

Financing a farming transition

Key Enablers and
Recommendations





LLOYDS BANK



About the report

In July 2022, the Department for Environment, Food & Rural Affairs (Defra) commissioned the Green Finance Institute (GFI) as part of a broader work package on financing UK nature recovery to explore how private sector sources of finance can be more swiftly unlocked at scale to support a farming transition. These sources included finance from the agrifood and financial sectors, in addition to buyers and investors in emerging environmental markets and payments for ecosystem services.

In September, the GFI brought together a cross-sectoral Strategic Working Group of 15 members (below) to identify barriers to the flow of these sources of private sector capital into the farming transition, and to recommend solutions. The GFI convened the Group every three weeks over the course of six months, in addition to hosting four public workshops and conducting interviews with over 75 people (see **Acknowledgements**) from across the agricultural sector.

While the Group expected to recommend specific financial products or solutions, what emerged instead was a common set of barriers preventing a ready pool of private sector finance from flowing into the farming transition to fund and reward environmental gain.

This report lays out the findings of the Group's work including:

- The **four key enablers** identified by the Strategic Working Group to unlock private sector finance at scale and pace for farmers – with recommendations for implementation and considerations around challenges, such as ensuring farmer data privacy.
- **Additional considerations** that emerged from the workshops and interviews.

This report has been put together thanks to the guidance and input from the Co-Chairs and Strategic Working Group members below. *The organisations on page 2 have contributed to the development of this report and support its broad recommendations. Because the report has been produced collaboratively, the individual recommendations may not always represent the view of every individual contributing organisation.*

Co-Chairs

Mark Suthern and Stuart Roberts

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Foreword

Farming in England is without doubt starting a transition which will affect almost every business in the sector regardless of size, location or the products they are producing. Any change will bring with it an equal measure of challenge and opportunity but none more so, we suspect, than in the area of where farming and finance meet environmental delivery.

Farmers have always been the custodians of the countryside, but often delivery of environmental goods, such as carbon sequestration, biodiversity, flood alleviation or water quality have been seen as beneficial extras to the farming sector's central focus of food production. Today, however, we are seeing a change that we believe will, in time, place these environmental outputs on an almost equal financial footing with the other farming products.

This is an incredibly exciting vision which we feel farmers, the agrifood sector, financial institutions and politicians must boldly embrace if we are to deliver a win for both the economy and the environment. However, we are also seeing a challenge in how to accelerate these opportunities and we hope this report will go some way to unleashing these opportunities for British farmers and for the wider private sector who want to support farming in this transition. As one farmer shared with us during this work: "In ten years' time I can see an exciting new line in my profit and loss accounts that I didn't even know existed ten years ago."

This opportunity can only be unlocked if we identify solutions to barriers that currently exist in this transition today. One of the key obstacles underpinning this area is confidence. Banks and lenders have an appetite to support the sector to survive and thrive, but there is a need to help build confidence and certainty among farmers and growers to invest and borrow. This confidence is needed even more in light of pressure on farmers from agri-inflation. A second and related obstacle is trust – either between farmers and the private sector – or, more importantly, a lack of trust in the entire area of monetising environmental outcomes. We believe the key to solving this challenge is through transparency in standards, data, monitoring and

reporting, and embracing a different culture than the one that exists in many aspects of the food supply chain today – one which has often been underpinned by a perceived lack of fairness when it comes to how farmers are treated.

A huge opportunity for both the deliverers and funders of environmental outcomes lies also in collaboration. At a farm level, we have seen great examples of cluster groups coming together and delivering for both nature and for farmers at scale. The long-term benefits of collaboration have the potential to stretch way beyond any one project and into many other areas of agricultural transition, from productivity improvements to the mental wellbeing of farming communities. This collaboration, built on trust, now needs to be extended across the supply chain.

Too often the environment and food production has been seen as a binary choice for farmers. We have seen, however, throughout the many conversations that have resulted in this final report that – with a bold vision, with the right relationships and with the support of all those involved – this view is unfounded. We firmly believe in the delivery of food and environmental restoration through the sharing of land and would ask everyone reading our recommendations to remove any preconceived ideas that farmers and farming can only produce one outcome on one piece of land. Delivery of multiple outcomes, which will vary from farm to farm and field to field, has the potential to unlock an exciting future for UK agriculture, but the key is for farmers, financiers, supply chain partners and politicians to embrace the opportunities and manage the threats.

Signed,
Stuart Roberts and Mark Suthern

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Executive summary

The UK has made a legally-binding commitment to net zero emissions by 2050. This ambitious target will require the rapid decarbonisation of the entire economy, including agriculture which, while currently accounting for an 11% share of GHG emissions in the UK, is projected to rise to make up a 30% share by 2030 as other sectors reduce emissions more quickly.

Within the 2023 Environmental Improvement Plan, targets have also been set that will need to be delivered on farms in England, including 60% of England's soils being sustainably managed by 2030, and a reduction of nitrogen, phosphorus and sediment pollution from agriculture into the water environment by at least 40% by 2038.

As the agriculture sector in England transitions to emphasise environmental objectives alongside food production, farmers are faced with both opportunities and challenges.

The Environmental Land Management subsidy schemes in England, that will replace the Basic Payment Scheme, will pay farmers and land managers to deliver climate and environmental improvement interventions alongside food production. This will help support the 70% of farm holdings that the new schemes are hoping to cover, **but there is a need for greater financial support for the farming transition.**

To date there has been no estimate on how much the transition will cost. A report commissioned by the Green Finance Institute (GFI) and produced in partnership with environmental economics consultancy, eftec, in 2021, however, found a £3.7 billion financing gap for sustainable soils management and a £19.4 billion gap for protecting and restoring biodiversity¹ to the end of 2030. With farmland representing 71% of the UK's land area, engagement with farmers will be crucial in closing this gap for nature.

The Department for Environment, Food & Rural Affairs (Defra) commissioned GFI as part of a broader work package on financing UK nature recovery to explore how the private sector could provide this financial support through the convening of a Strategic Working Group across farming, finance and the agrifood sector.

Private sector finance can be mobilised for the transition in several ways:

- **Banks** are exploring the potential to provide loans at discounted rates to farmers that meet environmental outcomes, as well as loans to cover costs required for a farming transition. Many are looking to lend to natural capital projects, and some banks are supporting farmers through the supply of measurement and monitoring tools.
- **Some supermarkets, manufacturers and food and beverage companies** are looking to support farmers within their supply chains to transition by exploring premium payments through certification, insetting payments and other incentives. They too are paying for, or developing their own, GHG emissions calculators and offering payments for basic baselining.
- **Buyers of and investors in ecosystem services** which stem from improved environmental activities on farms are also seeking to pay farmers for carbon improvements (soil, hedgerows, peatlands and woodland), habitat creation and restoration, nutrient reduction and flood risk reduction

For the finance and agrifood sectors, this support is in their own interests. Banks which lend to farmers are increasingly having to report on their financed emissions and impacts on nature. Likewise, supermarkets and manufacturers need to report on the impact of their supply chains on the environment.

