Met Office, Adas has been examining the resilience measures that cover the climate hazards of heat, drought and wildfires, flooding and wet conditions, and changing seasonality.

For each of these, a range of adaptation measures were identified before being rated for their impact on reducing the climate risk, ease of implementation and upfront cost. From there, they were able to identify the “quick wins” – things that farmers can put in place to alleviate the worst of the conditions, and help them to farm in the most appropriate way, without having to make huge investments.

In Scotland, Farming for a Better Climate has issued advice on reducing the impact of heavy rainfall events following the very wet winter weather. It has highlighted six main areas for farmers to concentrate on. However, with no one-size-fits-all approach, it stresses that these are a range of actions that might improve resilience at the farm level.

- **Protect soil surface** – keep the soil surface covered by residues or by sowing a cover crop, to reduce erosion, aid infiltration and prevent nutrient loss.
- **Limit soil compaction** – compacted soils impede drainage and keep water locked up in the upper profile, increasing flooding risk and reducing the soil’s ability to hold water. Correcting compaction also helps with yield performance.
- **Reduce run-off** – use buffer strips around

watercourses to slow the flow of water and trap sediment particles. Strategically placed traps and bunds will also reduce run-off and soil loss.

- **Maintain field drains** – drains can silt up and block, preventing water from getting away. Drain outfalls should have a reasonable clearance between the outfall and normal water level. Cleaning, clearing and repairing outfalls may be required.

OTHER RECOMMENDED ACTIONS

The UK Climate Change Committee continues to assess the risks to agriculture, and has produced four reports in the past year. Senior analyst Brendan Freeman admits that multiple risks have been identified when two climate scenarios were tested, with all being related to average temperatures, shifts in rainfall patterns and seasonality.

“Not surprisingly, the frequency and duration of flooding events is one of those,” he says. “In particular, high-grade land is very vulnerable to flooding, so there’s a productivity concern.”

The impacts will vary regionally, he continues. “In the South, there will be more issues around soil moisture deficits than in the North, for example.” In addition, weather events that currently occur one in every five years will be taking place every other year by 2050, he says.

“We know that adaptation is already taking place on farms, but it’s poorly recorded,” reports Brendan. “So there’s a lack of data to use to show what’s being done and how well they are working.” Despite that, he maintains that building a more resilient agricultural sector is possible and relies on the following measures being implemented.

< they are now. That has implications for livestock and crop heat stress, as well as factors such as growing season length, post-harvest storage regimes, and changing pests and diseases.

The other main findings were wetter winters and drier summers, along with an increase in rainfall intensity. Andrew adds that this will bring problems associated with flooding and water-logging, as well as limited access to land. “The future increase in rainfall intensity is a threat to soil erosion, nutrient leaching, crop lodging and soil run-off, as well as to productivity.

“Of course, risks are not the whole story with climate change,” he continues. “There will be opportunities, too – from longer grazing periods and extended production seasons, to earlier

QUICK WINS TO ADAPT TO HEAT STRESS AND DROUGHT

All farms

- Improve on-farm water management
- Ensure tractor cabs are air-conditioned
- Put fire breaks between fields, hedges and woodland

Livestock

- Increase diversity of forage mix
- Use deeper rooting forage species
- Transport animals at night

Crops

- Establish crops early
- Choose slow-developing varieties
- If needed, irrigate at night
- Use irrigation to aid harvesting on dry ground
- Avoid harvesting in the hottest parts of the day

- **Clear ditches** – check water can flow, and clear sections of the ditch on a regular basis.

- **New drains** – given the likelihood of more intense winter rain, consider adding new field drains. A full drainage plan can be drawn up, with a view of completing it in sections.

The organisation has also issued advice to farmers about feeding flood-damaged forage stocks, with an emphasis on avoiding any >

- Greater implementation of water use efficiency measures to limit drought risk. Some of them will be more expensive, such as reservoirs, while others are cheaper and take less work to install, such as rainwater harvesting

- Keeping soils protected and in good condition to maintain sustainable production, get water to infiltrate and reduce soil erosion and run-off

- Selecting crops and livestock, and relevant protection measures, to reflect temperature extremes

- Making use of agroforestry and hedges to provide shade and soil erosion benefits

- Putting flood mitigation and contingency planning in place

- Improving preparations for pest and pathogen management.

Measuring climate resilience at a national level is done by looking at data on things such as livestock mortality rates and the abundance of pollinator species, as well as the uptake of sustainable farming measures and soil health measurements.

However, two other factors are required to deliver the necessary resilience, he believes. “One is funding and investment, while the other is people with the necessary skills.”

CASE STUDY: VEGETABLE PRODUCTION

For Guy Singh-Watson of organic vegetable producer Riverford, the climate problems encountered in the business are about the extremes, not the averages.

At the company’s base in Devon, the greatest difficulties come from intense rainfall in late summer and early autumn, which leads to soil loss or damage, and makes harvesting very difficult. “We are focusing on reducing soil loss and we have changed what we are doing,” he says. “It’s becoming increasingly obvious that what was acceptable practice 10 or 20 years ago is not right any longer. “We now accept that we can’t cultivate our steeper south-facing slopes, for example, as the risks are too high.”

Heavy rain events in late summer and early autumn also affect their green manuring practices and make establishing new leys more difficult. “We now use swales across our fields, cultivate less than we used to, grow more perennial crops, have introduced agroforestry, add organic matter to the soil to improve percolation rates and do shallower cultivations where possible.

“We are also building reservoirs. As an industry, it’s clear that we have underestimated the urgency and gravity of climate change – things are changing

faster than we would like.” He is producing crops that cost about £3,000/acre to get to harvest, and the same amount again to actually harvest them. “So losing a crop is disastrous. If that starts to happen every three years in 10, as some are predicting, I will be out of business.”

Temperature changes have increased risk at the start and end of the vegetable growing season, leading to shortages and gluts, he adds. “You would think that longer, milder autumns would be good for the industry, but it means the predictability of harvest is changing.”

The same applies to grazing livestock, says Guy, as keeping them out in a longer-than-expected season without poaching swards becomes more challenging. As the extremes become more frequent, small changes are more disruptive, especially as you get closer to the equator, he notes. “In winter, we bring vegetables up from Spain and Italy, parts of which have been affected by a prolonged drought. As a result, brassica production is moving away from the south of Spain and going further north. Likewise, olive oil producers have only had one-third of their usual crop this year. What we are seeing in this country is mild in comparison.”



CASE STUDY: BEEF AND ARABLE



Northamptonshire mixed farmer Mark Jelley has already made changes to his farming practices and machinery capacity because of the unpredictable weather and changing climate.

After oilseed rape failed for three years in a row – thanks to very dry conditions in September – he has now abandoned the crop. “Planting it in August and then having a very dry spell afterwards into September meant it just couldn’t get established,” he says.

He has also had to be far more vigilant at harvest to limit crop damage and loss of quality from diseases such as ergot. Machinery policy also reflects that he now covers the field work in a shorter period of time.

“Crop quality is less predictable now. So we are growing more cereals for livestock feed, rather than human consumption, to remove some of that risk.” Field work windows are shorter than they used to be, especially in the autumn, he adds. “We have to make the most of the opportunities that we get, so our machinery capacity reflects that.”

An earlier calving period for his beef cattle is the result of more early spring grass growth

and milder winters, which also helps to avoid the risk of drought later in the year. “Now that we can produce more grass in the spring than we need at the time, we have moved to deferred grazing. Leaving some of that grass as a standing hay crop allows us to graze it later in the year, when there can be a shortage.”

Grazing grass margins on arable land is another technique that he has adopted to ensure there’s enough grass for the season. “A robust vaccination programme is used when the cattle are housed, due to increased pressure from pneumonia caused by warmer, more humid conditions. It’s prevention rather than cure, and it helps to keep our antibiotics use right down.”

More exotic disease risks, such as bluetongue, are also on his watchlist as the climate changes. “There’s no doubt that we will be managing extremes on a more regular basis and certain things are getting harder to do, but we are adapting.” Business planning is becoming more important, he adds, but a lack of data specific to the farm’s location and enterprise type, as well as time pressures, makes that difficult to do.

< bacterial contamination.

Any forage that has been flooded by slurry or sewage waste has a high risk of contamination. *Listeria*, *clostridia*, *bacilli* and *enterobacteria* are all threats responsible for poor intakes and

growth rates, abortions and deaths. Farmers are advised to consider forage texture where there’s been soil and silt contamination, as well as changes in smell and pH – both can indicate secondary fermentation and bacterial growth. ■

WILL ENVIRONMENTAL LAND MANAGEMENT HELP?

Climate adaptation is being built into Environmental Land Management (ELM), says Charles Ffoulkes of Adas, so that there is government support for farmers to take action.

The three different levels – Sustainable Farming Incentive (SFI), Countryside Stewardship (CS) and Landscape Recovery (LR) – will all have options that help farms remain resilient in a changing climate. Existing SFI actions such as integrated pest management and soil health actions are

good examples, while CS and LR offer more scope, and bring in measures such as tree planting and natural flood management.

“Behind this is the National Adaptation Programme, which commits Defra to producing a plan every five years, showing how it plans to adapt to the impacts of climate change,” says Charles.

“The latest plan runs from 2023 until 2028 and covers five core areas – the natural environment is one of them. That’s why there’s a link with ELM.”

HOW HEAVY RAINFALL HAS AFFECTED OUR TRANSITION FARMERS

Relentless autumn rain has waterlogged crops, damaged herbicide applications and caused issues with slugs. Areas most affected include parts of eastern Scotland, north-east and eastern England, southern England and the east of Northern Ireland.

For Vaughan Hodgson, who farms in Kirkbride, Wigton, Cumbria, heavy rainfall is not an unusual event, as the farm averages 1,250mm. This year, the 244ha arable and broiler business has escaped the worst of the autumn storms, and Vaughan has managed to drill 95% of the planned winter cereal area. “About 75% of that looks reasonable,” he reports. “So there is potential for some of it.”

The farm sits on heavy red clay, silty sand and black peat. The combination of some flooding and patchy headlands through the winter means that there will be bare areas in the spring, Vaughan accepts, which he will need to plan for.

The early autumn for Andy Bason, farm manager at Newhouse Farm, Northington Down, Alresford, Hampshire, was unusually wet. Parts of the region received almost 200% of the October monthly rainfall. November was better rainfall-wise, but still above average.

Speaking immediately before Christmas, Andy described conditions on the 800ha, mainly arable unit as “very soggy”. He reported that his forward planning was having to be very fluid, especially on the heaviest land. Winter beans largely remained unplanted, although an area was drilled in the frost in November.

“We’re waiting to see how they fare,” he says. With seed remaining in the shed, he is reluctant to order more. “After all the terrible weather we’ve had, getting hold of spring seed isn’t easy anyway.” As there’s nothing he can do about the situation, he is waiting to see how long the wet weather continues.

● Follow Vaughan Hodgson, Andy Bason and the other Transition Farmers as they adapt their business for the new environmental schemes. Find out more on p5.



