



Grounded in evidence

**A way forward
for British farms**



Contents

3	Foreword
4	Executive summary
6	Creating a new baseline for UK agriculture
9	How the farms scored
10	How Soil Association Exchange is unlocking practice change for our customers
12	Case study: Pioneering soil health improvements
14	Case study: Cover cropping and bi-cropping
16	Challenges to change
17	Balancing sustainability, productivity and profitability
18	Lessons for UK agriculture
20	Case study: Exceptional herd health lowers carbon footprint
22	Case study: Re-thinking feed for reduced emissions and resilient pig production
24	Supporting UK farmers since 1765



Foreword

British agriculture is changing and finds itself under more pressure than ever. The UK is one of the most nature depleted countries in the world and it's estimated that soil degradation is costing £1.2bn a year.¹ Farmers have always faced intense pressure, but the latest research shows that almost a third of farms in the UK fail to make a profit when you consider Net Farm Income.²

Last year's winter was the wettest on record, threatening crops and livelihoods, and bringing climate change firmly back into our food basket once again. Energy costs have declined from their record highs since the peak after Russia's invasion of Ukraine; but downward pressures on farm-gate prices continue, squeezing farm business margins. And the major, multiyear overhaul of government subsidy support continues, with the goal of putting the environment at the heart of farm management practices and profitable food production.

Delivering a transition to a more sustainable sector against this challenging backdrop is a bold ambition. It marks a change from decades of post-war emphasis on maximising the use of every parcel of land. But, given the growing spread of evidence highlighting how intensification has threatened our soil health, biodiversity and broader environmental equities, it is the right one.

To be successful, this change requires support from and for every farmer, based upon reliable insight into an individual farms today; and opportunities to unlock increases in productivity, profitability and environmental sustainability tomorrow. These are changes from which the entire farming and food supply chain can benefit.

Lloyds Banking Group is proud to offer the sector a blueprint for delivering that change. The outcome of our work with Soil Association Exchange since 2021 represents the largest and most comprehensive baseline of environmental farm performance in the UK and associated action plans – set in the context of understanding the complexities and nuances of the UK farming sector with which we are so entwined. It uses reliable data for the first time at this scale and extent, to demonstrate how sustainability, productivity and profitability can all be enhanced in tandem. It provides insight which, rolled out to every farmer, could prepare the ground for a new wave of action to deliver those enhancements across UK agriculture.

Implementing that plan will need a further set of actions – including trustworthy tools, clearer guidance and the right resources that enable Britain's farmers to plan and deliver their individual contributions and reap a fair share of the rewards. The public and private sectors both have a critical role to play in ensuring this. This report provides a basis around which they can align and provides a gateway to building renewed farmer trust, confidence and a mindset for change.

But it's not without its challenges and we are calling on all those engaged across the farming and food value chain to support with vision, expertise, collaboration and the opportunity to break down the barriers to financial access.



Andrew Walton,
Lloyds Banking Group
Chief Sustainability Officer

September 2024

¹ Summary of the state of the environment: soil – GOV.UK (www.gov.uk)

² Chapter 3: Farming income – GOV.UK (www.gov.uk)

Executive Summary



UK farmers are facing some of the most challenging times in modern agriculture's history.

Demand and incentivisation to produce ever larger quantities of low-cost food has forced the industry into practices that – coupled with the impact of climate change – have had unintended consequences for our natural world. Well intended farm practices taken in response to growing demand and government and industry direction have resulted in soil degradation, high carbon emissions, water pollution and biodiversity loss.

But there is another way. Combining expert advice, and in observing and measuring farm-by-farm and field-by-field impacts, a course can be plotted that leads to genuine sustainability from which the entire farming and food value chain and, in turn, society, can benefit.

Soil Association Exchange has taken 685 UK farms through the consultancy process to deliver the largest and most comprehensive baseline of environmental farm performance and associated action plans, across the length and breadth of the country. As the largest provider of finance to UK farming, Lloyds Banking Group has funded 84% of farms that have undertaken an Exchange consultancy.

Measurement is key – For the first time, we have a baseline

Until now, there has been no data-set large enough to provide a basis for change, collated using a single, standardised methodology for collecting and reporting holistic environmental baseline data from farms in the UK. It has been noted by Government that there is a notable lack of soil health data, for example.³ The scale and spread of on-farm data collection that informs this report is without precedent.

To date, it has spanned 238,494 hectares of farmland across 685 farms⁴ and looked at six areas: soil health, carbon, biodiversity, animal welfare, water, and people and society.

The resulting insights starkly set out the differences between farm types, both in terms of their current footprint, and the measures they could feasibly adopt. Important juxtapositions are revealed with some – such as farms including livestock – proving to be both the biggest emitters, but in contrast, providing a vital role enhancing soil health, specifically organic matter and soil carbon levels.

These insights present an evidence base for a new approach. They overcome the issue of the lack of a common standard that is risking inaction by some, and scepticism in others. Too many farmers feel they either cannot trust in the differing outcomes of data collection or spare the time to engage with impact measurement. These risks are particularly acute where there is little clear prospect of support or reward for farmers during the transition to a new subsidy framework and in undertaking different farming practices. The importance of quelling these issues cannot be understated. A single, standardised methodology for farm measurement is required to ensure all farmers can make decisions based upon high-quality, reliable and comparable data.

With the right framework, we can use data to plot a path to positive change

As part of a ten-year partnership, Lloyds Banking Group has supported Soil Association Exchange in developing and deploying both a baseline methodology and an evidence-based advisory approach. The aim of this partnership is to provide farmers with guidance around changes that can improve soil health, reduce carbon emissions, lower inputs and improve biodiversity, while retaining a focus on profitable food production and capitalising on income opportunities.

³ Savills UK | Is regenerative agriculture financially viable?

⁴ Average of 348.2 hectares per farm holding. Average English farm size was 88 hectares in 2023 – Agricultural facts: Summary – GOV.UK (www.gov.uk)

What this report shows is that the right change can unlock valuable long-term gains for both incomes and ecosystems³. Farmers need access to trusted advice to help them decide how to act, based on data showing where they sit amid the huge disparity in farming revenues and breadth of challenges present in today's UK agriculture sector. This is critical to providing the confidence needed before the required investment, time, resource and long-term commitments are made that will result in the uptake of recommendations on farm.

Confidence relies on clarity and stability. Long-term policy certainty is needed to enable farmers to make choices that can deliver change and enable growth. That is not to say nothing is in place now: the Sustainable Farming Incentive, the (under review) Environmental Improvement Plan and the forthcoming Land Use Framework are all important. But a 25-year Agriculture Strategy is needed to provide clearer guidance on how we should farm the land we allocate to food production, and what kinds of support will help deliver change – beyond public monies alone.

The time for action is now, but better support is needed throughout the food value chain

There is the opportunity for a win-win for the environment, food security and for the social value of farming communities. The new government's growth agenda signals the chance to promote partnerships spanning public and private sector support. If successfully implemented, this approach can deliver world-leading outcomes while offering real value for money – just as the UK has done in other sectors.