However, while the private sector is committed to financially supporting a transition, through workshops and interviews with over 75 stakeholders, significant barriers were identified that are preventing private sector finance from moving at scale.

¹ GFI, eftec, Raymond Consulting. 2021. The Finance Gap for UK Nature

These interconnected barriers include:

➤ **Data** – Currently, farmers, land managers and other stakeholders in the agricultural space do not have easy access to important data sets required for decision making. Habitat, environmental and spatial data sets are currently held in multiple digital locations, are of varying quality and are often incomparable with each other due to varying data languages. A digital, standard, accurate and freely accessible representation of field parcels is also not easily available to farmers. The private sector and farmers, therefore, cannot easily source the data required for decision making, reporting, assessing risks and environmental planning, resulting in blockages to private finance flowing into the farming transition.

It is also unclear what data should be collected by farmers and the private sector. UK Government has announced multiple targets, including those set out in the 25 Year Environment Plan the 2023 Environmental Improvement Plan (EIP), but there is lacking a simply articulated vision of outcomes that can direct England’s farmers and the private sector towards data collection.

➤ **Confidence** – Within the farming community, there is an understandable nervousness that, in the push for environmental outcomes and data collection, they will be forced by the private sector to provide commercially-sensitive data, or that they may end up being at a disadvantage.

This lack of trust has resulted in a lack of engagement by parts of the farming community and so it is essential that farmers retain control over their private data, and that the transition empowers farmers rather than threatens them.

There also remains a lack of confidence from stakeholders, that the new environmental markets are high-integrity, and that environmental outcomes of a farming transition are measurable and transparent.

➤ **Implementation** – For farmers to embrace the transition, it needs to work for them – similarly, for the agrifood sector and the finance sector. A number of barriers exist that prevent commitments from becoming realised on the ground. These include: a lack of guidance around tax treatments and whether emissions have to be reduced at a farm-level; the need for aggregation models to enable delivery of environmental outcomes at scale; and a lack of clarity on stacking different environmental credits, certificates or units together and with public sector funding.



To unlock these barriers, the Group identified four key enablers.



1. Data Access and Availability

Public field parcel and environmental data should be made accessible and available at a common access point. Farmers and land managers should also be supported in accessing the data they need to help make environmental decisions through access to premium mapping software such as Ordnance Survey MasterMap. This would help farmers, banks and the private sector in sourcing accurate data to integrate natural capital into their businesses and decision-making processes. These recommendations should be implemented UK wide.

2. Priority Environmental Outcomes Metrics

There are multiple environmental targets set out by government with differing ambitions and timelines that are resulting in confusion. The private sector and farming community are seeking a clear vision from government so that they know what direction to move and where to invest their time and resources. A government-defined set of simple, priority environmental outcomes, complemented by best-practice measurement guidance, would help clarify for farmers and the private sector the environmental data they may want to collect. Metrics including soil health, water quality and nutrients, net emissions, biodiversity and flood risk have been identified as supporting both government and private sector needs. A clearer vision with a specific set of priority outcomes will also help incentivise and support farmers in this data collection.

3. Environmental Markets Guidance and Principles

Providing greater clarity and formal guidance on how environmental markets will operate would help to give farmers and other possible market participants the confidence to engage, and would help support the development of higher integrity markets leading to increased flows of private finance into the farming transition. The role of insetting, the ability to stack or blend ecosystem services, the need for overarching standards for emerging codes, the inclusion of different forms of tenure in agreements and tax treatments of ecosystem services have all been highlighted as key areas for which guidance and clarity should be provided by government.

4. Aggregation Model Support

Further funding for early-stage development of aggregation models, the development of a Community of Practice to encourage peer-to-peer learning, as well as the establishment of principles for models would encourage widespread take-up of aggregation models. This would ensure that the opportunities offered by the agricultural transition can be accessed by a variety of farm sizes, and that farmers and land managers can come together to deliver the landscape scale environmental outcomes required by government, society and the private sector.

Within each of these key enablers there is much to consider, such as data privacy, governance, and impacts of costs for government, farmers and the private sector. Cross-sectoral collaboration and open discussions will be essential in ensuring these enablers - and the flow of finance towards the farming transition at scale they are intended to unlock - are delivered. There are further considerations to be made beyond these enablers, as the farming transition begins.

- **The need for a cross-sector working group or forum consisting of the farming sector, finance sector, the food value chain and water utilities**
- **Knowledge sharing among farmers should be supported**
- **Consumer awareness of farmers' delivery of environmental outcomes and the true cost of food needs to be improved**
- **Conflicts of interest within farm advisor roles need to be kept in check**
- **Capacity for monitoring, reporting and verification needs to be built into farm advice**
- **Continued dialogue with the financial sector is needed to ensure that long-term environmental schemes do not impede banks' appetite to lend to farmers**
- **A harmonised approach to a farming transition across the entire UK would create a smoother transition and unlock broader opportunities**
- **The creation of a meta-registry of environmental credits**

Several of these enablers and additional considerations are being addressed by government and the private sector, and there is a willingness on the part of farming organisations, and the financial and agrifood sectors to further work with government to support their adoption. The full set of recommendations with detailed considerations, steps to implementation, case studies and further information can be found in the full report.

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Background



Background

There are multiple drivers of the transition to low emission and nature positive farming. Both government and the private sector will require UK farmers that are not doing so already, to make environmental improvements on their land while continuing to produce food, fibre and fuel.

Government Commitments to a Farming Transition

The UK has made a legally binding commitment to net zero emissions by 2050. This ambitious target will require the rapid decarbonisation of the entire economy including agriculture. The sector currently accounts for 11% of GHG emissions in the UK and is the primary driver of nitrous oxide and biogenic methane emissions, accounting for 68% and 47% of the UK totals respectively.²

With agriculture taking place on 71% of UK land, farmers will play a key role in reaching this UK target through land management practices which sequester carbon, improve water quality and support nature. In the 25-Year Environmental Plan and subsequent update in the 2023 Environmental Improvement Plan, Defra laid out some key environmental targets related to agriculture:

- **Farming Practices:** 65–80% of landowners and farmers will adopt nature-positive farming on at least 10–15% of their land by 2030
- **Hedgerows:** The creation or restoration of 30,000 miles of hedgerows by 2037 and 45,000 miles by 2050
- **Soil Health:** At least 40% of England's soils will be managed sustainably by 2028, increasing to 60% by 2030

- **Wildlife:** Environmental Land Management scheme (ELMs) programmes, such as future Landscape Recovery projects, must help to deliver a target of creating, restoring and extending up to 70 areas for wildlife
- **Nutrients:** Pollution into the water environment from nitrogen, phosphorus and sediment pollution from agriculture must be reduced by at least 40% by 2038³

The UK has also made international commitments to protect and restore nature which will require a transition to nature positive farming. The 30x30 pledge commits signatory governments to protect 30% of land for nature by 2030.⁴ At the 2022 COP15 in Montreal, the UK signed onto the Kunming-Montreal Biodiversity Framework which commits governments to protecting and restoring ecosystems in order to halt and reverse the decline of biodiversity globally.⁵

Private Sector Requirements for a Farming Transition

There are also several emerging requirements for banks and corporates to report on the environmental impact of their investments and supply chains. Banks which lend to farmers are reporting on their financed emissions and impacts on nature. Food and beverage retail firms will need to report on the impact of their supply chains on the environment.