PHOTOGRAPHY: TIM SCRIVENER, GNP; JAMES WALKER, RICHARD STANTON, ANGUS FINDLAY, JOHN EYSON/ALAMY STOCK PHOTO, LEE HUDSON/ALAMY STOCK PHOTO, ANNE COATSEY/ADOBE STOCK

Supporting the next generation of agronomists

In 2023, agriculture students from leading universities and colleges took part in a competition designed to provide a unique insight into the role of the modern agronomist.

The initiative was organised by Hutchinsons, and attracted around 120 students from Writtle University College, The Royal Agricultural University (RAU), Harper Adams University (HAU), Nottingham University, Riseholme College and Bishop Burton College.

Students had the opportunity to visit one of three Hutchinsons Helix demonstration farms in Oxfordshire, Yorkshire and Shropshire, where they were given practical demonstrations of the roles, responsibilities and technology available to agronomists in the field. Attendees then had to answer questions about what they had learnt, from which three winners were chosen, each taking home £100 prize money.

“Since Hutchinsons was formed 85 years ago, the role of the agronomist has changed markedly, and particularly so in the last 10 years, so we wanted to give students a taste of what the job entails, and the technologies available to help us make better decisions for growers,” the firm’s technical director, Stuart Hill said.

“The agronomist’s role now goes far beyond advising on crop protection, covering anything from strategic business planning and costings, integrated crop management and agroecology, soils, nutrition, traits and digital technology.”

Integrated solutions

This holistic approach to crop management was clearly demonstrated by agronomist Amie Hunter, who explained how crop protection was just one of the four pillars of integrated crop management, the other three being; agronomic strategy, risk assessment, and cultural methods.

ICM covered everything from rotation, variety choice, and cultivation policy, to cover cropping, nutrition and crop

protection strategies. All were interlinked and required a clear understanding of the processes involved in order to make effective decisions, she noted.

“ICM isn’t new, but it can be quite hard to manage given that there are so many different factors to consider. This is where technology such as Omnia is really helping growers and us as agronomists, by bringing everything together in one accessible platform.”

“The industry has developed a huge ability to measure data in the past few years, so the challenge now is how we use this effectively to make more informed decisions.”

Winning student

Bogdan Diedov, BSc Agronomy, RAU

Third year agronomy student Bogdan Diedov, has a passion for sustainable agriculture, and recognises the need for innovative solutions to feed a growing world population.

“I attended the Hutchinsons event hoping to gain an insight into the latest research in agronomy, network with industry professionals, and learn about potential career opportunities.

“The event exceeded my expectations, providing valuable information and possible connections to help me in my future career. Key findings included learning about Omnia Digital Farming, and methods to improve soil health.”

Encouraging new entrants

The Hutchinsons Foundation is a three-year training programme focussed primarily on giving new entrants a route into agronomy, although it also supports those wanting to pursue a career within the company’s other specialist services and technical roles.



Bogdan Diedov
Competition winner

There are two main routes into the Foundation; either directly from University, or those who have worked on a farm in different roles and are looking to re-train or specialise.

The programme allows individuals to gain their professional qualifications, and all the technical and “softer” skills training needed to become a successful agronomist. It is a fully employed role, with a good percentage of time out with colleagues, shadowing, and learning from them.

Hutchinsons also offers a year-long student placement programme.

To find out more about the career opportunities across Hutchinsons, go to www.hutchinsons.co.uk/about-us/careers



Scan for more information on our career opportunities

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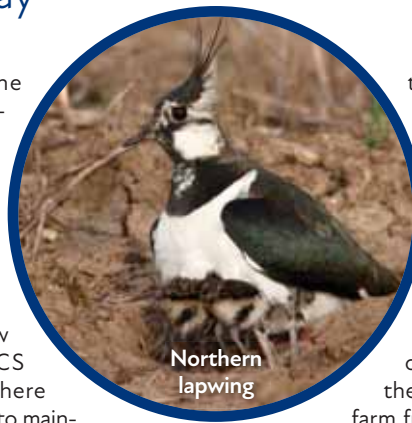
Latest SFI offer: Greater ambition and premium payments

The rollout of the Sustainable Farming Incentive continues, with a raft of up to 50 new actions for 2024 announced by Defra at the beginning of the month. **Louise Impey** finds out what is on the way

The greater flexibility on offer, and the opportunity to combine it with other existing agri-environment schemes, are both benefits of what we know about the Sustainable Farming Incentive (SFI) so far. While a more complete SFI picture has become clearer, the actions unveiled in 2023 were to a large extent already available in Countryside Stewardship (CS), but given an SFI identity, and a few new options.

This year, the pace of change has escalated and a significant upgrade has finally been delivered. Among the 50 or so new or repackaged

items announced at the Oxford Farming Conference in early January by Defra secretary Steve Barclay are 21 high-priority actions that will attract premium payments. While more detail is needed before the industry will know what combined SFI/CS agreements look like, there has been emphasis given to main-



Northern lapwing

taining and restoring habitats, as well as creating them.

Wider offer

There are also numerous other actions covering all types of farms and landscapes, in a much wider offer that the government hopes will appeal to everyone and address some of the concerns about vanishing farm funds. A 10% increase in the

TRANSITION FARMER: KIT SPEAKMAN

As the farm is already heavily involved in an existing Countryside Stewardship (CS) scheme, Essex grower Kit Speakman has limited scope to benefit from the Sustainable Farming Incentive (SFI) if he doesn't want to take land out of production.

He has, however, identified some obvious actions – such as soil sampling, nutrient management planning and IPM plans – that are easy wins



and will work alongside his current arrangements.

“We are applying for it but it seems there are issues with the application process when trying to do CS and SFI actions on any given land parcel that the Rural Payments Agency has yet to resolve.”

As funding is needed more than ever, he is taking a flexible approach to agri-environment schemes and capital grant funding to

maximise farm income. He is also on board with the environmental benefits that schemes aim to provide. “Unfortunately, the payment rates for both SFI and CS aren't exciting and incomes will fall far short of those when we had BPS,” he says.

Kit runs a highly diversified business and recognises that his is fortunate to be located in an area that allows that. “It really helps to supplement our income and de-risks the business against fluctuating commodity markets and rising input prices. But not everyone is able to do that and I feel for farms in isolated areas.”

TRANSITION FARMER: VAUGHAN HODGSON

Transition Farmer Vaughan Hodgson is frustrated and disappointed by the way the Sustainable Farming Incentive (SFI) has been delivered to date and believes a great opportunity has been missed. While he accepts there are some management actions that will appeal to farmers, he also thinks it has been done on the cheap and payment rates are too low.

"I'm not impressed by the scheme," he says. "It lacks imagination. When you consider how much we're losing in terms of BPS, it's hard to work out where all the money has gone. To my mind, Defra is penny pinching. Many of the actions cost money to implement and result in revenue foregone, while the various associated grant schemes that keep being launched need applicants to invest big sums."

Looking at the SFI hedgerow actions, for example, Vaughan points out that £3/100m to assess and record the condition of hedges would cost him money to carry out. He is also doubtful about the long-term benefit that the SFI will offer to



the environment, which is a priority the farming industry has been tasked with. "It's a sticking plaster approach. If the government really wants us to deliver for nature, it will need to look again at what it is going to pay. A 10% average uplift helps, but not hugely."

He has an existing Mid-Tier Countryside Stewardship scheme on the farm that works well and has started an SFI application, only to discover that it would contribute just 8% of his previous BPS cheque.

"One of the issues for us is that we would have to take land out of production to get any more. That just increases our fixed costs on the rest of the farm, at a time when all our costs have increased considerably. It will affect our margins, which are under enough pressure. The combination of lost income, higher costs and unattractive payment rates the SFI entails are a big concern for this business."

Vaughan accepts there are SFI options that are less risky and he is trying to keep an open mind. "But I have to be realistic about what it offers to our farm," he says.

WHAT'S NEW FOR 2024?

Increased payment rates, up to 50 new actions, and greater reward for high-ambition actions were among the developments announced for SFI 2024 in early January.

Farmers will also be able to apply for SFI and CS Mid-Tier through a single application, Defra says.

The new actions can be carried out on either arable land, temporary grassland, improved and low-input permanent grassland or land used for horticultural or non-horticultural permanent crops.

They cover species recovery and management, moorland, lowland peat, trees and woodland including agroforestry, boundaries, water bodies, access and heritage. New actions for arable soils include a no-till action, which pays £73/ha, and multispecies cover crops grown in spring or summer, which will attract £153-£163/ha.

Precision farming payments – also new – include the variable-rate application of nutrients, at £27/ha, camera or remote-guided herbicide spraying at £43/ha, and robotic weeding at £101-£150/ha.

On grassland, there's a new five-year action to manage species-rich floodplain meadows, at £1070/ha, and a supplement worth £1.17/sq m for managing scrapes and gutters.

For wildlife management, there are new actions for mink control and edible dormouse management, as well as a supplement for rhododendron control.

Moorlands, which previously had just one SFI action, now have low density grazing (£53-£66/ha) and flood/drought resilience actions (£938/ha). Wildfire management is also included.

Elsewhere, growers on lowland peat will be able to apply for a new action to raise water levels to between 31cm and 50cm below the field surface on cropped land for 10 years, worth £892/ha, with payments also for raising water levels in grassland peat soils.

Several 10-year actions have been unveiled for woodland, while new agroforestry actions worth £248-£385/ha support the maintenance of schemes.

Boundaries and access options are also in the latest offer, covering drystone walls, earthbanks and stone-faced hedge banks, as well as footpaths, rights of way and reduced mobility access.

average value of agreements in both SFI and CS was also unveiled, with the payment uplift being automatically applied to existing CS and SFI agreements.

None of the new actions (see p14) will be open to applicants before summer, but the ability to have two SFI schemes running or to add to an existing agreement on its anniversary means farmers are being encouraged to get on with applications. Most should consider how they can combine it with existing arrangements to secure additional income.



Boundaries and trees are covered among a raft of new actions

Combined approach

"There were synergies before and now we are looking at a combined SFI and CS offer for 2024 and beyond," says Strutt & Parker's head of farming, Jonty Armitage. "If you focus on what additionality you can bring, it is possible to have an existing CS agreement and run SFI alongside it. Just remember that you can't get paid for the same thing twice."

Individual farm circumstances will dictate what can be put in place and when that should

happen, he adds, but there is a feeling that – up until this year – there has been more on offer to arable farmers than livestock producers. The new, wider offer for 2024 should address some of that perceived inequality and make the SFI relevant for all.

The grassland actions are being seen as much more enticing, with the species-rich grassland payment rising from £182/ha to £646/ha, for example. Likewise, the action known as IGL2, winter bird food on improved grassland, which was new in the 2023 offer, is now worth £515/ha. >



In-field agroforestry will qualify for a range of payments

TRANSITION FARMER: ANDY BASON



Having started a new and much bigger Mid-Tier Countryside Stewardship scheme last year, before the SFI was launched, Transition Farmer and Hampshire farm manager Andy Bason is now considering how the SFI could work alongside it.

Depending on how bold he is prepared to be, it could potentially add another £30,000 to the farm's income, he calculates. "That's without having to change the way that we are farming," he says. "So actions such as the use of companion crops and no use of insecticide, as well as preparing IPM and nutrient management plans, are obvious ones for us."