Clearer policy guidance can help align the increasing range of schemes on offer to farmers. And by leveraging a common baseline, there is an opportunity to align government support and measurable outcomes to farmers. Over time, this can help to focus resources and support around the priorities and practices that a long-term agriculture strategy identifies.

However, action is needed now to prepare that path, and to do so at pace. Once farmers have the data, and the advice needed to interpret it, lack of financial reward is one of the most significant barriers to them taking action. Farmers, supply chain actors and government must work together on solutions.

Whole farm transition

We know that changing farming practices carries considerable risk, and farmers cannot shoulder the burden alone. Farmers need to be supported and

rewarded to withstand the financial risks and time pressures involved with transitioning their system. Finance is a key part of the equation that can facilitate action. Many stakeholders have a vested interest supporting the transition of our food supply chain, so the wider value chain must collaborate to support and reward farmers for the sustained practice change and actions the industry needs.

Piloting a new model

To help offer a potential model for change, we are piloting a new cross-supply chain model for rewarding farmers for practice change and addressing current farm income gaps. The pilot will provide funding through a coalition of private sources, but align to the existing public sector subsidy framework, while using the Soil Association Exchange platform to monitor and verify progress to showcase Scope 3 reductions. We will start by piloting this model with a limited number of farmers, food businesses and landowners and believe it can offer a basis for wider change, if combined with complementary action from government.

As part of our long-standing support for the UK Agricultural sector, we are calling on the Government to:



Back a standardised methodology for measuring farms' environmental impact;



Develop a decarbonisation and nature strategy for agriculture that sets out, in one place, how we will deliver productivity, profitability and sustainability improvements together;



Collaborate with industry to overcome the barriers faced by farmers – including around the flows of finance which can help deliver changes, and provide fair rewards in return.

Combined with this policy support, we believe new, privately financed models, like the one we have chosen to pilot, have the potential to bolster the resilience of farming businesses and enable long-term growth in the UK agriculture sector. We look forward to sharing further information on the pilot in due course.

The following pages outline some of the insights that have led us to develop this response to the urgent need for change.

Creating a new baseline for UK agriculture

Soil Association Exchange has so far assessed 238,494 hectares of UK farmland, with environmental impacts encompassing a breadth of factors, with action plans developed that are bespoke to each of the 685 farms.

It overcomes issues where data is too often viewed through a single lens of environmental consequence, when the reality is a complex ecosystem specific to almost every farm.

Until now, there has been no major roll-out of standardisation in the methodology of collecting and reporting different aspects of farm environmental data in the UK.

The food value chain is now recognising reward in verifying and progressing sustainability claims 'from farm to fork', presenting opportunities for farmers to take a share of that reward. Data and collaboration are key.

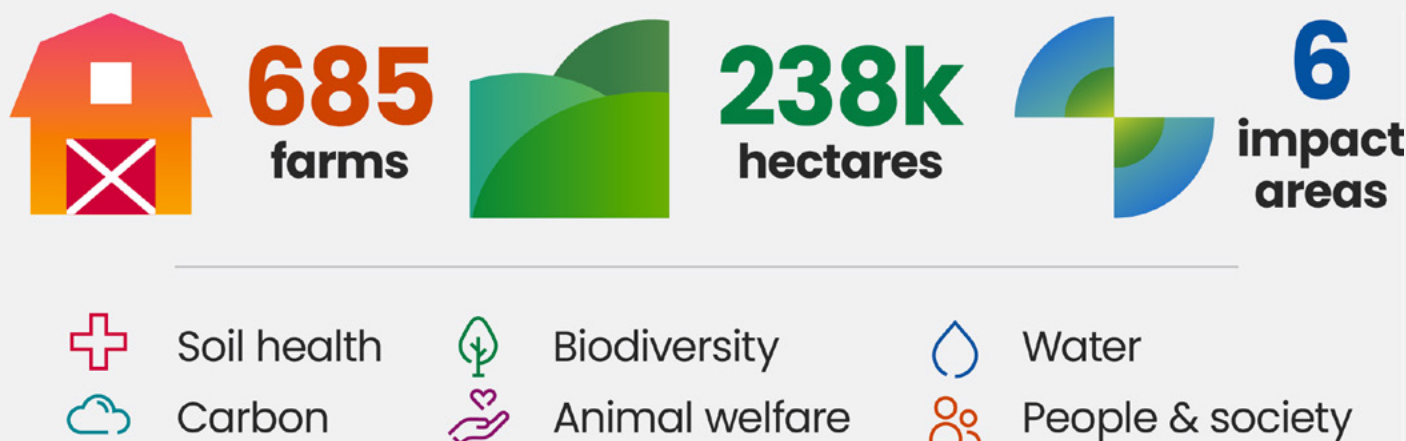
There is also disparity in the 'solutions' presented to farmers. It has been reported there are over 65 carbon calculator tools on the market⁵ and 81 available for use on-farm from across the world.⁶ Farmers see calls for tree planting and local nature recovery projects; some seeking to extend animal welfare and habitat driven protocols; with others advocating increases in on-farm accreditation and assurance.

It is a confusing landscape for the farming community and clarity and vision are urgently needed.

By investing in consultancy for our customers we have created a *de facto* standard by which our farmers can make the right decisions field-by-field, farm-by-farm. This forms the basis for the calls to action that should be on the agenda of policy makers, financiers and anyone who cares about how we feed the UK through our natural environment – balancing food production with the protection of nature.

There is much debate surrounding the agreed scientific methodology for undertaking on-farm environmental data assessments and audits. Open source, ratified methodology that is scientifically proven should be the basis for a common approach. This is the basis for the Soil Association Exchange⁷ on-farm audits and consultancy that has been undertaken by the farms so far. While these farmers potentially represent a more progressive cohort who are already making environmental improvements, it is important to recognise the opportunity for all UK farmers to engage in and use the Soil Association Exchange tool.

What is needed to achieve the gains that those decisions can unlock is access to this kind of reliable, interoperable data for all; clarity on the choices available to those who are empowered to deliver the outcomes we are seeking; and for public and private sector incentives to align and for support to be better coordinated.