² UK Agri-climate Report 2022

³ Defra. 2018. A Green Future : Our 25 Year Plan to Improve the Environment; Environmental Improvement Plan 2023

⁴ HMG Press Release. 2020. PM commits to protect 30% of UK land in boost for biodiversity

⁵ Kunming-Montreal Biodiversity Framework

TCFD and TNFD

The Taskforce for Climate-Related Financial Disclosures (TCFD), established in 2015 by the Financial Stability Board, provides voluntary recommendations on how companies can disclose their climate-related risks and opportunities in their financial reporting.⁶ In the UK, TCFD disclosures were made mandatory in 2022 for companies of a certain size, with those companies reporting on TCFD as part of their Strategic Report.

The Taskforce for Nature-Related Financial Disclosures (TNFD), launched in 2019, is a similar initiative focused on nature-related risks and opportunities. The TNFD seeks to provide a framework for companies to disclose their impacts on nature, including biodiversity loss, land use changes, and pollution.⁷ The initiative is still in the development phase, but the final version will be released in September 2023 with many civil society actors advocating for it to be made mandatory alongside the TCFD.

Transition Plan Taskforce

The Transition Plan Taskforce (TPT), launched in 2022 by HM Treasury, is developing standards for disclosure on climate transition plans which will inform future national disclosure requirements. The TPT outlines how companies should design, verify and track progress against their plan to transition to net zero. This will include guidance on how to engage supply chains in decarbonising to minimise Scope 3 emissions.⁸

UK Green Taxonomy

The UK Government is committed to implementing a UK Green Taxonomy, a common framework for economic activities and investments that can be defined as environmentally sustainable, in the UK.⁹ The Green Technical Advisory Group has been providing independent, non-binding advice to the UK Government on the design and implementation of a UK Green Taxonomy since June 2021. The recently launched Land, Nature and Adapted Systems Advisory Group will develop Technical Screening Criteria for fisheries and agriculture, helping define the actions farmers would need to take to access finance that is earmarked for environmentally sustainable economic activities.

Regulatory Reporting Requirements

In the UK, the Companies Act 2006 requires large companies to include a strategic report in their annual report and accounts that describes their principal risks and uncertainties, including those related to environmental and social matters.¹⁰ In addition, since 2018, all UK-listed companies are required to report on their greenhouse gas emissions, energy use and efficiency as part of the UK's Streamlined Energy and Carbon Reporting (SECR) regulations.¹¹ To align with the UK Government's net zero commitments, companies are also expected to disclose how they are aligning their business strategies with this goal. The FCA, which regulates UK financial markets, also requires premium listed companies to report on their environmental, social, and governance (ESG) performance as part of their annual reports.¹² The FCA is currently also developing Sustainable Disclosure Requirements and investment labels which would determine the level of sustainability of various investments. These are currently going through consultation and will be launched in late 2023.¹³

Agricultural Subsidy Reform

Having left the EU, the UK is no longer subject to the Common Agricultural Policy (CAP), the EU's agricultural policy framework that sets the funding and conditions for member states. In November 2020 the UK Government announced a nationwide agricultural transition period, launching in 2021 and ending in 2027. Direct, area-based payments will be phased out by 2024 followed by progressively reducing delinked payments to the end of 2027. BPS will be replaced with a series of payment schemes aimed at incentivising and rewarding farmers for improvements made to the natural environment on their farms. The aim of the transition is to support the agriculture sector in contributing substantially to broad environmental goals while remaining productive and profitable.

⁶ Task Force on Climate-Related Financial Disclosures

⁷ Task Force on Nature-Related Financial Disclosures

⁸ Transition Plan Taskforce

⁹ UK Parliament. 30 January 2023 Debate. Financial Services and Markets Bill

¹⁰ HMG. 2006 Companies Act

¹¹ HMG. 2019. Environmental Reporting Guidelines : Including streamlined energy and carbon reporting guidance

¹² Financial Conduct Authority. 2020. Primary Market Technical Note. Disclosures in Relation to ESG Matters

¹³ Financial Conduct Authority. 2022. CP22/20: Sustainability Disclosure Requirements (SDR) and investment labels

The UK Government has a target of 70% of agricultural land, and 70% of farm holdings, to be covered by the various new farming schemes by 2028.¹⁴ In England, three new schemes will fall under ELMs to reward environmentally sustainable land management. These are:

- The Sustainable Farming Incentive (SFI)
- Countryside Stewardship (CS)
- Landscape Recovery (LR)

Together, these schemes will pay landowners to deliver climate and environmental improvement interventions alongside food production and to take actions that will contribute to one or more of six environmental goals outlined in the 25 Year Environment Plan. These are:

- Clean and Plentiful Water
- Clean Air
- Thriving Plants and Wildlife
- Protection from Environmental Hazards
- Reduction & Adaptation to Climate Change
- Beauty, Heritage and Engagement with the Environment¹⁵

Financing the Transition

The farming transition can be partially financed by the above change in agricultural subsidies. The extent to which this transition to ELMs and the funding schemes being developed in the devolved administrations will enable farmers to maintain their previous income, however, is still uncertain.