The cover crops at Newhouse Farm are already funded by Southern Water, so remain outside the scheme for now. Andy is also wary of the hedgerow actions, as he needs flexibility to manage hedges every third year, when spring crops are in the ground.

He likes the look of the new action AHL3, grassy field corners and blocks, which pays £590/ha. "We have got some field corners and old margins which aren't attracting any funding at the moment, so they would be suitable."

An agroforestry SFI action is also welcome news, he adds. "As an early adopter, we've been on our own with that and deer pressure has really taken its toll on our trees. So support in the form of an SFI payment and a capital grant is good."

Only one piece of land – a very wet headland – would be put out of production. "Putting that into the SFI changes the way that we're paid for things, rather than limiting our production."

< Easy wins

For all farms, there are easy wins, such as assessing nutrient management and producing a plan, or assessing soil, testing for soil organic matter, and producing a soil management plan. "You can add new actions into an agreement, but you can't take things away," says Jonty. "So if you feel you have enough information to make the decision to get started with the SFI, crack on."

Others will need more detail before committing – the opportunity to have a "better" scheme by waiting until the summer, when the

new offer opens, will make some wait until they have all the detail. Actions such as no use of insecticides (IPM4 – £45/ha) and companion planting (IPM3 – £55/ha) have already been well received by cereal growers. The new no-till action, worth £72/ha, is expected to be popular, as is the summer cover crop action. ■

● **Follow Kit Speakman, Vaughan Hodgson, Andy Bason and our other Transition Farmers as they adapt their business for the new environmental schemes. Find out more on p5**

HIGH PRIORITY ACTIONS

Higher payment rates will be introduced for 21 high-priority actions as follows:

- Nesting plots for lapwing **£765/ha**
- Creating lowland heath **£711/ha**
- Lowland peat – raising water levels (arable) **£1,409/ha**
- Lowland peat – (grassland) **£1,381/ha**
- In-field agroforestry – maintain very low density on less sensitive land **£248/ha**
- In-field agroforestry – maintain very low density on more sensitive land **£248/ha**
- In-field agroforestry – maintain low density on less sensitive land **£385/ha**
- In-field agroforestry – maintain low density on more sensitive land **£385/ha**
- In-field agroforestry – maintenance of medium density **£595/ha**
- In-field agroforestry – maintenance of high density **£849/ha**
- Managing species-rich floodplain meadows **£1,070/ha**
- Low grazing of moorland **£53/ha**
- Limited grazing of moorland **£66/ha**
- 6-24m 3D buffer strips by water body **£1,182/ha**
- Enhanced floodplain storage (supplement) **£366/ha**
- Managing arable land for flood/drought resilience and water quality **£1,241/ha**
- Managing grassland for flood/drought resilience and water quality **£938/ha**
- Connecting river and floodplain habitats **£1,242/ha**
- Managing riparian and water edge habitat **£1,186/ha**
- Making room for river to move **£1,489/ha**
- Creating scrub and open habitat mosaics **£588/ha**

Growing resilience starts with the seed

Stimulating plants to thrive from day 1 is crucial for addressing the challenges posed by climate change, ensuring food security and promoting sustainable agriculture.

Optimising plant health from day one – by boosting seeds rather than treating plants – is key to building resilience in crops and agricultural systems.

In the last 5 years UK farmers have experienced more frequent and severe weather events, such as droughts, heatwaves, floods and storms, challenging plant health at key points in the growing cycle. Variability in weather patterns has become more common, making it difficult to predict optimal planting times and manage crops effectively. And whilst pests and diseases remain a challenge, the growing preference to reduce synthetic inputs is causing a mindset shift as farmers seek to adapt and grow more sustainably. All this puts added pressure on your yields and profitability.

While they may not directly impact climate resilience, biostimulants applied to the seed are becoming increasingly valuable components of a broader strategy for building stronger, healthier more resilient plants better able to cope through the entire growing cycle. Seed treatment biostimulants are products applied to seeds to enhance their growth, development and overall resilience. These treatments often utilise naturally derived ingredients, such as plant extracts, microbial products, and beneficial substances, reducing the reliance on synthetic chemicals. Their effectiveness can vary depending on factors such as crop type, environmental conditions and the specific biostimulant. One of the recent offerings to the market - demonstrating proven benefits in the field - is Interagro's biostimulant seed treatment Newton, comprised of unique plant-sourced signalling peptides that stimulate plants to thrive.



How Newton can build resilience in your crops

Faster germination & emergence

Newton signals germination, leading to faster emergence. Chemical seed dressings have the potential to delay crop emergence by several days, whereas trials and farmer feedback have shown Newton treated seed can emerge 2 days faster than naked seed, and 4-5 days faster over SPD.

Enhanced root development

Stimulating exceptional root growth – better than many other biostimulant seed treatments on the market – Newton helps plants access water and nutrients more effectively. Building an expansive root system from day one is crucial for withstanding drought and other environmental stresses later in the life of the crop.

Improved plant vigour

Stimulating more shoot mass compared to naked seed, Newton increases crop vigour, giving plants a competitive edge in suboptimal weather conditions. Some trials have shown tillering increases of 10%.

Stress tolerance

Newton contains crucial peptides that help plants tolerate and adapt to environmental stresses, such as drought and extreme temperature.

Microbial interactions

By improving the structure and size of roots for microbes to inhabit and feed, Newton fosters beneficial microbial interactions in the rhizosphere, crucial to plant health.

Increased yield stability

Promoting healthier and more robust plant growth under challenging conditions, crops treated with Newton exhibit more reliable yields with increases of up to +5% in winter crops and +10% in spring crops compared to naked seed.



SCAN ME

Secure sustainability with Newton

- ✓ Stronger establishment from day 1
- ✓ Proactive approaching to managing stress
- ✓ Supports plant : microbial symbiosis
- ✓ Reduces reliance on chemical inputs
- ✓ Up to 10% yield increase seen in spring crops over naked seed

How to incorporate Newton into your crop management plan?

Newton is recommended in winter and spring cereals, peas and beans and can be applied to your home saved seed by a mobile seed treater or request Newton seed treatment when ordering your new seed. It can be applied to naked seed or can be easily co-applied with your standard seed dressing. Don't forget to leave an untreated area of the field so you can see (by digging plants) what difference Newton makes to your crops.

To find out more

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How ‘mega-cluster’ project benefits farming and nature

A project linking farmers and private investors across a 12,500ha area of Sussex is aiming to support nature recovery and food production on a landscape scale. **Jonathan Riley** reports

The Weald to Waves (W2W) project links up farmland from the depths of the Sussex Weald to the south coast along 100 miles of three rivers – the Arun, Adur and Ouse. The original spark for the venture came when Isabella Tree, owner of the rewilded Knepp Estate, announced a vision to create a wildlife corridor to the coast.

Arable grower James Baird contacted Isabella after he heard of the plans and its outlined route along the Adur to Shoreham Harbour. James suggested Isabella’s route would be better if it followed a path through his farm, which sits on the last undeveloped stretch of West Sussex coast where the Arun flows into the sea.

James shared the views of Isabella and husband Charlie Burrell on nature recovery, having already realised that wildlife losses, soil degradation, water and air quality had left farming in an unsustainable state. From there, W2W was born. However, James, who is a dedicated commercial arable grower, stresses that, unlike Knepp’s approach, W2W is not a rewilding project. Instead, he says it is a drive to produce food from profitable, sustainable farming with nature at the forefront.

W2W goals

1. To create a nationally significant wildlife corridor, 100 miles long, that extends to more than 20,000ha of contiguous natural habitat
2. To promote nature as a provider of vital ecosystem services, backed by sustainable farming and a reduction in pollutants that compromise landscapes and water quality
3. To engage people and communities by creating new opportunities to understand, enjoy and protect nature.

W2W has quickly gained traction with other like-minded farmers, and estate owners who have come to the same conclusion about prioritising nature, and routes down the Adur and Ouse were also included. About 12,500ha has already been committed under a pledge to farm in a more sustainable way. A further 1,000ha has been identified and written into potential consortiums as part of new rounds of fund-seeking.

These emerging communities represent hard-won networks of land managers willing and able to work together to restore landscape at scale. “Collectively, we are looking beyond the end of the Basic Payment Scheme [BPS] and at what natural assets we have that can be used to produce food more sustainably,” says James. “Instead of depending on

government support, our aim is to take control of our farming future by identifying our natural capital assets and securing independent funding streams via cross-sector partnerships. What we are creating is a highly investable, natural capital venture by forming a mega-cluster of clusters.”

The clusters include all scales and types of farming – from large estates to smallholdings. The venture is also open to local communities, which can pledge land or gardens to help meet the project’s goals. This has joined up valuable wildlife habitats and engaged the communities in a positive, productive farming system.

W2W ventures

Government-backed ventures

One Landscape Recovery project, the Adur River Recovery, includes 27 farmers along the Adur corridor – although James explains not all the farmers involved are part of the W2W project. New regional ventures include a consortium of 42 land managers across the High Weald, led by the Ashdown Forest cluster, and 17 farmers have joined forces along the Arun valley.

A fourth collaboration along the Ouse, just below Lewes, is connecting the river with the threatened chalk grasslands along the South Downs. Strong farmer-led groups, such as the Upper Adur and Arun-to-Adur Farmer Clusters, lead on landscape health with self-funded research into soil health, invasive species management and water quality.



James Baird

Private ventures

But not all the W2W ventures are through government-led schemes. James says when farmers and growers look to income from nature, they tend to think of government initiatives such as the Sustainable Farming Incentive (SFI) scheme. What they don't think about are the broader possibilities of working across the entire landscape network – farming and non-farming.

Bespoke agreements with private bidders can be forged instead. These are potentially higher value than government-backed schemes and more likely to cover lost BPS revenue. Private deals also provide a chance to take back control from mandatory constraints and avoid the political whims of one government or the next, James points out.

To help facilitate private agreements, W2W has formed links with Network Rail, Gatwick Airport, local councils, The Highways Authority and Southern Water. These bodies, and others like them, have turned to farmers because they realise that they cannot reverse the damaging impact on seas and wildlife without them.

One of the partners and potential investors, Southern Water, has explained to W2W members how heavy rain overloads its infrastructure, increasing pollution risks. However, farmland

can be used to hold back and control the water upstream. Millions of litres of water can be recycled, preventing pollution from ever reaching watercourses and the sea. Pollution from soil run-off, phosphates and nitrates can also be reduced with biofilters or changes in fertiliser applications agreed with farmers.

All of this can attract targeted funding from the private company, which improves sustainable practices on-farm, provides a steady income stream and, ultimately, saves the water company money. Unlike many government schemes, agreements with investors are also not mutually exclusive, points out James. It is possible to identify sites where agreements could be stacked to achieve multiple income streams from a single land area.

As well as the farmer and investor partners, a number of other links help group members to identify natural capital assets and adopt more sustainable farming approaches. One such group is the Knepp Estate at Dial Post, West Sussex. Libby Drew, director of the new Knepp Wildland Foundation, plays a key role in advising James and project members on wildlife issues.