⁵Carbon calculators compared | Farm News | Farmers Guardian

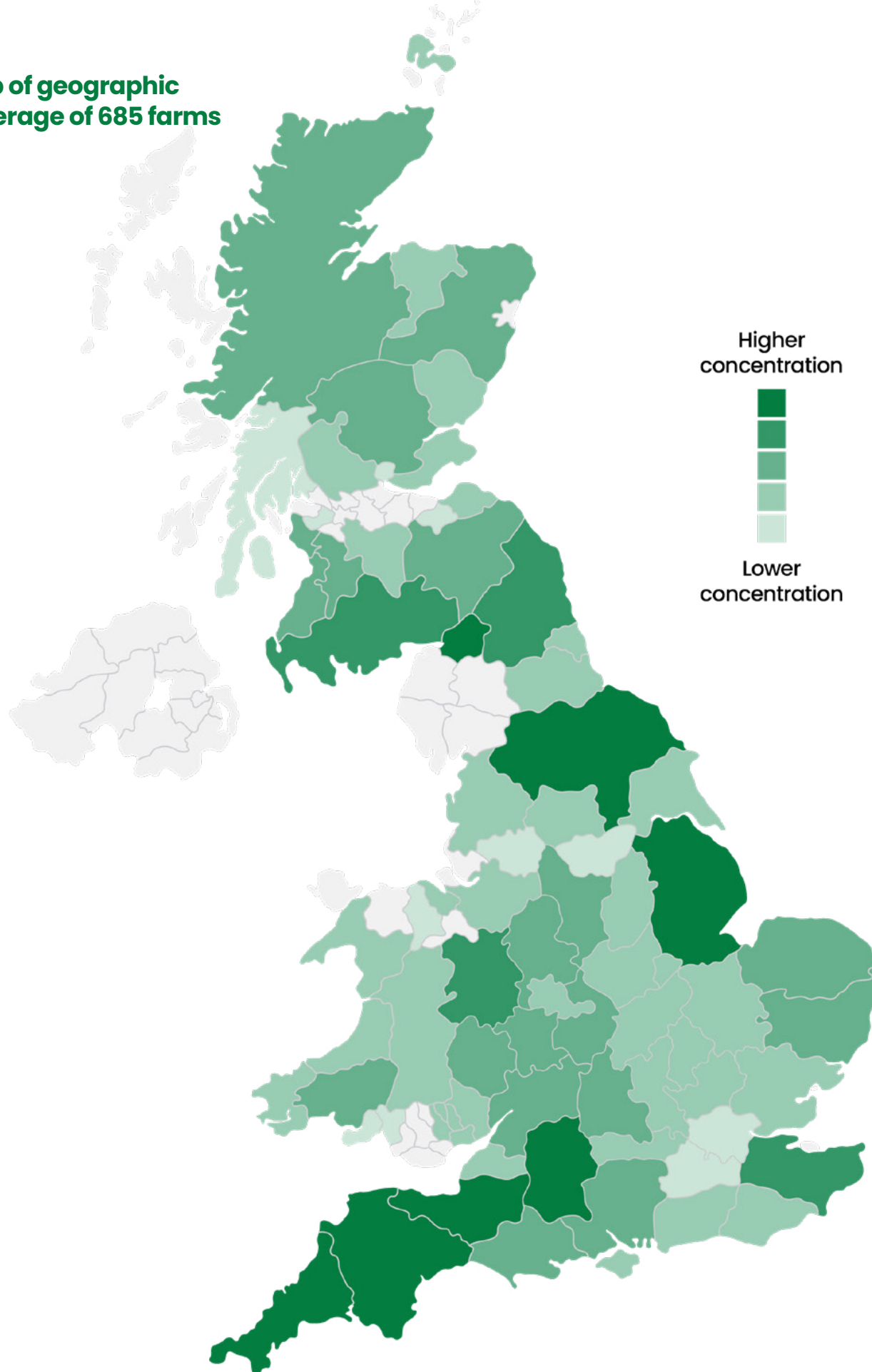
⁶Harmonisation of Carbon Accounting Tools for Agriculture 4270_SCF0129.pdf

⁷soilassociationexchange.com/_files/ugd/21f3ea_5acb58c9b5724003bcb16c563fa808c6.pdf

Soil Association Exchange baselining audit is backed by a scientific advisory board, plus farmer and food chain advisory boards to ensure robust data collection and analysis. Its methodology is open access and there is a free online version of the tool to allow any farmer to make their own assessments and build action plans. The full Soil Association Exchange report is available [here](#).



Map of geographic coverage of 685 farms



On-going farm audits

The number of farms undertaking an on-farm Soil Association Exchange environmental baselining audit continues to increase. This report covers data collected from the first 685 farm consultations during 2022 and up until August 2023.

How the Lloyds farms scored

It's clear that the Lloyds funded farms involved in the Exchange initiative to baseline businesses' environmental practices are already on the front-foot when it comes to transitioning to more sustainable farming systems.

Nonetheless, the results relate to a wide breadth of environmental practices and measurements, producing scoring criteria that show the complexities and variations across the UK farming sector.

Compared to the UK average, Soil Association Exchange data for these farms shows productivity per hectare is higher, emissions relative to revenue per farm are less, and pesticide use is lower relative to farm yields.

UK soils currently store about 10 billion tonnes of carbon, roughly equivalent to 80 years of annual UK greenhouse gas emissions.⁸ Overall, soil carbon, varied greatly across our farms (32–267 tonnes of carbon/hectare), reflecting the diversity of farm types, landscapes and geographical locations of the businesses involved. The most precious commodity of any farm, soil is not only a vital carbon sink, but high soil health is essential for any farm and translates into stronger structural stability, improving resilience to flooding and drought, and healthier crops that are better equipped to combat pests and diseases.

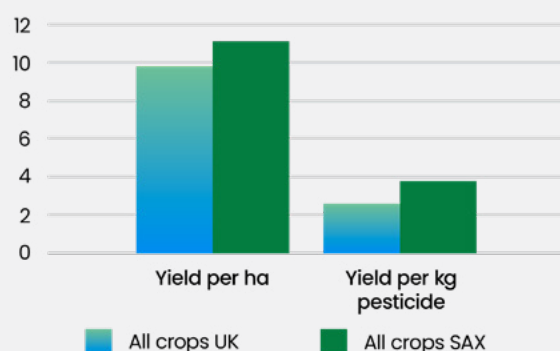
Farms that included livestock scored well for diversity of plant life had higher levels of carbon stored in their soil and produced manure which reduced the need for artificial fertiliser – partially mitigating their detrimental carbon emissions, an area where these farms did score poorly.

However, the lowest scoring category across the farms in this cohort was for biodiversity measurements, which covered plant life, hedgerows, birds and space for nature with half of the farms measuring a 'poor' rating for biodiversity. This shows the urgency for action, all have a role to play to improve biodiversity scores from this initial baseline.

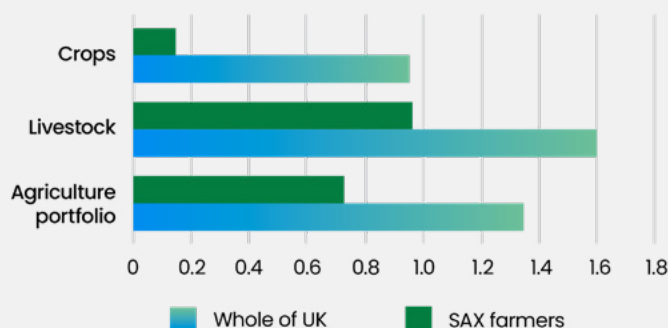
Conversely, species of birds designated 'most threatened' or of conservation concern feature highly on our farms – showing what an important resource well-managed farmland is for the broader ecosystem and how we can use these indicator species in future research and datasets as a proxy for our farm environmental health.

84% of the farms that have gone through the process are Lloyds Banking Group customers. We have performed additional analysis to delve deeper in to their action plans and group recommendations by theme. The following section relates to these farms only.