While ELMs will support the 70% of farm holdings that the new schemes are hoping to cover, there is a need for greater financial support for the farming transition. To date there has been no estimate on how much the transition will cost. A report commissioned by the Green Finance Institute (GFI) and produced in partnership with environmental economics consultancy, eftec, in 2021, found a £3.7 billion financing gap for sustainable soils management and a £19.4 billion gap for protecting and restoring biodiversity to the end of 2030.¹⁶

¹⁴ Environmental Improvement Plan 2023

¹⁵ Defra. 2018. A Green Future : Our 25 Year Plan to Improve the Environment

¹⁶ GFI, eftec, Raymond Consulting. 2021. The Finance Gap for UK Nature

¹⁷ Defra. Agriculture in the United Kingdom data sets. Chapter 4 – accounts

Current Sources of Farm Finance

Farmers are already accessing private finance. The most recently available data from Defra shows £20 billion in liabilities on UK farm balance sheets, most of which is being financed through bank loans, trade credit and overdrafts.¹⁷

Financing for agricultural activity, and increasingly diversification projects, is provided by all major high street banks. These banks all offer agricultural teams to provide support and guidance to help farm businesses and offer finance primarily through:

- Overdrafts
- Short- and long-term loans
- Agricultural mortgages
- Leasing
- Hire Purchase

Driven by the changing farming landscape, new entrants to the agricultural finance market have been established to support agricultural borrowing, such as Oxbury Bank which is purely dedicated to serving British farmers and the rural economy.

Banks and financial institutions have developed products and initiatives that can help farmers and businesses in their transition to nature-positive activities and in delivering environmental improvements. These include:

- **Green loans** – a form of financing that allows borrowers to use the proceeds to exclusively fund environmental improvements including carbon reduction and conversion to organic principles
- **Green funds** – investment vehicles that invest directly in businesses implementing environmental improvements
- **Discounted loan facilities** – provides discounted loans to businesses to help implement climate and environmental improvements.

In addition to bank finance, many agricultural machinery manufacturers offer vendor finance:

- Hire Purchase
- Finance Lease
- Operating lease and Contract Hire

Premium Pricing for 'Environmentally-Friendly Produce'

The role of premium pricing for farmers that are meeting environmental objectives as a means of financing a transition is also often discussed.

Farmers who practice sustainable farming methods can differentiate themselves in the marketplace by becoming certified, for example. There are several certifications available that indicate sustainable farming practices, such as LEAF Marque, Red Tractor, Organic and Biodynamic. By obtaining these certifications, farmers can demonstrate their commitment to sustainability and may be able to charge a premium price for their products.

However, in our discussions with retailers, premium pricing was determined to not be a viable pathway to provide financing for environmental improvements on farms at scale. A lack of understanding and willingness to pay a premium price for 'greener' goods on the part of customers was identified as the key barrier to unlocking money at scale from certification schemes. [See **Additional Considerations**]

One growing opportunity to access private sector finance, however, lies in the emerging environmental markets.

The Growth of Payments for Ecosystem Services

Over the last two years, the UK has seen a growth in environmental markets – also referred to as natural capital markets or payments for ecosystem services (PES) markets. Programmes like the Natural Environment Investment Readiness Fund (**NEIRF**), and the more recent Facility for Investment Ready Nature in Scotland (**FIRNS**) have spurred this growth, creating more than 80 projects across the UK exploring payments for ecosystem services delivered on land by the environment – these can be carbon sequestration or improvements for the creation of credits or certificates, biodiversity uplift for the creation of biodiversity net gain units, nutrient reduction or reduced flood management risk.

These markets offer an opportunity for farmers to access private sector finance to pay for environmental improvements, and in some cases can provide an extra or diversified income stream.

Voluntary Markets

In the UK, voluntary carbon markets are the biggest of these PES markets. These markets are supported by the UK's Woodland Carbon Code (WCC) which launched in 2011. As of the end of 2022, the WCC hosted over 1,800 projects on its registry covering 67,000 hectares of land.¹⁸

Other forms of carbon PES transactions include carbon emission reduction via peatland restoration, which is likewise supported by the Peatland Code (PC). The PC launched in 2015 and, as of February 2023, had 157 projects covering 22,000 hectares of land.¹⁹ The Wilder Carbon Standards (WCS) is the third operational code in the UK that supports carbon PES and was launched in 2021 (see **Box 9**). There are six further carbon codes in various stages of development in the UK that cover different habitat types, such as hedgerows.

PES for natural flood management (NFM) can potentially help address the increasing flood risk across the UK. Though there is no code or regulatory requirement that explicitly support NFM PES transactions, a handful of NFM PES projects are in development. The **Wyre Catchment Natural Flood Management Project** is a pioneering example, and involves 10–15 farmers that have agreed to participate in reducing flood risk for between nine and 50 years.

Compliance Markets

Biodiversity Net Gain (BNG) is a regulatory requirement that will come into force in November 2023 for most property developers in England and Wales – Scotland is also exploring the concept of BNG. BNG requires developers to create a minimum of 10% more habitat either on- or off-site, than the unavoidable habitat loss that will occur as a result of that development. The underlying BNG 'compliance market' in England alone is expected to generate £200 million in revenues for offsite habitat creation per year, translating to 5,500 hectares of new habitat annually.²⁰ Farmers can create 'habitat banks' that are areas selling biodiversity net gain units into this market.