W2W has also established partnerships with bodies such as universities and expert ecologists. These can provide free or subsidised support for >

CASE STUDY: RICHARD GORING, WISTON ESTATE, WEST SUSSEX

The Wiston Estate, near Washington, has a history of environmental farming. In the 1960s, Prof Dick Potts set up "The Sussex Study" on the farm, which is now the longest-running arable monitoring project in the world. Then in the late 1980s, the estate was entered into the South Downs area of the environmentally sensitive area scheme.

Since 2009, the estate has planted beetle banks and conservation headlands under Higher Level Stewardship and has established wildlife corridors to connect and extend habitats. The number of farmland birds coming back was quickly visible, reports Richard Goring.

"Joining up with W2W gave us the chance to be part of an even wider network to get ideas and offer support by collaborating with other farmers and landowners," he says. Sharing ideas has helped identify where to get the most out of productive farming and where to establish corridors for nature to flow through the county, which Richard says is really important.

"Together, we are looking at how to connect up across roads and railways and, at the same time, swap notes on techniques to boost food production. Even though we are creating new habitats and tranquil areas for wildlife to flourish away from visitors, crop yields have increased in the past 15 years. Arable output – wheat, oats and barley – is more productive than ever, even though less acreage is being used," he says.

"We are under no illusion that we are a conventional farm and need to produce food. The rise in production has been in line with good farming practices, bringing livestock back into the rotation, clover leys and the use of cover crops. All of which has been based on partnerships with local graziers and an excellent arable contractor."

To target environmental ventures, the estate looked at its profit-and-loss sheet to identify areas that were not performing and take them out of arable production. "Where the Basic Payment Scheme has previously plugged the gap for those areas, diminishing payments mean it no longer does. We looked ahead and couldn't see that the SFI and Countryside Stewardship schemes would be able to cover loss of the BPS completely."

Instead, the estate is looking more to its natural assets for future resilience. "A deal with the local water company is being worked out to help lower nitrate levels in aquifers. The farm has agreed to reduce nitrogen applications and, for this, the water company is prepared to pay. [It] would otherwise be paying more for expensive treatment plants and chemical inputs to remove the nitrates."

While N applications have been cut, improvements in soil health and structure through cover cropping and clover use are helping to sustain yields.

"It has also helped improve the resilience of the farm, which is now less dependent on volatile artificial nitrogen prices."

Another venture is through a pioneering 30-year biodiversity net gain (BNG) Section 106 agreement.

It will link two pieces of rich meadow land, currently separated by an arable block growing maize for a local anaerobic digester. The 30ha meadow that will be created will be categorised as neutral grassland with a diverse mix of species under UK Habitats Classification (UKHabs).

The Section 106 has been agreed with the South Downs National Park and the estate is now actively engaging with developers and other corporates for the 215 BNG units that will be created.

We have baselined the farm with the support from W2W ecologists and they will carry out the monitoring over the 30 years of the agreement, says Richard. To help the grassland species thrive and to get a further productivity from the land, it will be lightly grazed with cattle and sheep.



Richard Goring

members, cutting the costs of potentially expensive but vital practical steps such as baselining. Baselining is necessary because it establishes a measuring point for farm-level emissions, biodiversity, above- and below-ground carbon and the extent of fungal activity. It also tracks seasonal populations of invertebrates and birds, explains Libby.

Ratifying these factors provides a point from which any potential improvements can be assessed and a value established and marketed to investors. Baselining surveys highlight potential areas for new or restored habitats including biodiversity hotspots, ancient woodland, scrub, coastal marine and riverbank environments. Without the support from W2W and its partners, this process could be beyond some farm businesses.

W2W baselining

To plot and monitor the route of the project, W2W has used a combination of existing land and biodiversity data and Lidar, a remote sensing technology that uses the light from a laser to collect measurements. This creates highly detailed 3D images of objects such as trees and hedgerows that are more accurate and revealing than satellite scans. The resulting map shows land contours and watercourses, highlighting areas vulnerable to run-off and erosion, and reveals historical features such as drained wetland.

For the river-linked W2W project, water quality was a major driver and soil nutrients were mapped against flows and other hydrological features. But the mapping exercise wasn't restricted to natural features – the project mapped roads, railway lines, construction, light pollution, housing and even areas of social deprivation.

By layering the mapping results on top of the farming map, Libby says they can identify where



Farmland can be used to hold back and control floodwater, preventing pollution downstream

there are problems that farmers could help to solve. And that is key: “We want to identify opportunities that can attract willing investors to a land area,” she adds. For example, wildlife corridors that are disconnected by roads or rail, rivers that are vulnerable to farming or construction work run-off, or socially deprived areas that could benefit from amenity woodland.

Nature and food production

Despite the focus on marketing natural assets, James says the cornerstone of the project is to maintain agricultural output. People criticise efforts to support nature because of its per-

ceived impact on food security. But mapping, yield and financial calculations can help to identify unproductive pockets of land on every farm. Inputs are wasted on these unsustainable areas that have only been profitable because of the basic payments.

Land incapable of sustaining food production can be put to more lucrative uses that have the dual benefit of promoting wildlife, such as widening or planting hedgerow and targeted tree planting. In addition, investing more in soil health to promote crop and grass growth can improve yields on the land where we do produce food, says James.

W2W NATURAL CAPITAL

One of the aims of W2W is to help members understand natural capital opportunities and benefit from emerging markets where demand is growing, says Molly Biddell, adviser to W2W and head of natural capital at the Knepp Estate.

Molly explains that natural capital refers to nature and the resources it provides, such as water, soil, air, wildlife and minerals. The natural capital is the asset itself – for example, a woodland – while the phrase “ecosystem service”, is used to describe the benefits from the asset, such as carbon capture and biodiversity.

These assets have a value to society, because we depend on nature's resources for our existence. Therefore, we need to invest in them to secure our future, she says.

Natural capital market

More companies are looking to reduce their environmental impacts, because of their own targets or environmental legislation.

Specific examples include:

- Woodland creation – selling credits for additional carbon sequestered
- Peatland restoration – credits sold for reduced carbon emissions
- Saltmarsh restoration – credits for reduced carbon emissions (coming soon)
- Hedgerow creation – credits for additional carbon sequestered (coming soon)
- Biodiversity net gain – selling units for improving habitats to generate biodiversity
- Natural flood management – selling ecosystem services to control water movement
- Wetland creation – selling nutrient reduction to developers in certain areas.

W2W plays a key role in helping to connect farmers with advisers, experts, ecologists and local case studies to help with upskilling and knowledge sharing in this fast-emerging area. Collaboration isn't just beneficial in terms of nature restoration,

but also in increasing the opportunities for natural capital finance and markets. The project has the benefit of bringing farmers and land managers together to deliver environmental gains at scale. This is hugely important because emerging natural capital markets are looking to invest in large-scale projects that can deliver significant environmental returns.

W2W also helps its members to think strategically about the whole farm and broader landscape. For example, thinking about where restoring or creating new habitats on less productive areas or where flooding could be fixed with natural management techniques.

From there, members can start to identify potential income streams for the ecosystem services they might be able to generate. W2W's links with potential purchasers can then help them move on to agree deals that will benefit nature and the future resilience of the farm business.



CASE STUDY: BEN TAYLOR, IFORD ESTATE, EAST SUSSEX

The Iford Estate near Lewes, East Sussex, has one of the most advanced and extensive biodiversity net gain (BNG) offerings in the UK. It joined W2W last year and, lying on the Ouse in East Sussex, added a third leg from the countryside to the coast.

The estate’s managing director, Ben Taylor, joined W2W to exchange knowledge with other farmers also on their transition journey. He says W2W has helped “put Sussex on the BNG map”. Ben also hopes that the raised profile will help to draw farmers and investors closer together – a potential collaboration that could prove invaluable as the Basic Payment Scheme diminishes.

Iford’s work on BNG offerings began back in 2020 as part of the estate’s involvement in a Defra BNG pilot. It has since moved into the private market. As it has developed, the estate has created more than 3,000 BNG units, which are marketed online or pitched directly at face-to-face meetings.

The units are aimed at developers across Sussex, neighbouring counties and London. They are derived from projects covering grassland, scrub, woodland, wetland and hedgerows. Mixed scrub will be planted around margins, strategic tree planting will extend woodland and join up wildlife areas, while low-lying

land will be allowed to return to wetland and control water flows.

The floodplain will have extra structures, scrapes and hollows to help hold water. Some areas will be designated under UK Habitats Classification (UKHabs) as neutral grassland. The neutral grassland area will then be grazed by cattle to add an income stream to the BNG revenue. When selecting the areas to designate for BNG credits, the estate team carried out an extensive evaluation of current and future productivity

“We factored in climate change and other market influences to assess whether the BNG credit system will be as valuable over 30 years as, for example, a future sunflower crop or vineyard,” says Ben. More fertile areas of the farmland have been retained for food production, but have also undergone a change in regime. “We have switched to a min-till system to improve soil biology and reduce fuel usage.”

Artificial fertiliser use has also been cut by moving to manure and other organic material. Ben says soil is their most important asset and manure helps to build organic matter. “Yields are supported in the more fertile soils fuel and fertiliser inputs are reduced. Better soil structure and fewer cultivations also reduce erosion risks on the chalky soils, preserving it for the long-term future.”



Ben Taylor

Knowledge sharing

Supporting fellow members to improve sustainable production factors through knowledge sharing is another pillar of the W2W project.

James’ 400ha arable farm supports seed pea growing for Bird’s Eye, milling wheat, oats and oilseed rape. “We have moved to min-till, although we might have to pull the plough back out of the nettles if weeds have to be tackled in the future,” he says.

All straw is chopped, providing organic matter to improve soil health and structure. Cover cropping also boosts the soil organic matter to capture carbon and help reduce nitrogen applications and cut nitrate losses. Any learning points are shared with other W2W members. Some areas of the farm are also used to trial innovations that could help sustain food production with less impact on nature – and the results, good and bad, are explained.

A successful trial to find alternative nitrogen sources has focused on undersowing wheat crops with microclovers. Further trials include companion cropping in oilseed rape to tackle flea beetle. The drilled buckwheat trial has also been a success, with details passed to other farmers in the group.