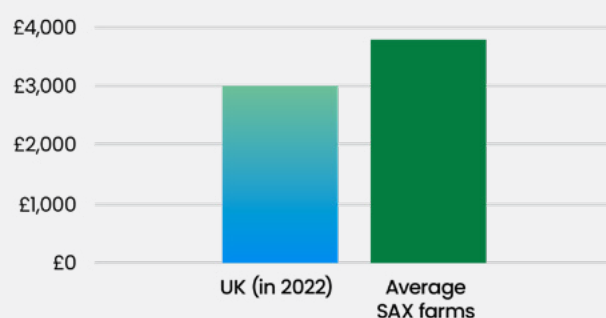
Yield per hectare



Emissions revenue intensity (tCO₂e/£'000s)



Average revenue (£/ha)



⁸Summary of the state of the environment: soil – GOV.UK (www.gov.uk)

How Soil Association Exchange is unlocking practice change

Our consultancy didn't just audit the wealth of natural resources in our farms – it also put forward over 4,000 bespoke recommendations to the 685 farmers involved in the Soil Association Exchange consultancy process. This has been converted into over 750 definitive actions across the total number of UK farms who have been through the Exchange process.

Top actions are typically those that provide an immediate cost saving or link to an obvious source of funding such as those under the government's Environmental Land Management Schemes⁹, including Countryside Stewardship grants or the Sustainable Farming Incentive¹⁰. Meanwhile, lower uptake relates to practices requiring capital investment or for which there are no immediate returns.

Top actions



Reduce fertiliser use

Action: Look to reduce or move to alternative fertilisers, such as green options.

Number of recommendations: 46

Uptake: 76.1%

Insight: Improving efficiencies by optimising spray timings and using the most efficient fertilisers – which could mean switching to alternative inputs such as organic manure or nitrogen-fixing bacteria is a simple and a quick change growers can implement without adding any cost to their operation. Reduced input costs also improve profit margins. Restructuring their systems to incorporate legumes, which fix nitrogen in the soil, is also a relatively simple and cost-effective change to promote soil health.

Soil nutrient management

Action: Carry out soil analysis to determine what nutrients the land needs so bespoke application can be carried out. This approach reduces input costs and ensures crops are only given what they need.

Number of recommendations: 144

Uptake: 37.5%

Insight: Creating nutrient management plans – from analysing soils to thinking about crop requirements, understanding the value of organic manure and calculating bagged fertiliser needs – is a fairly straightforward process that can lead to immediate cost savings. This is also an option incentivised under the Sustainable Farming Incentive.

Tree and hedge planting

Action: A mixture of replanting or filling in gaps in hedges, alongside better hedgerow management and

planting trees in unproductive areas of farmland. Can also include areas of silvopasture – where livestock is grazed beneath trees – and agroforestry.

Number of recommendations: 390

Uptake: 35.9%

Insight: Green initiatives such as the Woodland Trust's MOREhedges scheme offer funding and advice to farmers and land managers to help cover the costs of hedgerows and tree planting. Hedgerows are also an option under the Sustainable Farming Incentive. The Woodland Trust also offers expert advice to support farm businesses, making tree and hedge planting an accessible option for many. Benefits extend to land resilience to flooding and drought and is often adopted as part of development requirements to deliver a Biodiversity Net Gain when building new housing, commercial or infrastructure developments.

Crop rotation

Action: Adjusting the way fields are farmed, ensuring a good mix of 'giving back' to the land as well as taking from harvest. This tried and tested approach helps create a balance where the ground can rest, helping to boost yields and crop resilience.

Number of recommendations: 57

Uptake: 35.1%

Insight: Another option that is simple and cost-effective for many growers to adopt, crop rotations can help keep disease, pest and weed pressure down – reducing the need for inputs (so boosting profit margins) – while maximising returns on cereals, oilseed rape, beans, sugar beet and potatoes. A win-win for farmers and the environment, it usually doesn't require major changes to machinery or management.

Unsurprisingly, across the Lloyds-funded farms, we see a clear link between existing funding incentives, our supportive financial products and a higher uptake of recommended Exchange actions. And although the practice change on these farms is not yet widespread across all UK farms, the data points to the need to set a clearer way forward for UK farmers, combining a policy landscape that affords long term certainty with economic support that guarantees incentive and reward.

Least adopted

Min or zero tillage

Action: Planting crops with minimum soil disturbance, either through direct drilling or very shallow cultivations, to keep soil structure.

Number of recommendations: 188

Uptake: 8.5%

Insight: Min or no-till farming needs specialised equipment, such as disc seeders or direct drills, which means making large investments in agricultural machinery – albeit, fee-free lending is available under the Lloyds Banking Group Clean Growth Finance Initiative. It also means a wholesale change to a farm's cultivation practices that may have been established for generations.

Rotational or mob grazing

Action: Intensively grazing fields for short periods allows grass to recover for longer than if it was continuously grazed. This encourages deeper roots, better quality grass and improved soils.

Number of recommendations: 301

Uptake: 3.3%

Insight: Introducing rotational grazing can require capital investment in terms of movable fencing and can require additional staffing support and skilled labour that some farmers might not have access to. However, farmers would be encouraged to consider this against the payments that can be gained for such practices under the Sustainable Farming Incentive.

Field margins

Action: Look to reduce the area of farmed land in each field, leaving more space around the perimeter for wildlife and space for nature. Often planted with herbals leys and wildflower mixes.

Number of recommendations: 315

Uptake: 6.7%

Insight: Concerns over the risk of weeds spreading into crops have been identified as a reason why growers can be reluctant to introduce field margins¹¹. Reducing crop areas can also impact on yields and profits, which could deter producers from making this change

Slurry management

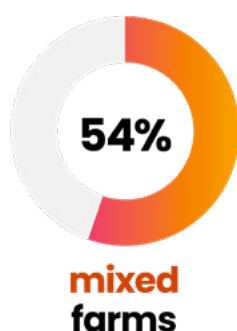
Action: Aim to limit the run-off or emissions given off with exposed slurry through a variety of options, including concreting farmyards, creating slurry lagoons, manure separators and ensuring slurry pits are kept covered.

Number of recommendations: 241

Uptake: 7.9%

Insight: Defra has made some funding available to replace, build or improve slurry storage, but it's only available to a limited number of enterprises. Priority is also being given to specific regions and businesses that meet certain criteria, making widespread adaptations difficult. There are clear benefits to the nation's watercourses of limiting run-off and supporting farmers in doing so.

The make-up of our Lloyds farms



⁹ Environmental Land Management (ELM) update – GOV.UK (www.gov.uk)

¹⁰ Find funding for land or farms – GOV.UK (www.gov.uk)

¹¹ <https://www.sciencedirect.com/science/article/abs/pii/S0169204609001479>

Client case study: Pioneering soil health improvements

Andy Gray, Devon

Devonshire farmer Andy Gray is a pioneer of regenerative farming, having adopted practices to reinvigorate soil health nearly two decades ago.

"I've got an ongoing fascination with soil which predates it becoming fashionable."

Being an early adopter meant Andy was not getting financially rewarded for all the changes he had made. Undertaking a Soil Association Exchange baselining audit has been useful at signposting him to current environmental schemes, so he can grab opportunities under the new Sustainable Farming Incentive (SFI) 'with both hands.'

"It provided useful advice around SFI opportunities; flagging up a few SFI actions I'd not thought about doing," explains Andy.