¹⁸ UK Land Carbon Registry

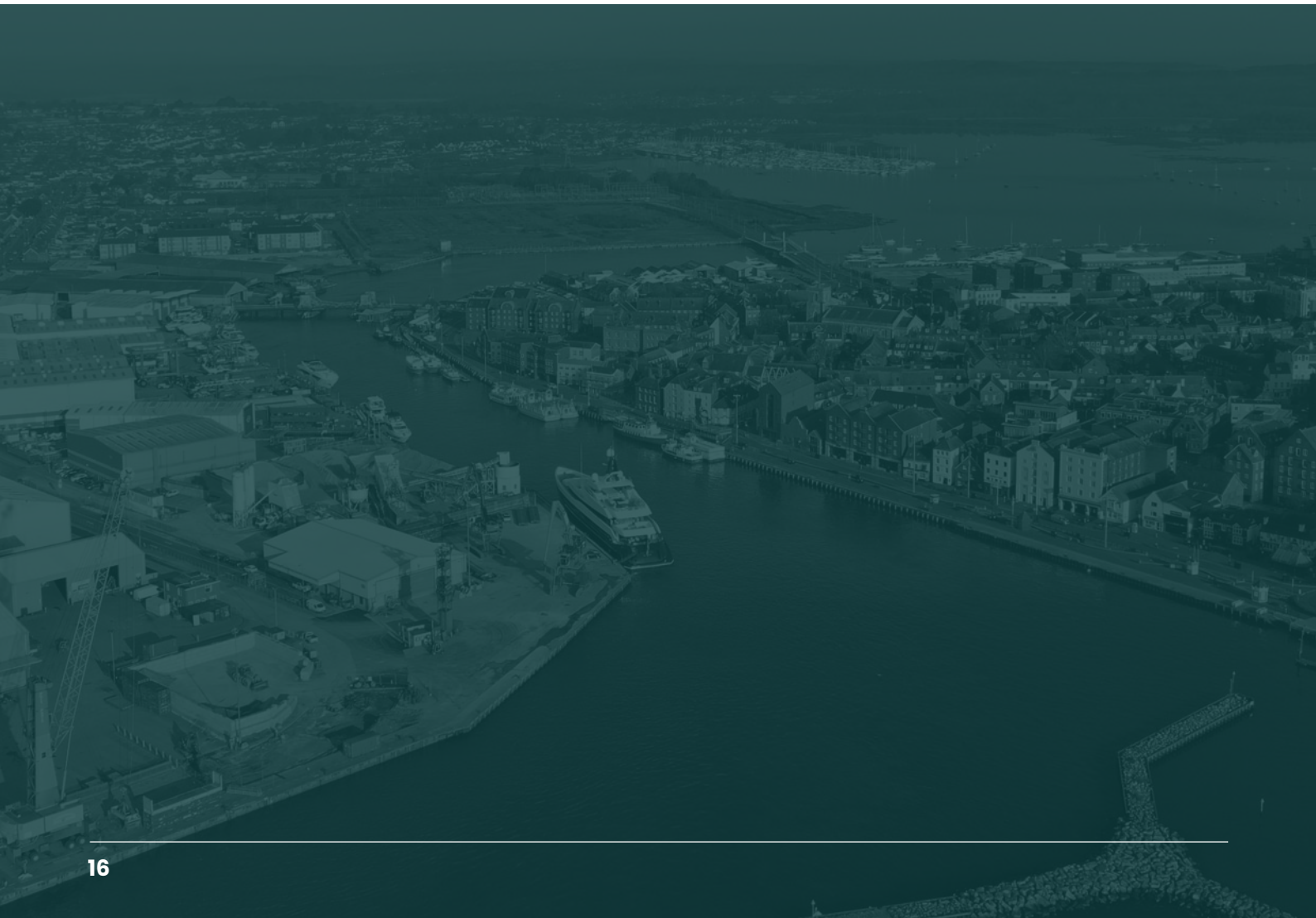
¹⁹ IHS Markit Peatland Code Registry

²⁰ Defra. 2019. Biodiversity net gain and local nature recovery strategies

Nutrient Neutrality is another regulatory requirement across up to 80 local planning authorities in England and Wales, which has led to a handful of off-site nutrient credit sales between farmers and developers. It should be noted that, beyond the Nutrient Neutrality requirement, farmers have previously participated in water quality PES transactions, namely with water companies. The **Poole Harbour Nutrient Mitigation Scheme** is a catchment-scale project with the participation of up to 550 farmers. It is predicted that, if successful, these

farmers could sell nitrogen credits to developers, water companies and other interested sectors.

These markets are not without challenges, as discussed in more detail in the **Environmental Markets Guidance and Principles** section of this report. As the carbon market grows, there are challenges with price transparency with pricing ranging from £8–£75 per unit. Greater clarity is also needed around how markets operate.



Barriers

Barriers

The Strategic Group first identified the barriers to private sector finance flowing into the farm transition from the perspective of:

- **farmers**
- **banks**
- **supermarkets and food and beverage companies**
- **buyers of ecosystem services.**

Barriers fell into three categories with several barriers repeated in each category. (A full list of barriers can be found in the [Appendix](#))

Data Barriers

While banks, supermarkets and food and beverage companies want to support farmers in transitioning to low emission or nature-positive practices, at present they are unable to access the data they require to understand their own risk exposure and opportunities to provide that support.

Farmers suffer from similar data challenges, and also have concerns about the cost of data collection, how data is shared, especially regarding commercially sensitive data, and data ownership.

Important environmental, habitat and spatial data is often held in multiple repositories making it hard for land managers and the private sector to find the data they need for reporting purposes, risk assessments and environmental planning. The data often varies in quality and accuracy, and alongside multiple versions of the same data this creates uncertainty as to what data set is appropriate for different use cases.

The collection of high-quality baseline data may also be costly to undertake for farmers and land managers, adding to cost pressures during an uncertain time for farm revenues. Furthermore, important data sets that would benefit farmers are also costly to acquire and some require a license to access.

Certain environmental data sets can also have multiple data languages which can present uncertainty when comparing habitats surveyed in one language with habitats surveyed in another. This adds to confusion and uncertainty when assessing and comparing habitat types across farms and in the agricultural supply chain.

Fundamental concerns around data sharing and data access remain within the farming community, and farmers are reticent to submit data for fear of it being used to penalise them or that the data they collect could result in commercial gain for parties other than themselves. There are also concerns within the community that commercially sensitive and private information may be shared without their knowledge or consent.

The data barriers outlined above and discussed in more detail in the [Data Access and Availability](#) section deter the creation of efficient environmental markets.

Confidence Barriers

A lack of awareness and a lack of trust were frequently cited by all those engaged in this report as being key barriers to the flow of private sector finance to farmers as part of a farming transition.

Farmers are concerned that data sharing may be turned against them – that the agrifood and financial sector may penalise farmers if their baseline positions, progress and delivery timeframes are not in line with expectations, or that they may exploit their commercial data.

A lack of awareness about the risks and opportunities of a farm transition is also preventing some farmers from moving beyond their current environmental practices. Banks also report that concerns around agri-inflation are deterring farmers from taking risks.

Farmers also lack confidence in embracing environmental markets given the lack of clarity and transparency around carbon pricing, stacking and

additionality rules, the integrity of emerging standards, and long-term contracts. Furthermore, the ability of tenant farmers (14% of farms in England are wholly tenanted whilst 31% are of mixed tenure) to benefit from carbon credit sales and other ecosystem services is still undefined.²¹ This lack of clarity is also impacting buyers of ecosystem services.

For financial institutions, supermarkets, food manufacturers and companies, a lack of clear direction from government on priority outcomes is causing them to delay taking bigger steps to support farmers. While there has been some movement by these stakeholders to use outcome metrics such as the Global Farm Metric [see **Box 2**] as a guide, clear vision set out by government would instil confidence in those decisions and broader uptake.

Implementation Barriers

Several of the barriers above are preventing farmers from benefiting from private sector financial opportunities. In addition, there are specific blockers to implementing these financial schemes. In many instances, smaller farmers and land managers need to come together to reach a size suitable for environmental markets through aggregation models, yet there is no formal guidance or funding to support current and future models.

Tax treatment clarity, as well as clarity around stacking, additionality and a more pointed guidance on soil carbon markets is also hindering implementation.



²¹ Agriculture in the UK Evidence Pack 2022

Key enablers

Key enablers

Four key enablers have been identified that offer the potential to solve the majority of the aforementioned barriers.



Figure 1: Key Enablers

Key enablers



1. Data Access and Availability

Public field parcel and environmental data sets should be made more easily accessible and available through a common access point. Farmers and land managers delivering public goods through public payment schemes should also be supported in accessing the data they need to help make environmental decisions through access to premium mapping software such as Ordnance Survey MasterMap. The above recommendations would help farmers, banks and the private sector in sourcing accurate data to integrate natural capital into their businesses and decision-making processes. These recommendations should be implemented UK wide.