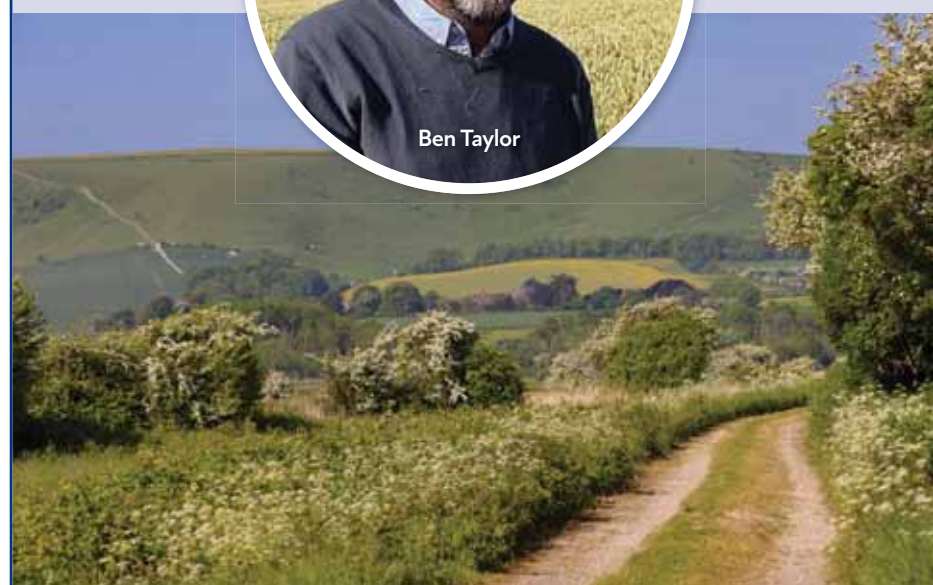
Other trial work includes blending wheat varieties so that the crop has a staggered emergence. The theory is that there is less septoria splash, cutting the dependence on fungicides and, ultimately, extending the life of a seed variety through reduced resistance, James says. However, even though the farm is in the sunniest area of the UK, the trial failed because abnormal and relentless rainfall spanned the emergence times and septoria prevailed. The trial is under way again to see whether a more typical year can yield the theoretical benefits.

Another trial that proved less than successful was the use of orange oil, which

acts as an aphicide in the autumn. It is seven times more expensive than the chemical alternative and only works on contact, so doesn’t persist, reports James. The field was treated times, which ultimately proved to be 21 times more expensive than

conventional controls. “If we could find a way of getting orange oil more cheaply, we could try again,” he says.

Whatever the outcome, the process of knowledge sharing across the W2W group will continue. ■



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What does new natural capital toolkit offer farmers?

With BPS declining fast towards its abolition in 2027, Defra has launched an initiative to help farmers transition towards private funding for natural capital. Jonathan Riley reports

Defra and an environmental company have joined forces to produce a new website and toolkit to help exploit natural capital markets.

The Farming Toolkit for Assessing Nature Market Opportunities is a free, web-based resource for farmers in England.

Toolkit aims

It is designed to give farmers a sense of the right questions to ask, and provide a framework for thinking about their nature market opportunities. It seeks to explain nature markets with a step-by-step approach to help farmers consider whether the opportunities will work for their business. This will help prepare farmers for potential obstacles, and empower them in negotiations.

The toolkit was commissioned by Defra and developed by the Green Finance Institute (GFI), an independent company, part-funded by government to help the transition to a net-zero, nature-positive economy.

More than 70% of the UK is managed by farmers, and they are crucial in helping Defra meet its nature and climate targets, according to GFI director Helen Avery.

Nature markets, like carbon credits, biodiversity net gain, and nutrient neutrality, present farmers with opportunities to get paid by the private sector in exchange for the delivery of environmental outcomes, Helen says. But she also elaborated that these markets will need to be made more accessible for farmers to deliver nature-positive outcomes at scale.

Many farmers are unsure of how nature markets work, what rules govern them, and what their participation may involve, alongside their traditional farm business activities.

Farmers need to better understand these uncertainties to make sure they can promote themselves, and ask the right questions of new opportunities.

Development

It has been developed in consultation with more than 100 farmers, and it was created after the GFI's *Financing a Farming Transition Report*, released in March 2023, revealed that a lack of clarity around nature markets was impeding farmers' engagement. Additionally, it showed that collaborative farming ventures needed support and knowledge sharing to get off the ground.

The toolkit was designed as a key resource for the Natural Environment Investment Readiness Fund Round 3, a development fund aimed at farmers wanting to explore their nature market opportunities, with grants of up to £100,000. It will be used in the assessment process, monitoring and the evaluation framework.

Using the toolkit

The toolkit provides an introduction to nature markets, a detailed overview of participation, and case studies of farmers around the country that are already taking steps, says Helen.

No data is needed from farmers to use the toolkit, and it does not promote nature markets as the best option for everyone. The website's introduction to nature markets also explains the six most commonly asked questions.

It contains a glossary of key terms and useful resources from other organisations around nature markets. If and when farmers are ready to explore the process of engaging, they can then move on to an area of the website referred to by users as the Snake. This is an interactive diagram that breaks the journey of building a nature market

deal into eight milestones and two constant horizontal factors that run throughout the process.

Each milestone on the Snake diagram explores what is entailed, with a set of questions for farmers to consider, case studies of farmers that have already engaged, and other useful resources. Typically, the process starts with the first milestone, Assessing Land Opportunities, through to the eighth, Signing Legal Contracts. Because no two farms are the same, the toolkit has been designed to be flexible and capable of encompassing different activities at different times, explains Helen.

The first three milestones come under the heading Groundwork. This section highlights steps farmers can take to prepare for future nature market developments, if they are not comfortable engaging now. The other milestones are grouped into Market Engagement, and identify actions that farmers can consider when actively pursuing a nature market deal or trade. ■

The Farming Toolkit is available online at greenfinanceinstitute.com/gfihive/farming-toolkit



Tips to tame emissions and costs in housed systems

As the rollout of novel technology and techniques that reduce air and water pollution gathers pace, housed livestock systems are demonstrating why they too can be ambitious with environmental goals. **Debbie James** reports

All livestock farms, regardless of system, must comply with UK environmental legislation, but as the sector comes under greater pressure to go further with greener farming methods, it is businesses with housed herds and flocks that arguably face the biggest challenge.

Ammonia, phosphates and carbon all pose problems for indoor livestock farming and are increasingly drawing regulatory and public scrutiny. This has been notable in the poultry industry – in 2022, intensive units in the catchment of the River Wye were accused by Natural Resources Wales of polluting the watercourse by spreading manure.

It is true that ammonia emissions have been steadily rising in Wales in recent years, with more than half the country said to be experiencing concentrations that are too high for some sensitive habitats. It is an inescapable fact that housed systems do produce a lot of manure and slurry, and disposing of that, while meeting the environmental expectations of regulatory bodies and the public, is a formidable challenge.

In Northern Ireland, the Department of Agriculture, Environment and Rural Affairs (Daera) says 96% of ammonia emissions come from the housing of livestock and subsequent storage and spreading of livestock manures, particularly cattle. Some farmers rightly worry about what

can be very high costs associated with investing in solutions – for example, some models of ammonia scrubbers cost £100,000 or more – and grants from Defra and the devolved administrations only meet part of the cost of a limited number of interventions.

In England for example, Defra has committed more than £200m for infrastructure and equipment grants to help livestock farms tackle air and water pollution from slurry and to make better use of organic nutrients. The annual budget for the Catchment Sensitive Farming (CSF) programme has also been upped to £15.1m, from £7.2m in 2020-21, to give every farmer an opportunity to access advice and support by

ENERGY-SAVING TIPS

New generation ventilation heat recovery systems designed for poultry sheds limit wasted heat, saving on energy use while keeping ammonia and fine particulate matter emissions low.

Eirinn Rusbridge, senior project engineer at NFU Energy, says it is important to choose a system that evenly distributes heat because some can create cold spots. Models with small units that fit into every outlet/inlet and those with a central handling unit can both work, he says. “The key is distribution of heat; they must be designed to enable that.” Motor-driven fans and pumps consume large amounts

of energy but fitting a variable speed drive (VSD) will adjust the operational frequency of motors, matching it to need.

When installed, it is typical to achieve 25-45% power savings for any motor-driven load. “Reducing the speed of a pump by 20% results in a 50% energy saving when using a VSD,” Eirinn says. Some motors are not compatible with VSDs and having several on a single circuit can result in electrical interference, but this can often be overcome at the design stage.

A big chunk of energy used in heating housed systems is lost through walls, roofs, and floors. Eirinn says good insulation will keep heat in and reduce “solar gain” in

summer, which helps to keep the house cool and reduces energy needs for ventilation. Historically, adding 200mm of insulation was recommended – that standard has now been doubled to 400mm. Insulate the roof, floor and walls – concrete mass walls should be insulated all the way to the ground.

Choice of lighting also contributes to energy use. Because of the current high cost of electricity, Eirinn says it makes financial sense to switch from older fixtures to LED immediately, instead of waiting until they fail, as a good LED bulb is about 60% more efficient than alternatives, and has a longer lifespan.

March 2023. CSF is said to have reduced the occurrence of serious water pollution incidents by 17% and resulted in farmers implementing an estimated 76,700 actions to reduce pollution.

But governments are also using new legislation to force farmers to make changes. A case in point is a pledge by Defra to mandate the use of methane-reducing additives in some English cattle feed systems by 2023. Such additives could include probiotics as well as supplements produced from seaweed and plant essential oils. Farmers warn it could significantly increase their costs because there is only a small pool of available products.

It is not just pollution that housed livestock are blamed for. Many housed units consume significant amounts of energy for ventilating, heating and cooling the indoor environment, too.

So what can farmers do? We take a look at the management strategies and latest kit that can help mitigate emissions and cut costs.

Slurry store upgrades

Ammonia emissions from outdoor slurry stores can be reduced by limiting airflow across the surface of the slurry. This can be achieved by fitting impermeable or semi-permeable covers,

as shielding the slurry surface from airflow allows ammonia concentrations to build up beneath the cover, suppressing further emissions.

Several options are available, including a tensioned cover, which is an impermeable plastic cover shaped like a tent, supported by a central column with a small vent in the top. Plastic floating covers are also made of an impermeable plastic sheet, but these rest directly on top of the slurry, rising and falling with the slurry level.

Alternatively, there is a floating plastic tile that creates an interlocking barrier between the slurry and the air. Also available are light expanded clay aggregates – small, pebble-like clay products with a hollow irregular internal lattice structure that float and create an airflow barrier on the slurry surface.

Small biodigesters

Methane-capturing systems not only reduce farm emissions but generate energy. Among

those that have been successful is Bennamann, a farm-scale system that captures methane from the slurry gases that bubble to the surface of the existing storage using a cover, then converts it into biogas via a processing unit. Under this model, the

farmer invests in the cover, a biogas storage bag, and associated equipment. Bennamann carries out the processing, handling and sale of the biomethane – the profits are shared with the farmer, or the farmer can buy biomethane for their own use at a reduced rate.

Bennamann works with a cluster of six or so farms to share a processing unit. Eirinn Rusbridge, senior project engineer at NFU Energy, says small, farm-scale anaerobic digesters can cover most of a farm's energy demand. These systems work best with year-round cattle housing because they maximise the slurry that will enter the digester. But costs can be prohibitive >



The housing of livestock accounts for 96% of ammonia emissions

CASE STUDY: UNIVERSITY OF CAMBRIDGE'S PARK FARM, CAMBRIDGESHIRE

Investment in measures that reduce negative environmental impacts of the housed dairy herd at Park Farm is being recouped with cost savings and enhanced efficiency.

The 230-cow Holstein-Friesian milking herd at the Linking Environment And Farming (Leaf) demonstration farm is housed for most of the year. The system generates 13,000cu m of slurry annually and the business was spending up to £40,000 a year exporting it because it didn't have sufficient storage.