The farm scored highly on biodiversity, particularly hedges, which were found to be dense and well managed. This is because Andy favours cutting the 12,000 metres of hedges that he manages every two to three years, rather than annually.

His auditor pointed out three different options for hedgerow management under SFI that he was eligible to claim.

The farm also scored highly for water management.

Practising minimum tillage for the past 17 years and growing winter crops after maize keeps soils intact and healthy. These practices have also mitigated flooding.

"Our soil used to run every time it rained. Now our soils don't move anymore. When it rains, the water just sinks in, and we stay green during dry periods."

Growing 24.2 hectares of herbal leys has improved soil health and carbon storage. Prior to establishing herbal mixes under the Mid-Tier stewardship in 2021, the farm was under intensive arable cropping.

Soil tests undertaken as part of the review have shown that in just three years carbon sequestration levels have improved from 1.2-1.9% to 2.4%, the equivalent of 70 tonnes of carbon per hectare.



"We have sandy soils that have a reduced capacity to lock up carbon, so I think that's a reasonable response. It takes time. People who tell you it doesn't are talking complete rubbish."

A self-coined 'agricultural experimentalist', Andy is one of seven farms participating in the Devon Silvopasture Network to understand how grazing cattle in fields of trees can be beneficial. The trees, guards and stakes have been funded by Lloyds Banking Group in collaboration with the Woodland Trust.

Andy runs a catering butchery business, supplying hotels and restaurants throughout the South West and believes carbon auditing is becoming increasingly important for his customers.

"It's another layer of credibility. If you can do everything right, then you tick the boxes for all the different types of customers you have."

In the future, he believes the baseline body of evidence will aid decision making.

"The audit is a knowledge exchange. We've come an awful long way in 17 years, but none of us have all the answers and it helps us identify where we go next."

Based on some of the report recommendations, Andy now plans to lime fields to improve pH in poorer-scoring pastures and continue to track carbon sequestration.

These actions will help improve soil health even further and drive production and profitability in equal measures, he explains.

Andy Gray, Elston Farm, Crediton, Devon

- Farming 61 hectares
- Mid-Tier stewardship
- Mixture of herbal leys, pollen and wild bird mixes
- 40 red deer and a small number of Jersey dry cows which are fattened for beef
- Owner of MC Kelly Ltd, a catering butchers and game-dealing business supplying hotels and restaurants throughout Devon and Cornwall
- Produces FarmWilder regenerative meat boxes
- Runs a dog food company to add value to less significant cuts

Soil Association Exchange baselining audit results:

- Excellent water run-off management due to minimum tillage, the creation of riparian buffer strips around rivers and streams, and use of winter cover crops
- Strong habitat management – wildflower margins, well-managed hedgerows and woodland – are havens for wildlife
- Diversity of plant species and minimum tillage aiding high worm counts and good soil health
- 18 bird species – including two red-listed species (Skylark and House Sparrow) – recorded
- The farm has two 11kW wind turbines and 230kW of roof and ground-mounted solar panels, which means the business is self-sufficient in one-third of its energy

Key recommendations:

- Claim SFI options for hedgerow management – £13 per 100 metres (m) for one side of an eligible hedgerow per year¹²
- Consider liming fields to improve pH on poorer pastures
- Track carbon sequestration by testing soils every five years
- Claim SFI option for cover crops following maize – £203 per hectare (ha) per year¹³



¹² CHRW2: Manage hedgerows – GOV.UK (www.gov.uk)

¹³ SOH4: Winter cover following maize crops – GOV.UK (www.gov.uk)

Client case study: Regenerative experimentation paves the way for profitable farming

Sam Watson-Jones, Shropshire

Shropshire arable farmer Sam Watson-Jones is rethinking his approach to profitable farming by moving away from intensive agricultural practices to focus on building soil health.

Howle Manor, located near Newport, consists primarily of light, sandy soils prone to flooding in the winter and drying out in the summer. A recent Soil Association Exchange baselining audit highlighted the potential benefits of increasing soil organic matter on his farm, where levels are currently low at 2.3–2.6%.

These benefits include improved water-holding capacity, nutrient mineralisation, biological activity, and water and air infiltration rates. Higher levels of organic matter also enhance the soil's ability to sequester carbon, helping to offset other farm emissions, including his 300,000-bird broiler (meat) poultry unit.

Over the last decade, Sam has made significant strides in improving soil health by transitioning from ploughing to minimum tillage—a technique that reduces soil disturbance. However, the Soil Association Exchange report identified additional areas for improvement.

Following the report, Sam is keen to diversify the cover crops used on his 500-hectare farm. Currently, he uses multi-species cover crops such as clovers, buckwheat mixes, and radish to prevent bare soils. However, the report suggests experimenting with a mix of at least five to six species with varying root depths to further enhance soil health and build soil organic matter.

By increasing soil organic matter, Sam also hopes to boost earthworm populations, which are key indicators of soil health. To further improve soil conditions, he is regularly mapping his soil and applying chicken manure from his broiler unit, while exploring ways to use the manure more effectively to prevent high phosphate levels from causing nutrient lock-up in the soil.

In 2024, in a bid to reduce input costs, improve soil health, and expand his market, Sam experimented by growing 30 hectares of wheat for Wildfarmed, a premium food and farming business specialising in regenerative wheat for flour. He intercropped wheat



with beans, a nitrogen-fixing crop that supplies the necessary nitrogen for the wheat. This approach aligns with his strategy to move away from commodity production and focus on higher-quality products for direct-to-consumer sales.

Sam believes this shift is crucial because of the growing challenges in making a profit from farming, combined with the UK's variable climate conditions, which puts UK growers at a disadvantage compared to countries with more favourable growing environments.

The Soil Association Exchange report also suggested that agroforestry could further improve soil health while providing an additional income stream. Currently, only 3.7% of the land at Howle Manor, excluding hedgerows (7% with hedgerows), is woodland. The RSPB recommends aiming for 10% woodland cover. Sam is considering planting avenues of trees or integrating fruit trees into fields to act as windbreaks and provide secondary income. Potential future agroforestry funding from DEFRA could support these efforts.

Sam says: "There are many positives in the report, such as the 27 km of hedgerows we have on the farm and the diverse bird populations. While we're not a farm in crisis, there are still areas for us to build on, and the report has given us a solid baseline and action plan for improvement."