A common access point is crucial to making important environmental data sets easily findable to those that require them, and government agency management of this access point may provide confidence to data users.

Field parcel data sets are often incomparable to each other, and different users will have different requirements of those data sets. Therefore, signposting may be required to direct users to the most appropriate data for their specific needs.

Habitat data can come in a variety of data 'languages' with different ways of describing similar habitats. Therefore, habitat data harmonisation into a standardised language would be useful to end users of that data, allowing this data to be comparable across the farming, food and beverage, retail and financial sectors.

To ensure farmers have the most accurate representation of their land, we recommend that farmers be given full access to Ordnance Survey MasterMap. We therefore recommend that the potential economic impact of making OSMM data available to farmers and other stakeholders in agricultural decision-making, be analysed via desk-based study alongside a small pilot project as part of the Landscape Recovery trials.



2. Priority Environmental Outcomes Metrics

A government-defined set of simple, explicit priority environmental outcome metrics and best-practice measurement guidance would help clarify for farmers the environmental data they may want to collect. Support and incentivisation to farmers should also be provided. To achieve these recommendations, there are number of steps that need to be taken by government.

Current environmental outcomes used by the private sector and supported by the farming sector, that align with government priorities should be assessed and identified. We have identified the following metrics that fulfil these criteria: Soil Health; Net Emissions; Biodiversity; Water Quality and Nutrients; and Flood Risk. These metrics are discussed in more detail in the Priority Environmental Outcomes Metrics chapter.

The UK Government should convene with the private sector and farmers to agree on guidance on best practice for data measurement and verification. Guidance should focus on a small number of measurement criteria associated with each priority outcome metric to ensure farmers do not have to gather many different data points for each.

Outlining key metrics and providing guidance on measurement will allow government to come together with the private sector, including banks, investors and supply chain actors, to help incentivise and support farmers in the collection of priority outcome data. Monetary incentives can play an important role in incentivising priority outcome metric data collection, and can come in the form of government grants as well as through private sector initiatives incentivising farmers to collect data beneficial to the organisation's reporting needs.

It is important that progress towards environmental outcomes is monitored and government must be prepared to add target outcomes metrics in the future as and when required.



3. Environmental Markets Guidance & Principles

Providing greater clarity and formal guidance on how environmental markets will operate would help to give farmers and other possible market participants the confidence to engage, and would help support the development of higher integrity markets leading to increased flows of private finance into the farming transition. Clarity is needed from government around:

- Balancing rights of landowner and tenant farmers
- Key principles governing carbon codes and other market standards
- Stacking and bundling
- Insetting

We welcome the recent UK Government call for evidence and consultation on the taxation of ecosystem services markets and the potential expansion of agricultural property relief from inheritance tax. Understanding the extent to which the current tax system is preventing landowners and farmers from making long-term land use change and from participating in environmental markets, is an important first step in removing these barriers.

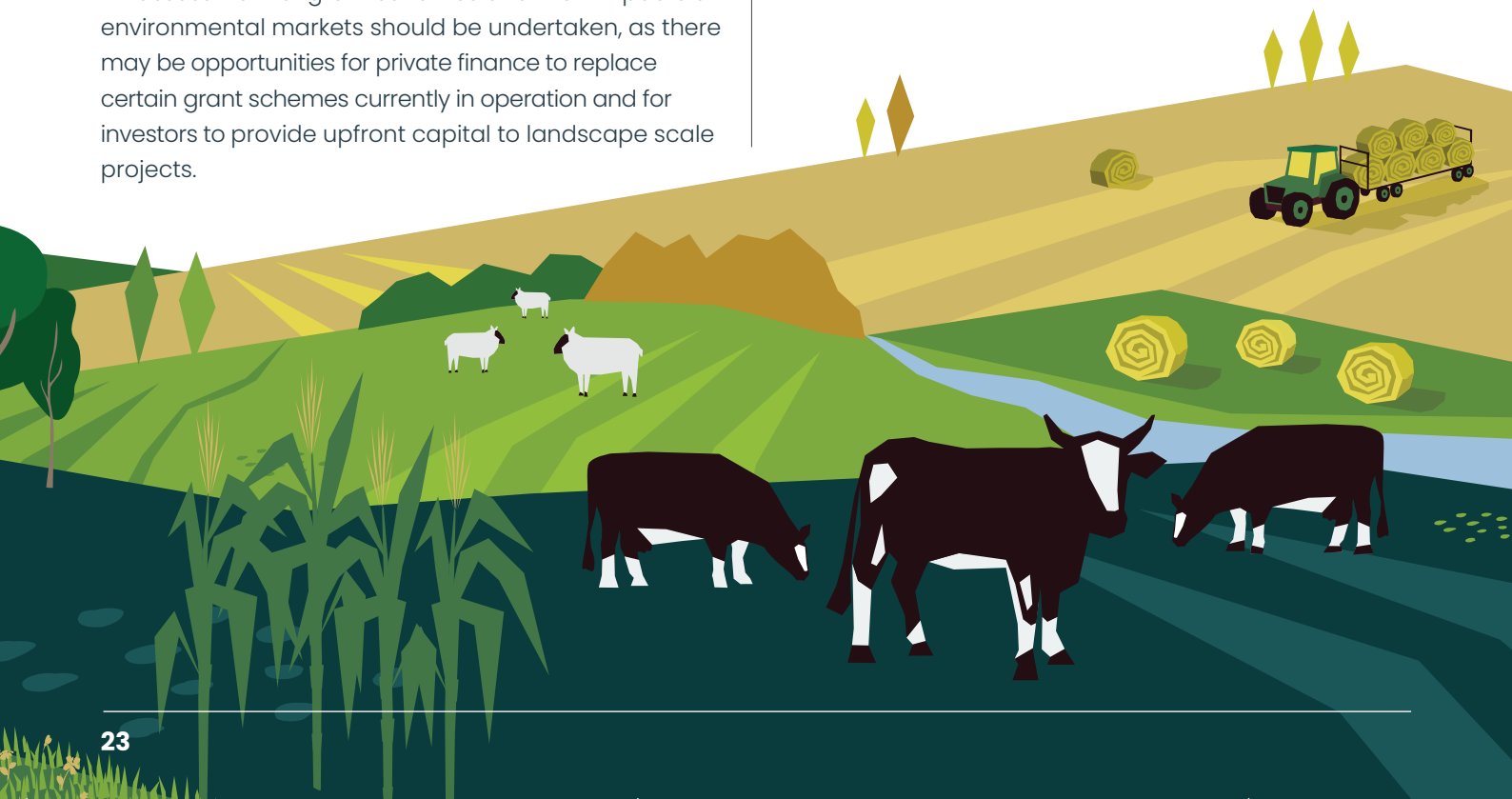
An assessment of grant schemes and their impacts on environmental markets should be undertaken, as there may be opportunities for private finance to replace certain grant schemes currently in operation and for investors to provide upfront capital to landscape scale projects.