"Not only was it a cost to the business, but we were losing valuable nutrients off the farm," says dairy farm manager Paul Kelly. To resolve this, in 2021, a 6,000cu m slurry tank was installed.

Slurry is now applied to grassland and arable crops, which has reduced artificial fertiliser requirements by 9.25t of ammonium nitrate. A slurry flow meter has been purchased too, to increase confidence in the accuracy of those applications.

The biggest investment of all was a slurry-fed anaerobic digester (AD), installed in June 2021 and funded by the university's Carbon Reduction Fund, which is governed by the university's Environmental Sustainability Strategy Committee. Half the slurry produced by the herd is now fed into that plant to extract methane, allowing the farm to produce more than half of its electricity requirements from slurry. At 44kW, Paul says the plant is small scale, but grid capacity prevented installation of a bigger digester.

Changes made to yard drainage have

improved the quality of water entering the wider environment. By diverting drains into a former slurry tank, it prevents water from mixing with the slurry, improving the dry matter of slurry and increasing storage capacity. Paul says this has also improved the efficiency of the AD plant. "Water doesn't produce gas," he points out. A change to the layout of the slats at the end of the dairy shed has cut washing-down frequency. We had been using a lot of water to hose the slats because the slurry wasn't getting down them so we removed every second slat," he explains. Hosing down is now monthly rather than twice a week.

Installing low-energy LED lighting in the dairy building has captured savings of 19t of carbon dioxide a year; these have been installed in the youngstock sheds, too. A recent audit showed that the farm produces 1.04kg carbon dioxide/kg fat and protein corrected milk, a reduction from 1.27kg carbon dioxide/kg in four years.

It is not only changes to infrastructure that have had positive environmental benefits, but feed efficiency improvements, too. "We no longer feed soya and only use a sustainably sourced rumen-protected fat, and precision feeding means we only give the cows what they need," says Paul.



< because the digesters are modular and tend to be tailored closely to cow numbers.

Treating, drying or pelletising manure

Reducing the moisture content in manure greatly lowers the potential for water pollution from nutrient run-off and the build-up of ammonia, carbon dioxide and fine dust. There are many different methods for drying it out.

North Wales egg producer Llyr Jones opted for a muck dryer that works by capturing heat from the hens as it rises and forces that air back down onto the muck belt. This process removes about 25% of the moisture cutting volumes and ammonia emissions. “When we muck out the sheds, it means one load less – two instead of three – reducing tractor and diesel usage,” says Transition Farmer Llyr. There are bacterial options, too.

A trial at another Welsh free-range poultry unit, Wern Farm, near Welshpool, demonstrated that adding non-infective bacteria to the environment dried out litter and reduced ammonia levels. Before the trial, litter had been 70% moisture, but the bacteria reduced it by more than 50% of the original levels. Frequency of muck removal from the manure belts reduced from every three days to once a fortnight.

Slurry separation

Slurry separation divides slurry into solid and liquid portions, often using screw-press technology – a process that reduces emissions related to storage and spreading because the liquid fraction is easier to spread across large areas, allowing slurries to be better targeted to fields with high nutrient demand.

Selling manure off-farm

Muck-for-straw exchanges are becoming more commonplace as arable businesses seek to reinvigorate tired soils. Such arrangements involve an arable grower providing a livestock farm with straw for bedding in return for organic nutrients to integrate into soils used for crop production.

Straw and manure are both bulky products, so keeping the exchanges as local as possible



Trees can help mitigate ammonia emissions but establishing a buffer zone takes many years

TRANSITION FARMERS: TOM AND KAREN HALTON

Meeting evermore ambitious environmental targets set by governments can run into hundreds of thousands of pounds for some farm businesses. Even at just 40% of the total cost of projects, grants are a vital source of funding, but securing these is not easy, as Tom and Karen Halton (pictured) have experienced.

The pair, who farm at Astbury near Congleton, Cheshire, applied for a Slurry Infrastructure grant in round one of the scheme. They wanted the grant help pay for measures to protect yards and their slurry lagoon from rainwater in their housed dairy system. But, despite a Natural England report supporting their application and the farm being close to a designated site of special scientific interest, they were unsuccessful. They are now submitting an application for round two, where a further £74m has been earmarked to help farmers invest in slurry infrastructure to tackle water pollution, improve air quality and make better use of organic nutrients.

Without the grant, they will be unable to carry out the work they had planned because of the cost and current low milk price. “Even finding 60% is going to be a struggle with the milk prices where they are and the work costing hundreds of



The farm's 530-head herd of three-way ProCross cows calve year round

thousands, but we definitely won't be able to do it without a grant,” says Karen. “If the government is so desperate for farmers to meet the environmental targets they have set us, they are going to have to help us to pay for them, or put measures in place to ensure we get a sustainable price for what we produce, whether that be milk, meat or crops.”

● Follow Tom and Karen Halton and our other Transition Farmers as they adapt their business for the new environmental schemes. Find out more on p5

is a good thing: moving muck a long way is an expensive option. These agreements were historically based around farmyard manure, but with more dairy units now having slurry separators, they have a material that isn't just a low dry matter liquid slurry and one that is more transportable.

Retrofitting ammonia scrubbers on sheds

Ammonia scrubbers work by air from a shed being pushed into the device where it is sprayed with sulphuric acid; the acid attaches itself to ammonia, and water is then added to reduce the pH level to neutral.

These have a high capital cost because they are made of stainless steel. But there are economic as well as environmental benefits – Llyr says he can produce fertiliser with a nitrogen value of 20% and calculates that, as a consequence, savings on purchased fertiliser easily pay for the scrubber's running costs.

Removing ammonia by planting trees

A novel mitigation method is site-specific tree planting to capture ammonia emissions. Geraint

Jones, forestry technical officer at Farming Connect, says creating buffer zones with trees downwind from housing or slurry stores can capture emissions and dust particulates.

In a well-designed shelterbelt or buffer zone, air from nearby livestock buildings is naturally directed into the woodland and up into the tree canopy, encouraging ammonia gases to be deposited on the tree and leaf surface.

For planting near livestock housing, species choice should be dictated by site conditions and characteristics, but for a quicker impact, Geraint suggests planting fast-growing species such as aspen, white or grey poplar, willows or hybrid varieties if conditions permit.

To aid carbon capture and biodiversity, he recommends incorporating other native species such as oak, silver birch, rowan, wild cherry and crab apple with lower storey shrub species such as hazel, hawthorn and elder.

“It is important to get advice before planting to make sure the right trees are placed in right location to get the most benefits,” says Geraint.

While planting trees for ammonia mitigation has multiple benefits, the establishment of a fully functioning main canopy and backstop can take many years. ■

Accelerate and regenerate

Ian Burrow, Head of Agriculture at NatWest, looks at how farming is supporting UK climate targets.



The accelerated pace of climate change, the COVID-19 pandemic, the war in Ukraine and population growth have placed additional pressure on food supply systems. In the UK, these events have exposed the fragility of domestic production and as the impact of climate change increases, yields and production levels could be affected.

It is critical that the UK agricultural sector transitions towards a sustainable model that is flexible and dynamic, and balances environmental concerns with the need for food security. This transition is key, not just because of the UK's commitment to net zero, but also because a sustainable agricultural sector is vital for the UK's food security. Alongside reducing carbon emissions, investment is required in regenerating soils, increasing biodiversity and restoring ecosystems to rebuild natural capital for the benefit of farming and wider society.

Meeting the challenges

In the agricultural sector, many farmers lack the tools and capital to invest in sustainable practices for the long term, so new solutions are needed for major businesses to support farmers to make the change.

We're working with food processors and manufacturers and other parts of the supply chain to drive more sustainable approaches to farming through incentive structures to help farmers address the short- and medium-term costs of the transition to regenerative agriculture.

For instance, we collaborated with the frozen food business McCain Foods through our asset finance business Lombard to develop a programme offering preferential payment terms and financial support to help farmers to access regenerative farming equipment.

Supporting the Global Farm Metric

Launched in 2020 by the Sustainable Food Trust, the Global Farm Metric is a harmonised framework designed to align existing metrics in the food and farming industry to establish a common baseline of data and provide a holistic view of farm-level sustainability.

We're supporting the development of the Global Farm Metric to make it easier for farmers to measure impacts in the natural environment.

Leveraging Google Cloud tech

When it comes to helping farmers make changes to the way they work, having the right tools and platforms to report on progress is critical. Measuring and analysing data helps to build a broader understanding of impacts and risks of agricultural practices.

NatWest Group recently worked on a pilot scheme with Google Cloud to explore using its satellite data archive with Climate Engine's SpatiaFi software platform. This will allow farmers to build a detailed and tailored picture of the challenges they face – from flood and drought risk to the levels of biodiversity on their farm, even pinpointing specific fields.

Directly supporting farmers

An economy that improves natural capital and biodiversity is vital to the UK's future food security. As farmers look to make the changes needed to work towards this, they need more support to help manage their businesses in the short term.

In 2022, NatWest confirmed a £1.25bn lending package for farmers to support them with the current economic and sustainability challenges. In total, NatWest has made available £6.7bn for the whole sector.

Convening alongside WWF

We need to identify how governments, financial institutions, food companies and farmers can share the cost and risks of the transition to net zero. This process requires coordination and collaboration.

In June 2023, NatWest and conservation organisation WWF announced a new partnership to support a sustainable transition for the UK food and agricultural sectors. We will bring together players across the food and agriculture sectors in the UK to channel and scale private and public finance to support farmers to achieve climate and nature goals, including calling on government to reform agricultural payments.

Partnering across the sector

The UK agricultural sector faces higher costs, declining domestic production, supply chain issues, inflation and the challenge of net-zero transition, but a sustainable and productive agricultural sector is possible. To achieve this, the whole sector and government need to create a plan for the future to ensure a sustainable food system for the UK.

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NatWest



Tips to attract and retain staff in a tough market

What can employers do to find the best workers and keep them long term? **Jon Riley** gets some expert advice



Immigration policy changes, war in Ukraine and farming's poor public image, have combined to make recruiting and retaining staff tougher than ever, according to labour management experts. Research fellow Dr Caroline Nye of the University of Exeter's Centre for Rural Policy Research (CRPR) and Tess Howe, head of partnerships at The Institute for Agriculture and Horticulture (Tiah), offer advice on recruiting and retaining staff in a challenging labour market.

The staffing challenge

Headline figures from a survey carried out by Tiah and the CRPR in 2022-23 show the extent of the challenges. Almost half of the farms surveyed had seen staff quit during the previous 12 months. The most common reason for leaving was a return to Europe in the wake of Brexit.

Departures were either voluntary or because workers were forced to leave due to the new immigration laws. Of others that left, 22% changed to a different occupation and 15% made a career move within farming. One-fifth of staff leaving the sector altogether is a big number and a concern, says Caroline.

More than one-third (37%) were concerned about losing staff and not being able to fill the vacancy, while one-quarter of farm managers already had vacancies at the time the survey was carried out. The 25% figure was broken down into 19% with one or two vacancies, and 6% with three or more posts unfilled. Almost two-thirds (63%) of respondents reported facing difficulties in recruiting, while 39% had vacancies left unfilled for more than one month.