Sam Watson-Jones, Howle Manor, Newport, Shropshire

- Farming 500 hectares, combinable crops
- 300,000 broiler chicken (meat) unit
- Grain sold to brokers, seed merchants and a premium brand
- Switched to minimum tillage about 10 years ago
- Has non-farming businesses that help subsidise the farm

Soil Association Exchange baselining audit results:

- Impressive levels of birdlife, including skylarks, linnets and greenfinch, which are on the RSPB Red List
- Good use of cover crops, with minimal bare soils.
- Good soil structure, great bulk density and well-maintained pH levels
- A whole-farm irrigation system means a low score for water use
- The farm has a 300kW solar which supplies most of the electricity for the broiler unit
- Good levels of water runoff management with use of cover crops and some buffer strips
- Good number of hedgerows on the farm – over 27 km, but some refinement in their management to aid wildlife

Key recommendations:

- Claim Sustainable Farming Incentive (SFI) options for hedgerow management – £13 per 100 metres (m) for one side of an eligible hedgerow per year¹⁴
- Consider mix of five to six cover crop varieties to build soil organic matter
- Create skylark plots by leaving areas of arable fields unsown – a paid option within the Countryside Stewardship
- Build soil organic matter – a 1% increase in organic matter will result in 100,000 more litres per hectare of water being stored
- Establish living mulches under cash crops to help build soil organic matter



¹⁴ CHRW2: Manage hedgerows – GOV.UK (www.gov.uk)

Challenges to change



Farmers can be faced by multiple demands from multiple sources for data provided in multiple different ways

Overhaul of government subsidies	Extreme weather / climate change
Price pressures	Varying data and measurement standards

From small family livestock farms to large-scale arable operations, the diversity of the UK's farming industry means finding ways to make the sector more sustainable isn't simple.

Each business is different, and there's no one-size-fits-all solution. This adds to the complexity of identifying and selecting strategies that could help farmers drive environmental and sustainable change.

In 2022, Defra published its National Food Strategy¹⁵, but the agriculture sector is still waiting for a long-term plan that would set the direction for future farming policy and support their investment decisions. The Agriculture Transition Plan (including the most recent update covering the period to 2027) and Environmental Improvement Plan ('EIP' – now under review) produced by the former government provided valuable thinking – but more is now required. Farmers need guidance on the choices they can make in order to help achieve the high-level goals of the EIP. Similarly, they need clarity on the tools and support that can help them implement those choices, and deliver positive change. This clarity needs to look further than the ATP's 2027 horizon, and wider than its focus on public programmes – for example, identifying the areas where supply chain support and private finance should align and focus.

The upcoming Land Use Framework will play an important role, offering guidance on the best use of individual parcels of land. However, it is unlikely to resolve the lack of clear long-term strategy for how we should steward the land we continue to use for food production.

Without a clear strategy for farming, we may see changes to how some of our land is used, but we cannot be sure what these will be, nor whether they deliver the most positive outcomes. Equally, the Land Use Framework will not provide the clarity needed on how we can steward the land which we continue to farm to ensure it maximises sustainability, productivity and profitability. Without this guidance – without a clear strategy for the agriculture sector – we risk missing out on jobs, growth and wellbeing improvements which are, in all senses, truly sustainable.

Meanwhile, producers face additional pressure from processors and retailers who have their own sustainability

targets and auditing processes – processes that are often in addition to SFI goals and can be costly for producers to implement.

There's no doubt that UK farmers form a key part of the answer to the environmental challenges the country faces, but as we enter a new era of agriculture, farmers need collaboration, motivation and support.

Barriers to switching to sustainable farming practices

- Historically low farm incomes preventing significant on-farm investment
- Drawn-out and complicated introduction of the Sustainable Farming Initiative, which has contributed to a lack of understanding of the longer-term vision for the UK agriculture sector
- Difficulties around awareness, understanding, and accessing private financing initiatives
- No standardisation of UK methodologies in carbon calculators and other environmental measurement. Coupled with difficulties in establishing baselines, measuring changes and providing consistent environmental improvements also hinder progress.
- No national farming strategy nor clear set of implementation support and guidance, which supply chain actors can use to deliver privately-funded incentives that align with, complement and enhance the impact and value for money of public schemes
- Uncertainty over long-term spending budgets for farming

Despite food production incentives, the UK still only produces 60% of its total food needs, which equates to 74% of what the country is able to grow. This is an important aspect to consider, particularly in the context of wider world events – such as the Ukraine war – that have the potential to hamper food security. As this report highlights, UK farm and food production standards (such as animal welfare) are also typically higher than imported counterparts. Care should be taken not to disincentivise food production in the name of environmental gain if the upshot is food imports produced at lower standards.

Balancing sustainability, productivity and profitability

Making fundamental and comprehensive changes takes time, a clear vision and direction, as well as secure funding and adequate support to ensure farmers and land managers don't bear the burden of these initiatives alone.

UK farmer incomes vary significantly, and while 41% of farm businesses have a net income figure of more than £50,000, this doesn't take into account the value of any family labour. More worryingly, 17% of farms do not make any positive income.⁷

Low incomes and income uncertainty, combined with extreme weather, rising production costs, unpredictable markets and short-term drops in yields associated with switching to sustainable farming practices (see box) mean farm businesses need incentives to ensure they can afford to take risks and invest in alternative, more sustainable farming techniques.

And with increased recognition from food value chain actors about the value of measuring sustainability claims 'from farm to fork', comes a clear opportunity for farmers to benefit.

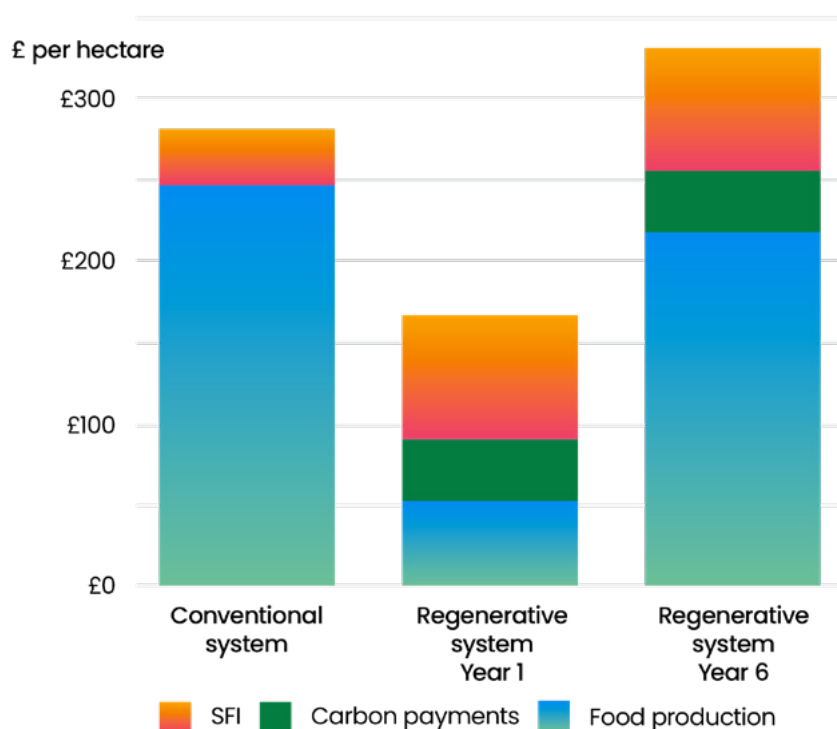
Six years to propel sustainable farming profit

Research suggests farmers who transition to regenerative agriculture — practices that improve soil health, sequester carbon and have a positive impact on water and biodiversity — will see a short-term drop before profitability recovers.

Initial reductions in cereal yields and margins can be as high as 25% in the first few years. However, improvements to soil structure, reduced input costs and payments from carbon storage and SFI schemes means net margins should increase — usually by year six.¹⁶

The research highlights improvements of up to 18% net profit improvement over six years when comparing regenerative versus conventional farming practices.