4. Aggregation Model Support

Further funding for early-stage development of aggregation models, the development of a Community of Practice to encourage peer-to-peer learning, as well as the establishment of principles for models would encourage widespread take-up of aggregation models. Important principles to be established include those around: open book accounting; the identification of ethical buyers; legal structuring of aggregation models; exit strategies and transparency; and tax implications of aggregation.

Together, these recommendations would ensure that the opportunities offered by the agricultural transition can be accessed by a variety of farm sizes, and that farmers and land managers can come together to deliver the landscape scale environmental outcomes required by government, society and the private sector.



Data Access and Availability



Data Access and Availability

Challenge and Opportunity

Improving quality of, and access to, data, including habitat data and location data, will be essential for meeting environmental targets, unlocking private finance for farm activities, and embedding natural capital into private sector decision-making processes. As highlighted in the UK's Geospatial Strategy, access to location data is imperative in meeting climate targets and achieving net zero emissions by 2050.²²

Having accurate and easily accessible data on the location and condition of natural capital assets on their farms, for example, would enable farmers to more readily engage with environmental markets. Furthermore, having accurate and easily accessible habitat data will allow farmers to share important data with their supply chains enabling access to preferential pricing or certification schemes, or with banks enabling access to specialist products.

In particular, there are two data sets that if made available and easily accessible would support farmers in accessing opportunities and unlock private sector capital.

1. Field Parcel Data

At present, there is no single, digital version of England's field parcels. Rather, there are multiple repositories that collect and hold field parcel data for different use cases, using different methods for collection including hand-drawn maps (see **Table 1**). Furthermore, this data is not easily accessible and can be costly to access. Access to some field parcel and land data sets requires a license and can only be accessed at an additional cost, such as through Ordnance Survey's MasterMap (OSMM).²³

The result is that farmers and land managers, banks, the food and beverage sector, as well as natural capital buyers and investors, are presented with a confusing landscape of field parcel information.

2. Habitat Data

Habitat data is also available in a variety of different 'languages', with multiple ways of describing similar habitat types. This also presents a confusing landscape to different users of the data and can lead to a lack of comparability across farms (see **Table 2**).

Alongside differing data languages, not having easy access to habitat data is making it challenging for farmers to report on habitat baselines and improvements on farm, and for supply chain actors and financial institutions to have a full view of the risk and opportunities throughout supply chains and portfolios respectively.

Addressing data obstacles will ensure farmers and the agrifood and finance sectors are accessing a common baseline of field parcel and habitat data, and open up greater opportunities to access private sector capital. There are specific challenges in meeting this need, however, that will require consideration – notably data privacy. For example, farmers have explicit concerns about external entities benefiting commercially from their data. These challenges, including further concerns around data sharing, are discussed in more detail in the **Considerations** section.

Recommendation

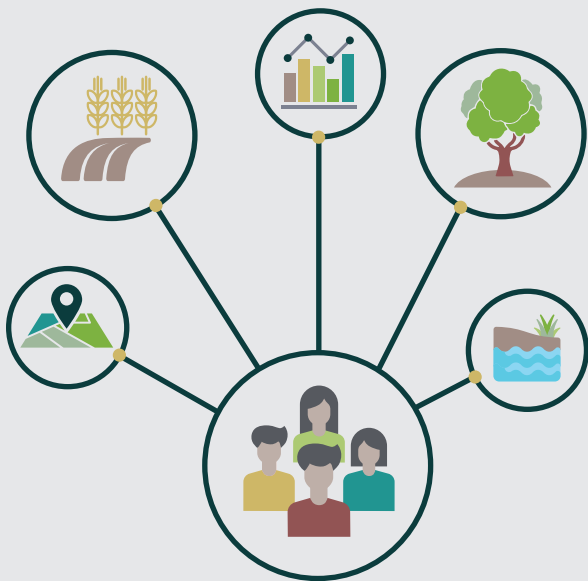
To address the barriers outlined above, we recommend the following:

1. That field parcel data and broader environmental data sets be made more easily accessible and that these data sets can be accessed through a common access point
2. Farmers delivering public goods through public payment schemes to be given access to premium, high quality spatial mapping software (Ordnance Survey MasterMap)

The above recommendations would ideally be implemented UK-wide.

²² Geospatial Commission. Unlocking the power of location. The UK's Geospatial Strategy, 2020 to 2025.

²³ <https://beta.ordnancesurvey.co.uk/products/os-mastermap-topography-layer>



Field parcel and environmental data sets made more easily accessible through a common access point



Access to Ordnance Survey MasterMap for farmers delivering public goods

Considerations

There are important considerations regarding this recommendation that must be addressed if the maximum potential of data is to be realised.

Data Access Point Ownership

There are already efforts underway by Defra to make a large selection of public data sets more easily accessible and we welcome these efforts. Following FAIR principles of findability, accessibility, interoperability and reusability of data,²⁴ Defra can ensure that the maximum potential of its data is realised.

To increase access to this data, a common access point should be considered. Government agency ownership of this common access point (sometimes referred to as a hub or platform) would provide confidence to data users.

Working on behalf of Defra, data firm Agrimetrics is bringing together public environmental and field parcel data sets, made available through an Application Programming Interface (API) allowing the data to be easily used by any outside organisation's own software for their own purposes and requirements.

This work could act as a potential common access point for data, although need not necessarily be the only access point.

Field Parcel Data

As mentioned previously, there is no single, digital version of England's field parcels. Field parcel data is collected by many different organisations for specific use cases which has resulted in multiple representations of field parcel boundaries, that could be used for land-based decision making. These are held in various repositories with varying degrees of accessibility including some data sets that require a licence and come at a cost – such as Ordnance Survey MasterMap. This confusing landscape of field parcel data sets can be addressed by making this data more easily accessible and available through a single access point.

These field parcel data sets can in many cases be incomparable to each other. For example, Rural Payments Agency (RPA) field parcel data will not be comparable with HM Land Registry boundary data. The former is a representation of a single field and the latter a representation of ownership boundaries that may include multiple fields in one data polygon. For some stakeholders, field parcel data needs to be

²⁴ Wilkinson et al. 2016, The FAIR Guiding Principles for scientific data management and stewardship

standardised and comparable, yet for other stakeholders the need may not be so specific.

data can be signposted to the data set that is most suited to their needs.