Headline figures from the report showed:

- 25% of farms were looking for staff
- 63% faced difficulties when filling posts

- 39% had a vacancy left unfilled for one month or more
- Almost half had seen staff leave
- 22% moved to a different occupation and 15% made a career move within farming
- 37% were not confident they would find and retain staff over the next year.

Tess explains that although Brexit has been a significant factor, the labour shortage has wider influences. The conflict between Russia and Ukraine saw a hugely important labour supply dry up, while in the UK, unemployment remains at a long-term low, adding further constraints.

It means jobseekers can be choosier over conditions and hours, and farming has a poor reputation for both. Agricultural employers are, therefore, left facing competition for the best workers and moves between farms have risen to account for 15% of staff resignations.

Every time a member of staff leaves, it costs an equivalent of 18 months' worth of the worker's salary, Tess adds. That calculation is made up of covering the vacancy temporarily, the cost of recruiting and lost earnings as other staff take time to train the new recruit and production drop-offs as they come up to speed.

The difficult and costly labour position in agriculture is undermining business resilience, so planning the recruitment drive carefully and creating the best working environment to attract and retain the right staff is vitally important.

Creating a positive work environment

Team spirit

A sense of being part of a supportive team that achieves good production figures is extremely important in retaining staff. Relatively simple steps can help demonstrate that individuals are

valued members and key components of the team. Whole-team briefings and discussions will create an atmosphere of a working unit with shared targets. It is also a chance to let people know exactly what they are doing and to share knowledge and advice on how to complete jobs.

Tasks should be divvied up to provide a varied role and ensure the more interesting jobs are shared out. While this joined-up approach is important, equally vital is ensuring time is spent with individuals. Any underlying insecurities that come to light should be addressed quickly to nip in the bud possible areas that might lead to ill-feeling or stress, which can quickly spread and undermine team spirit.

Training

Businesses that retain staff are most likely to be those with a clear career path for individuals. Training is key, because it boosts staff confidence and provides a sense of achievement. Helping staff get ready for the next step up the responsibility ladder can also mean the business is in a stronger position should anyone leave. Having a well-trained, capable team frees up time for the overall manager to develop targets and strategies, too, leading to a progressive business environment, says Tess.

One-to-one appraisals where carefully tailored targets can be set are central to this. Targets must be achievable and agreed with the individual, she says. Unrealistic targets will lead to extra pressure on the worker and ill-feeling that can spread throughout the team.

Work hours

Because farming is increasingly competing on the wider stage of employee recruitment, it must >

Do Disease Control Differently

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The industry has witnessed a quiet revolution in controlling the main fungal diseases of wheat and barley. Breeders are increasingly combining high yields with robust disease resistance, and biosolutions like Iodus (laminarin) and Thiopron (sulphur) are providing farmers with sustainable and effective alternatives to conventional chemistry.

Derived from a natural plant extract, Iodus mimics the degraded cellular material released from a fungal attack, which activates nearby cells' defence systems. Applying Iodus before a fungal pathogen attacks the plant prepares it for when an actual infection occurs.

Iodus has made agronomists and farmers completely rethink the T0 timing. It works as an elicitor, which means it triggers a plant's own natural defences against harmful pathogens. When used at the T0 timing, IODUS will help to reduce disease pressure and systemically activate the young plant's defence systems, including newly formed tissue as the plant grows.

“Analysis of 27 trials shows that when applied at T0, Iodus delivers a 0.3 t/ha average yield benefit to a wheat crop.”

Thiopron provides a sustainable and effective alternative to conventional multisite chemistry. The sulphur active in Thiopron reacts on the leaf surface to produce hydrogen sulphide gas. The gas works as an antisporeulant, preventing early infections and also reducing disease spread where it is already present.

Farmers are using Thiopron in combination with conventional T1 and T2 fungicides. It offers additive control on key diseases, enabling a rate reduction of the more expensive tank mix partner where disease pressure allows.

Both products are registered fungicides, which is crucial because they have been fully approved for disease control according to a weight of evidence demonstrated to the authorities.

Iodus and Thiopron do not entirely replace conventional chemistry. Biological and chemical crop protection should work together in appropriate programmes. This will create a sustainable approach that Does Disease Control Differently.

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Key Points

- Iodus at T0 protects your wheat crop throughout the spring.
- Thiopron is the go-to multisite for efficacy and sustainability.

NPP by UPL

◀ address the historic long-hours culture. Providing a package, then, with holidays and allotted downtime is key in enhancing the farm's reputation. However, tight weather windows and livestock needs present difficulties in reducing work hours.

One possibility is to look at creating shift patterns and job shares that allow staff to have two consecutive days off each week, or even work part-time, suggests Caroline. It may also be worth looking at jobs that could be done by a contractor at a more economic rate than paying overtime. In particular, this could be for menial tasks that are a waste of a skilled worker's or manager's time.

Working conditions

The general working conditions of the farm and equipment also matter, says Tess. Machinery breakdowns can waste time, causing frustration and time pressures, adding to disgruntlement.

It doesn't mean machinery has to be brand new to keep staff happy, but a good standard of equipment that is well-maintained and relatively up to date will make tasks easier, faster and safer. Extending that policy to other areas will add to the sense of pride in the workplace. Warm, dry, modern communal areas such as meeting rooms and offices, along with clean washing and toilet facilities, are surprisingly important in maintaining staff morale, Tess points out.

Wellbeing

Aside from the importance of meeting regulations, promoting a positive attitude towards health, safety and mental wellbeing will add to a sense that the team is valued, says Tess.

If staff suspect that working conditions fall short on regulations, they will rightly question whether their employer values them. Health and safety briefings should be part of morning meetings so everybody is aware of how to operate safely.

Mental ill-health is increasingly better understood, but spotting the symptoms remains notoriously difficult. Communicating, especially



Make sure all tasks on farm can be carried out safely and with the correct equipment

listening, will help to identify and address issues quickly and sensitively. Training on this area is available free to employers. Ensuring signposting in meeting rooms and on noticeboards with contact details of support bodies is one useful step. Supporting the team to destigmatise mental ill-health is another.

Recruitment Planning

Managers need to take a planned approach to recruitment. "We need to ask 'who is the person we want in the role and where will they be looking,'" Tess says. Writing job descriptions that appeal to candidates takes time and skill. Free training for this and the rest of the recruiting process is invaluable and available free of charge, she adds. But too many farmers still rely on local recruitment. Almost one in 10 are still using word of mouth as their main recruitment drive, Caroline suggests.

It means a swathe of candidates is overlooked. Casting the net wider can open up new pools of potential employees, such as skilled machinery operators, animal healthcare workers, environ-

mental and technology specialists and individuals with key personnel skills. One of the best ways to access these areas is through social media.

Staff selection

Recruiting the wrong person can have a long-term effect. This may be directly through damaging equipment and technology or from poor animal husbandry, suggests Caroline. Or, it may be indirectly through a character mismatch which disrupts other staff, causing bad feeling, inefficiencies and undermining the business' reputation.

Estimates suggest that the cost of "one bad apple" can amount to £50,000 in addition to the cost of recruitment itself. Looking beyond the CV is key. Does the candidate have the right character to fit in, are they enthusiastic, do they have an aptitude for the work, will they be a team player and operate flexibly?

Finding out what the candidate is expecting and wants from the role can provide further valuable insight. The interview is a two-way process, so asking for their views may show up inexperience or unrealistic expectations, Tess says. ■

TRANSITION FARMER: EDDIE ANDREW



Eddie Andrew, who runs Clife House Farm in Sheffield, uses a range of avenues to look for staff, including job sites, colleges, agencies and local networks in South Yorkshire. "We are not having any luck with colleges at the moment," he reports. "We keep looking at agencies, but are not sure if the high cost is worth it. Some guarantee money back if the staff leave before a certain period of time, which provides peace of mind."

However, Eddie's preferred option is a national recruitment website. "I usually use the Indeed job site as it can filter possible staff to some degree by your criteria," he says. One of Eddie's important criteria is to look at how long a prospective employee has spent with their previous employer. "Someone who jumps ship a lot isn't who we want," he says. Another suggestion

would be to ask how much notice they need to give their current employer before starting the new job with you, he adds. "It gives a good insight into folks' characters if they stick to their contract and work their full notice period."

Eddie says they have also found merit in recruiting staff at a younger age and training them. "Our dairy manager has been with us since he was 18," he adds. "We are looking for a full-time member of staff right now and the job includes on-site accommodation – if you know of anyone wanting a job in Sheffield," he adds.

● Follow Eddie Andrew and our other Transition Farmers as they adapt their business for the new environmental schemes. Find out more on p5

Unearth new revenue with complimentary biodiversity restoration & creation

Adopting science-based approaches to natural capital projects that optimise your marginal land and add new income streams alongside your core agricultural operations

Wanderlands is an award-winning environmental and natural capital consultancy working with farmers & landowners to optimise marginal land with biodiversity enhancement projects that enable access to financial opportunities within the nature markets.

Natural capital projects

Wanderlands' Land Development team collaborate with foresters, soil scientists, ecologists, and landscape designers to carefully curate natural capital projects **from start to finish** that offer climate-resilient, biodiversity-rich locations.

Innovative site designs integrate a variety of habitats including broadleaf woodland creation, hedgerow restoration, soil regeneration, and wildflower meadow creation. Complimented by the deployment of **modern technology**, such as soil probes, for constant feedback to maximise overall project health and success.

We are committed to ongoing project maintenance and can manage your sites for the long term where desired.

Nature market opportunities

Investment in natural capital projects is in **high demand** due to rising regulatory requirements for businesses and developers.

Through experience working with these audiences at Wanderlands, we help you to optimise these new income streams and **connect with future buyers** who are ready to secure and purchase units.

We support every step of the way to ensure full project compliance with the recognised UK government reporting and regulatory frameworks so you can generate verified **Woodland Carbon Units and Biodiversity Units**.

Wanderlands Habitat Bank is our new digital platform connecting your projects and units with future buyers - enquire now to register.

Net-zero and carbon footprints

What's more, we also support farmers in the net-zero transition to implement science-based initiatives and deliver **permanent emissions reduction** of at least 85-90%.

In complement to robust decarbonisation, we deliver bespoke **nature-based carbon removal** projects such as woodland creation to enhance biodiversity and sequester the (often hard-to-abate) 10-15% residual carbon.

Contact our team to get started with carbon footprint assessment or natural capital project!

Visit: www.wanderlands.earth

Email: hello@wanderlands.earth



Why better planning can reduce machinery costs

Improved planning and closer scrutiny of purchases can help cut costs when buying new kit. **Jonathan Riley** reports

Recent global, political and market turmoil has put input prices in sharp focus, and that includes machinery replacement costs. At a *Farmers Weekly* Transition webinar, an expert panel suggested that a more rigorous approach should be adopted.

Cost rises

Claydon Drill sales manager David Furber explained the factors behind the rise in costs over the past five years.

It has been a period of huge change, from labour market restrictions caused by political decisions and Covid-19, to soaring energy prices from the war in Ukraine. These factors pushed up every component cost, from steel to microchips, and had disrupted supply.