Comparison of net margins and sources of income



⁷ soilassociationexchange.com/_files/ugd/21f3ea_5acb58c9b5724003bcb16c563fa808c6.pdf

¹⁵ <https://www.nationalfoodstrategy.org>

¹⁶ Savills UK | Is regenerative agriculture financially viable?

Lessons for UK agriculture



Ensuring UK farm businesses transition to a more sustainable future is critical to increasing the country's food security, delivering on the UK's legally binding net zero goals, and meeting targets around the protection and restoration of nature. The agricultural industry and nature are inextricably linked, putting farmers in the perfect position to drive environmental improvements.

However, each farm business is different; they need tailored solutions that recognise the geographical, economic and technological challenges they face. Each business faces different external pressures, too; from retailers and processors introducing strategies to reduce indirect (Scope 3) emissions, to accreditation schemes calling for specific targets to be met.

Private and public investment to unlock farm sustainability

Positioning ourselves in the centre of the farming and food value chain system debate, Lloyds Banking Group has made a ten-year commitment to working with Soil Association Exchange to measure farms' environmental impact and help unlock their potential, as an important part of the solution.

Looking to the future, new private funding which addresses current farm income gaps will also be critical. In Autumn 2024, as a member of the Sustainable Market Initiative's Agribusiness Transition Hub, Lloyds Banking Group, alongside Soil Association Exchange and Finance Earth aim to pilot a new finance model, which rewards farmers for prioritising environmental outcomes in their businesses, bridging the financial gap for our food producers, and advancing the sustainability of the sector.

With a working name of 'Exchange Market', the pilot will pool funding from a range of supply chain businesses, making payments to farmers over sustained periods to support them in transitioning to more sustainable practices. Environmental outcomes will be monitored and verified using the Soil Association Exchange platform, allowing those supply chain partners to evidence impact and progress towards Scope 3 reductions.

Policy asks

Our partnership with Soil Association Exchange provides compelling evidence, on an unprecedented scale, around both the barriers to sustainable farming in the UK today and the benefits available if these can be overcome.

Access to high quality advice is essential and we have demonstrated the readiness and resource available on the part of private finance. But this kind of action alone is not sufficient.

These efforts need to work alongside a policy framework that ensures farmers have strong guidance, a clear vision and access to trustworthy tools and long-term supportive advice. As demands on farmers grow and as policies focusing on the environmental impact of UK agriculture continue to evolve, we're calling on Government to:

1

Back a standard method for measuring farms' environmental impact,

ensuring calculators and platforms create data that is reliable, operates across different systems and can be widely used. As government has already acknowledged, this will boost trust and uptake of these tools, empowering farmers and their value chain partners to make choices around improved practices and work together to implement change. Reliable data is critical to this kind of fair risk-sharing and reward, which will also help create the conditions for rural growth.

2

Develop and deliver a decarbonisation and nature strategy for agriculture

that sets out, in one place, how we will deliver productivity, profitability and sustainability improvements together. This will provide farmers, advisors, manufacturers, retailers and investors with a common reference point for considering how to make the changes needed to unlock these gains, over the next 25 years. It will deliver a step change in the certainty offered to farmers, allowing them to plan for long term growth, and create the conditions for increased and better-aligned private sector support. Critically, this will deliver fair reward for farmers, and reinforce the value for money and impact of government schemes, such as the Sustainable Farming Incentive.

3

Unblock flows of green finance to UK farmers,

and work with private actors to overcome the financial barriers and help share risk. Action to create the right level of risk-sharing can help unlock significant new investment in UK farming and deliver the environmental and economic benefits of sustainable farming. By learning lessons from mechanisms that have worked in other sectors of the economy, this can be done at minimal upfront cost to the public purse – and maximise the value of spending in areas such as the Sustainable Farming Incentive.

It's only through joined-up, strategic support that the UK's diverse farming business will be able to adapt, innovate and ensure our farming industry is environmentally and financially sustainable for the long term.



Client case study: Exceptional herd health lowers carbon footprint

Roger and Catherine Howells, Wales

Investing in farm infrastructure is helping one family farm in West Wales maintain exceptionally high levels of animal welfare, which has helped to lower its carbon footprint.

Roger and Catherine Howells milk 148 pedigree Holsteins at Blaengelli Farm in West Wales alongside their daughter, Sarah.

The Howells said the Soil Association Exchange baselining audit was straight-forward. They already had most of the data to hand to populate the database from the monthly reviews they carry out with their farm consultant.

Over the past decade, the family has steadily invested in farm facilities with the help of Lloyds Banking Group. Eight years ago, they built a 320-cow cubicle shed to house milking cows and cows not producing milk but are due to calve (dry cows).

This meant they did not have to move dry cows to a separate farm. This has enabled them to feed a bespoke dry cow diet to cows close to calving which has improved cow health exponentially.

Roger and Catherine gained the confidence to buy a neighbouring farm six years ago when Sarah returned home to work on the farm full-time. This expansion increased the farm's land mass, allowing them to become more self-sufficient in producing homegrown feed.

The Howells use low-emissions equipment to reduce ammonia emissions when applying slurry and carry out soil testing to create a bespoke prescription for each field based on its nutrient requirements.

This helps them produce milk efficiently from grass. Cows are milked twice daily and produce high milk yields from a simple diet of grass-silage, straw and minerals.

Good management ensures youngstock first calve at the optimum age of 24 months and the herd has excellent fertility.



Combined, these steps have seen them make great strides in lowering their carbon footprint to 1.06kg of CO₂ equivalent per litre of milk, compared to the national average of 1.2kg.

However, a recent TB outbreak has forced them to keep double the number of youngstock to replace lost animals. The increase in methane emissions has resulted in CO₂ equivalent emissions rising to 1.27kg per litre of milk.

"It's very frustrating because it's something we feel is completely outside our control," says Catherine.

They have carried out sustainability audits with their milk processor, Muller, for the past five years but wanted to develop their understanding of soil health, and the tests carried out through the Soil Association Exchange baselining audit went much deeper.

"It looked at soil pH, phosphate and potash, alongside copper and magnesium levels — which we hadn't done before," explains Roger.

The Howells family will now review the results alongside their agronomist to see how effective changes can be made to their nutrient management plan.

**Catherine, Roger and Sarah Howells, Blaengelli Farm,
near Whitland, Carmarthenshire**

- Farming 142 hectares, all grassland
- Milking 148 pedigree Holsteins yielding 11,000 litres at 4.8% butterfat and 3.3% protein
- Supplying Muller/Morrisons on an aligned milk contract
- Second and third-generation farmers
- Running a closed herd, breeding their own replacement
- Cows are grazed from May until the autumn
- Cows calve all year round

Soil Association Exchange baselining audit results:

- Low levels of disease contributed to high animal welfare scores
- Dense, well-managed hedgerows acting as corridors for wildlife
- Excellent soil structure was observed; soils were crumbly, porous and open, allowing good movement of air and water
- Low worm counts, and pH needs raising on some fields to improve fertiliser efficiency

Key recommendations:

- Introduce clover to reduce nitrogen inputs and improve forage quality
- Establish deeper-rooting grasses and legumes to increase organic matter and carbon
- Apply farmyard manure (FYM) to low phosphate and potash fields to reduce reliance on artificial fertiliser
- Apply lime to fields not at the optimum pH of 6.5
- Once the industry agrees on a standard measuring tool for soil sequestration, start undertaking regular soil analysis to get a baseline of the farm's carbon sequestration.
- Difficult to understand opportunities for habitat management until Wales's Sustainable Farming Scheme has been released



Client case study: Re-thinking feed for reduced emissions and resilient pig production

Hugh Shedden, Yorkshire

Yorkshire pig and arable farmer, Hugh Shedden of Shedden Farms in Shipton, Yorkshire, has strengthened his farm's resilience over the past five years through strategic changes, ensuring its survival during one of the most turbulent periods for the UK pig industry while also reducing environmental emissions.

Hugh shifted the farm's business model five years ago from a traditional breeding and finishing system (farrow-to-finish) to one focused on contract rearing and finishing up to 25,000 pigs annually for Karro Foods, a leading UK pork processing company.

During this time the farm also expanded into feed milling, processing 3,000t of feed per month using grain grown on-farm. This approach not only supports their pig operations but also supplies third-party companies, minimising food miles and emissions from feed production.

It is estimated that over half (50-70%) of greenhouse gas (GHG) emissions in pig production come from feed production, which is often overlooked in GHG analyses.¹⁷ This means optimising feed conversion efficiency is crucial for pig farmers to not only maximise productivity but also to limit emissions, a priority clearly demonstrated by Shedden Farms.

Furthermore, they have reduced their reliance on soya by installing a liquid feed system that utilises co-products from human food production. This is carbon negative because emissions are accounted for in the human supply chain. This feeding strategy enhances the pigs' genetic potential by maximising growth rates, thereby reducing emissions since the pigs spend less time on the farm.

Data collected on the farm and analysed by independent consultants enables continuous fine-tuning to ensure pigs are raised as efficiently as possible, benefiting both the farm's bottom line and the environment.

Hugh says: "You can't have sustainability without profitability. That's why we focus on feed, have brought production in-house, monitor pig performance and financials, and benchmark against other pig producers to assess our progress.

"We now have much more control than we did five years ago and face less risk, as we keep the animals on the farm for a shorter period and produce our own feed," he adds.



To further improve pig production, the farm has installed a high-tech ventilation system that adjusts temperature and airspeed according to the pigs' growth stage. This system has significantly improved air quality, enhancing health, growth rates and pig behaviour.

Pig manure and slurry, the largest contributors to GHG emissions in the pig industry, are also being effectively used on 1,550 hectares of arable land, reducing reliance on artificial fertilisers and improving soil health. A recent investment in some precision slurry application equipment will further fine-tune slurry application.

The farm conducts regular soil testing to ensure proper nutrition is applied to optimise crop yields. This autumn (2024), an in-depth soil management plan will further refine these practices.

Additionally, the farm participates in two environmental agreement schemes – the Mid-Tier Scheme and the Sustainable Farming Incentive – which has seen them establish wildflower corridors, plant and manage hedgerows, grow winter bird food and grow nectar flower mixes, for example. It is something they will continue to develop through these schemes and with recommendations from their Soil Association Exchange audit.

The farm also operates a 250kW ground-mounted solar array that supplies much of the energy needed for the feed mill and piggery. Plans are already underway to increase their renewable energy capacity with the installation of an additional 120kW roof-mounted solar system.

Hugh Shedden, Shedden Farms, Shipton, North Yorkshire

- Contract rearing and finishing up to 25,000 pigs a year for Karro Foods, some on straw – RSPCA accredited
- Farming 1,500ha of combinable crops – including wheat barley, rape, oats and beans
- 250kW ground-mounted solar panels
- Increased pig finishing spaces from 1,000 to 2,500 by building another shed costing £150 per pig place financed by Lloyds Banking Group
- Using precision technology to maximise pig performance and welfare
- Growing own feed and liquid feed which is helping cut emissions

Soil Association Exchange baselining audit results:

- Soil organic matter needs improvement. Despite the use of pig slurry and manure, and crop rotation practices, soil organic matter levels are low. This reduction is likely due to previous heavy cultivation
- Soil structure is rated well in terms of bulk density, pH, and Visual Evaluation of Soil Structure (VSS) due to the shift to minimum tillage. However, earthworm counts are low, potentially due to weather conditions
- Good water use and nitrogen balance
- Scored well on carbon balance due to the high nitrogen input from pig slurry and manure

Key recommendations:

- Increase soil organic matter by establishing herbal leys. Consider using the Sustainable Farming Incentive for financial support – £382 per hectare per year¹⁷
- Perform regular earthworm sampling to monitor soil health and develop a comprehensive soil management plan
- Install rainwater harvesting equipment to improve water sustainability. Funding is available through Countryside Stewardship (£73 per cubic meter) for rainwater harvesting installation
- Investigate the use of herbal leys to decrease reliance on artificial nitrogen fertilisers



¹⁷ Part 1: Greenhouse gases produced in pig rearing | Farming Connect (gov.wales)

¹⁸ CSAM3: Herbal leys – GOV.UK (www.gov.uk)

Supporting farmers since 1765

Today, Lloyds Banking Group is the largest finance provider to UK agricultural businesses, supporting more than 40,000 farming customers across the country, as well as working with businesses up and down the food supply chain.

Our team of experts has worked closely with farmers for generations to provide the support they need to help their businesses thrive, and we are committed to supporting agricultural businesses to ensure they are sustainable for generations to come.

Working towards a sustainable farming future

In 2020 Lloyds Banking Group launched its flagship report, 'Shaping agriculture's transition to net zero'¹⁹ which outlined actions farmers could take to become more sustainable.

Since then, Lloyds Banking Group has worked tirelessly with farmers and industry experts to offer additional support and introduce initiatives, helping producers ensure their businesses are both financially and environmentally secure for the future.

Lloyds Banking Group's financial exposure on farming related projects amounted to £7.29 billion in 2023 equivalent to almost a third of all finance tied to UK agriculture.



Woodland Trust

partnership to fund new planting of trees and hedgerows



Practical Guides

On our website to support farmers become more sustainable



Clean Growth Finance Initiative

Fee free loans for sustainable projects, providing savings of 1-1.5%



Soil Association Exchange

Helping farmers transition to more sustainable practices



Exchange market pilot

A new private finance model to reward farmers for practice change



Working Capital and Loans

Additional support through extremes of weather



¹⁹ https://www.lloydsbank.com/assets/assets-business-banking/pdfs/lloyds_bank_shaping_agriculture's_transition_to_net_zero.pdf



Head office

25 Gresham Street
London EC2V 7HN
+44 (0)20 7626 1500
www.lloydsbankinggroup.com

Registered office

The Mound
Edinburgh EH1 1YZ
Registered in Scotland no. SC095000

This paper has been written with insights from Soil Association Exchange and written with the support of Pinstone and the Lloyds Bank Agricultural and Group Corporate Affairs teams.