Gary Markham, machinery director for accountancy Land Family Business (LFB), said the effect showed up in data on LFB's client base. The average cost across the firm's clients had risen to £350/acre, while the worst-performing 25% of clients were now paying more than £500/acre.

But he pointed out that the top 10% of his clients were spending just £230/acre by keeping a tighter grip on replacement costs.

EXPERT PANEL

Host Hugh Broom was joined by four experts to discuss issues surrounding machinery replacement. These included the problems of costs, buying regimes, planning and machinery rings.

- **David Furber**, sales manager, Claydon Drill
- **Gary Markham**, director, farms and estates, rural accountants Land Family Business
- **Mike Purnell**, farm manager, Whitbread Farms, Bedfordshire
- **Gordon Cummings**, fuel and machinery director, Fram Farmers

Reducing costs

On Whitbread Farms in Bedfordshire, manager Mike Purnell said a switch to direct drilling and regenerative agriculture helped reduce machinery costs. The cultivation kit list for the 1,000ha estate is a drill, a set of rolls and a mole plough.

All hedgecutting and straw and silage baling is done by contractors to keep machinery ownership to a minimum. For the tractors, combine, sprayer and drill used in the arable operation, the key has been to balance the time the machinery is kept against the increasing risk of costly breakdowns and falling residual values.

Normally, larger pieces of equipment at Whitbread Farms are retained for eight years. Tractors run to 8,000 hours before moving on. Mike said that if he leaves replacing the combine until nine to 10 years, the residual value has dropped too far. Repairs, routine parts replacement and the breakdown risks are too high.

Fram Farmers fuel and machinery director Gordon Cummings suggested purchasing machinery and keeping it for eight years could be the least-cost strategy. The proviso was that the finance deal was favourable. At five years, it is more difficult to argue the case for outright ownership compared to hiring in machinery. If keeping equipment for three years, it is probably more cost effective to hire, he said.

From data on co-operative members, he reported hiring over a 24-month period seemed the best approach. There was no single, right answer because every farm is different.

Hire agreement payments are partly based on hours, and Gordon said there was a big difference in costs for machines returned with 1,000 hours on the clock and those with 1,500. The decision on hiring versus ownership must also take labour availability and costs into account.

Depreciation and purchase planning

Gary said depreciation should be factored into accounts on a reducing balance basis, which offered a more representative cost than straight-line depreciation used by some accountants. This means depreciation should be calculated at 15% a year for any machinery with an engine, and 20% a year on equipment that is trailed behind.

He urged farmers to calculate costs per acre to act as a benchmarking guide. This will indicate whether the farm is over-mechanised. He suggested creating an eight-year spreadsheet of depreciation and running costs to set out payments and identify when to buy and sell.



Gary Markham

Machinery sharing

Gordon suggested that when people think of sharing equipment, they think of machinery rings. It is a wonderful idea to have machinery moving with season from the South to the North, but it doesn't work in practice, he said. Weather causes timing issues on different farms.

What works better is a tighter tie-up between the businesses, he said. Participating farms operate as a single body, buying and selling inputs and grain together, so there is not a benefit for one above the other. Gary agreed that this approach worked better than a machinery ring.

He suggested that farm businesses should join as a syndicate limited liability partnership. Each farm has a share and draws a percentage of the output according to acreage. Gary said he saw costs cut from about £350/acre to £250/acre. ■

WATCH THE WEBINAR

Watch the discussion in full at fwi.co.uk/transition, where you'll also find the other webinars in the Transition series

AGRICULTURAL TRANSITION



WHAT ARE WE TRANSITIONING TOWARDS?

For many within the industry, farming is at a crossroads. Just as BPS is being phased out, weather, commodity, markets and interest rates are all in flux and farming is suffering without its stabilising influence that safeguards food production.

The Agricultural Transition, from my perspective, is about farm businesses ensuring they are financially and environmentally sustainable, ideally having food production at their core.

Through the Farm Business Advice Service, we have supported over 750 farmers to date, and found the top five ways farmers are managing their transition to be:

1. Optimising the use of their best land and livestock and farming it in the most efficient way, with the labour and machinery pool being altered to reflect this.
2. Incorporating environmental management options (such as SFI) where appropriate, provided that it fits with the long term objectives of the business.
3. Looking to de-risk their business, by adopting lower input systems and utilising SFI options to reduce their exposure to market volatility, resulting in increased, sustainable profits.
4. Finding marginal gains across all areas of the business with attention to detail and by questioning every cost.



ROBERT SULLIVAN
DIRECTOR

5. Considering opportunities to develop new income streams that add value, compliment the existing farming business and increase profitability.

These options have the most impact when a professional independent advisor can work with the farmer to assess the options and identify the best course of action based on their long-term objectives.

FREE ADVICE FOR FARMERS - ACT NOW

Our FREE half-day reviews allow farmers to access that insight at no cost. The half-day on-farm visit concludes with a report that provides clear, realistic and practical recommendations to move the business forward and if further advice is required, we can also provide up to two days of bespoke consultancy, free of charge.

Previous scheme participants are starting to pursue the solutions that will help them to navigate the transition and achieve their objectives, with 80% saying they feel more confident to make improvements to their business following the review.

This is a limited scheme that ends in February 2025. There are around 80,000 BPS claimants across the UK and only 32,000 can receive the free advice.

We would urge farmers to sign up as soon as possible before time and numbers run out.

To sign up for a free on farm visit with one of our Farm Business Consultants, please contact us on 03333 059 059 or email fbas@gscgrays.co.uk.



Where to find project articles

The Transition initiative offers a vast bank of practical articles, which can be downloaded for free

Business resilience

- How to make rotations more resilient – Summer 2021 (p15)
- Income squeeze: Past policies and what the future holds – Winter 2021-22 (p65)
- How to stress-test your farm business – Summer 2022 (p10)
- Advice on planning ahead to combat ag inflation – Autumn 2022 (p35)
- How to build resilience into a livestock system – Spring 2023 (p36)
- Tips for planning ahead to reduce business risks – Autumn 2023 (p7)

Carbon assessments

- Measuring and managing carbon: What to consider – Autumn 2021 (p11)
- Four popular carbon calculators compared – Autumn 2022 (p7)

Carbon trading

- Hedgerows can boost farm income – Autumn 2021 (p26)
- The carbon trading conundrum: Risk or revenue generator? – Autumn 2022 (p23)
- Trading carbon and natural capital – a lawyer's eye view – Autumn 2022 (p29)
- How to get a carbon-based income from woodland – Autumn 2022 (p31)
- Is there money to be made from carbon farming? – Autumn 2022 (p41)

Collaboration

- 'It's about three dairy farms working together' – Autumn 2021 (p8)
- How working together reduces costs and increases efficiency – Winter 2021-22 (p47)
- Local farmers unite to clean up polluted river – Winter 2022-23 (p45)
- How collaboration delivers landscape-scale change – Summer 2023 (p19)

Data and tools

- 'Data is vital, but a computer will never run the farm' – Winter 2021-22 (p57)
- Pros and cons of four key sustainability measures – Winter 2021-22 (p59)
- Six livestock apps to lift business performance – Summer 2022 (p17)
- Jargon buster – Autumn 2022 (p39)
- How data helped transform beef herd efficiency – Autumn 2022 (p10)

Diversification

- 'I always wanted to support my sons when they came home' – Summer 2021 (p10)
- 'It's vital we look at new enterprises' – Autumn 2021 (p16)
- The benefits of Paulownia trees for net-zero targets – Spring 2022 (p47)
- Expert advice for making trees work on your farm – Autumn 2023 (p32)

Emissions management

- Advice on reducing emissions and storing carbon – Autumn 2021 (p5)
- 'We are not turning soil regularly' – Autumn 2021 (p14)
- How livestock farmers can cut greenhouse gas emissions – Autumn 2021 (p19)
- 'There is plenty of interest in what we are doing' – Autumn 2021 (p23)
- What arable farmers can do to reduce emissions – Autumn 2022 (p12)
- Five ways producers can cut their carbon footprint – Autumn 2022 (p19)
- The vital role of soil in emissions reduction – Spring 2023 (p27)
- How pig producers can strive towards net zero – Spring 2023 (p29)
- What UK farmers can learn from Dutch 'nitrogen crisis' – Spring 2023 (p33)
- How fenland farmers cutting GHGs from peat – Summer 2023 (p11)
- Transition farmer slashes carbon emissions – Summer 2023 (p28)
- Project shows how farming can hit – or better – net zero – Autumn 2023 (p17)

Inputs

- 'We need to protect farm from volatile input costs' – Spring 2022 (p54)
- How to get the most from nitrogen fertiliser – Spring 2023 (p11)
- How science is adding value to livestock manure – Spring 2023 (p17)
- What to consider when replacing farm machinery – Summer 2023 (p24)
- Zero subsidies puts focus on cost control – Summer 2023 (p16)
- Zero grazing switch helps reduce dairy feed costs – Summer 2023 (p22)

Natural capital

- A guide to unlocking value from natural capital – Spring 2022 (p39)
- How Norfolk farm is maximising its natural capital – Spring 2022 (p60)
- How farmers can benefit from biodiversity net gain – Spring 2022 (p44)
- Opportunities for livestock farmers from natural capital – Spring 2022 (p51)
- How supply chain is helping farmers work with nature – Summer 2022 (p15)
- Why water company pays farmers to tackle pollution – Summer 2022 (p21)
- Biodiversity: What's in it for farmers? – Summer 2022 (p30)
- Green capital will fuel future – Autumn 2022 (p17)

Productivity

- Success is about making the most of all our assets – Summer 2021 (p12)
- Can an all-forage diet be practical and profitable – Summer 2021 (p19)

- Productivity: What it is and how to achieve it on your farm – Winter 2021-22 (p35)
- 'We have to look at the whole business' – Winter 2021-22 (p39)
- Why better productivity is all about the right balance – Winter 2021-22 (p41)
- 'Small changes can add up to a big difference' – Winter 2021-22 (p51)
- Five ways to increase farm output and maintain margins – Spring 2022 (p64)
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- Experts outline on-farm renewable energy options – Summer 2023 (p30)
- Renewable energy systems: Which is right for your farm – Autumn 2023 (p26)

Staff issues

- Why training and development are key to success – Winter 2021-22 (p53)
- 'I am recruiting for the first time in my life' – Spring 2022 (p59)
- Tips to stay on top of your game – Summer 2022 (p24)
- Stepping back ways to reduce effort and stress – Autumn 2023 (p12)

Support schemes

- Advice for navigating farm support changes – Summer 2021 (p7)
- How to start your journey towards the phase-out of BPS – Autumn 2021 (p34)
- How optimising inputs can help meet SFI targets – Autumn 2023 (p23)

Water management

- How growers are de-risking maize production – Winter 2022-23 (p63)
- Why farmers must act to secure adequate water – Winter 2022-23 (p41)
- Why irrigation is key to the agricultural economy – Winter 2022-23 (p51)
- Key water company incentives and initiatives – Winter 2022-23 (p57)
- How harvesting rainwater can reduce farm costs – Winter 2022-23 (p53)
- What UK's driest region is doing to meet water challenge – Winter 2022-23 (p67)

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