When making any field parcel data freely available and easily accessible, consideration should therefore be given to how consumers of field parcel and boundary

Examples of different field parcel and boundary datasets are included in the table below:

Sector	Entity	Repository	Information Collected
Public	Rural Payments Agency (RPA)	Rural Land Register (RLR)	<p>Spatial land cover data for farms claiming public money from agri-environment schemes. Also includes all past and present non-spatial land use data including field parcel data and hedge data</p> <p>Updated by land managers via RLEI form, using satellite imagery and aerial photography captured throughout the year as part of remote monitoring work and from site visits by RPA field officers. Base layer mapping for RPA Rural Land Register is Ordnance Survey MasterMap</p>
Public	Ordnance Survey (OS)	OS MasterMap (OSMM)	<p>Consistent and maintained framework for the referencing of geographic information in Great Britain</p> <p>Used as the base map for the Rural Land Register and is updated at certain intervals from OS. Considered to be the nation's premium spatial data set</p>
Public	HM Land Registry (HMLR)	HM Land Registry	<p>Records and guarantees the ownership of over 25 million properties across England and Wales, acting as the official record of all mortgages against property²⁵</p> <p>HMLR map to the extent of land ownership and can include multiple field parcels within one polygon</p>
Public	Defra	MAGIC Map	<p>Land designations on field parcels displayed on basic Ordnance Survey maps</p> <p>Includes field boundaries derived from basic Ordnance Survey data</p>
Public	Forestry Commission	Forestry Commission Map Browser	<p>Woodland agreements, felling licences and other designations or features on field parcels displayed on basic Ordnance Survey data</p>
eNGO	National Biodiversity Network	NBN Atlas	<p>Locations of UK species and habitats from surveys</p> <p>Contains field parcel boundaries from Google Maps</p>
Private	Agrimetrics	UK Field Boundaries	<p>Field boundary data derived from SPOT earth imaging</p>

Table 1: Field Parcel & Field Boundary Datasets

²⁵ The Geospatial Commission; Unlocking the Power of Location. The UK's Geospatial Strategy, 2020 to 2025

Habitat Language Harmonisation

Consideration should also be given to the different habitat languages currently in circulation. These languages have their own codes or descriptions for similar habitats, and two examples are included in Table 2 below. This can result in a confusing landscape of habitat data in multiple languages that may or may not be comparable to each other.

When making its data more available, we recommend considering the impact of having multiple habitat data sets with various languages and how this impacts the end consumer of this data. Multiple languages could, for example, impede the interoperability and reusability of some data sets.

It would be useful for end users if this data were made available in a standard language through a common access point. This would allow all habitat information to be comparable, making it easier for farmers to understand the condition of their land and what habitats are present. It would also allow the financial, food and beverage and retail sectors to be confident that what is being reported is comparable and in line with their peers' reporting.

There has already been a significant amount of work conducted on standardising habitat information which has resulted in the creation of the UK Habitat Classification (UKHab). The UKHab classification system (**Box 1**) is currently applied in Natural England's Biodiversity Metric 3.1 in use for calculating Biodiversity Net Gain. While some of those interviewed recommended UKHab as being the standardised language, consideration should also be given to other possible habitat languages available, as well as to whether an international habitat data language would be more suitable to ensure global standardisation.

Habitat Language	Description	Example
Phase 1 Habitat Surveys	A standardised system for classifying and mapping wildlife habitats. Habitat types and features are assigned a brief description and allocated a specific name, an alpha-numeric code and a unique mapping colour	Woodlands and Scrub: A Orchard (commercial) A5
National Vegetation Classification Surveys (NVC)	A system for classifying and naming vegetation community types by the component plant types. Twelve major vegetation types denoted by a letter, and further community and sub-community categorisations	Major vegetation type: Woodland and Scrub Community: W2 (Grey willow – downy birch – common reed woodland) Subcommunities: Black alder – meadowsweet; peat moss

Table 2: Examples of Habitat Data Languages

UK Habitat Classification (UKHab)

- UKHab is a unified and comprehensive approach to classifying habitats, merging multiple habitat mapping systems including JNCC's Phase 1 and NVC into a standardised and comparable 'language'. It divides the UK into nine basic habitats and assigns each a Level 2 code – Grassland (g), Woodland (w), Heathland and scrub (h), Wetland (w), Cropland (c), Urban (u), Sparsely vegetated land (s), Rivers and lakes (r) and Marine inlets and transitional waters (t). These are then divided further into priority habitats which also receive a code – such as calcareous grassland (g2). Further detail is added to take into account diversity by giving secondary codes, such as 11 for scattered trees.



Box 1: UK Habitat Classification

Access to Ordnance Survey MasterMap for Farmers

We recommend that farmers have access to a high quality, premium spatial mapping software to create a base layer for their decision making. This will create standardisation across the farming landscape whereby all farmers can report using the same mapping programme to supply chain stakeholders including the finance and agrifood sectors.

Common feedback from farmers regarding data is that there are challenges with being able to find and access quality data, and that the required data either does not exist or is low quality and does not meet farmers' requirements for making business decisions. Examples of this include incorrect boundary, public access and habitat information from some widely available data sets.

The Group recommends that Ordnance Survey MasterMap (OSMM) be provided to farmers, given it is considered to be the most detailed and accurate view of the landscape of Great Britain²⁶ and is already used

by the private sector. OSMM is paid for by the British taxpayer and was made available to public sector bodies, some businesses and start-up companies through a Public Sector Geospatial Agreement (PSGA) in 2018.²⁷ It was estimated that this agreement would boost the UK economy by £130 million annually through innovation, job creation and an improvement to public services.²⁸

Making OSMM fully available to farmers would allow farmers to use high quality base layer maps with private sector programmes that support decision making and enable access to environmental markets. For example, farmers will be able to submit high quality, digital base layer maps of their holdings at no cost into platforms such as Land App in order to build contracted Land Management Plans that include accessing revenue streams from ecosystem markets such as Biodiversity Net Gain. Users of private sector programmes that allow farmers to share data within the supply chain, such as Map of Ag, will also benefit from farmers having access to higher quality, standardised base layers.

²⁶ <https://www.data.gov.uk/dataset/96083a9f-6714-4301-9890-98924c4c723e/os-mastermap-topography-layer>

²⁷ <https://www.ordnancesurvey.co.uk/business-government/tools-support/open-mastermap-programme>

²⁸ <https://www.gov.uk/government/news/unlocking-of-governments-mapping-and-location-data-to-boost-economy-by-130m-a-year>

Access to high quality data has been shown to unlock value that far outweighs the costs. Research has shown that openly accessible and standardised species data sets, for example, create £23 billion of benefits for the wider economy in England alone – at least 14 times greater than the costs of providing that data.²⁹

For the financial services sector, data is pivotal in assessing climate-related risks and opportunities, for timely and accurate regulatory reporting, and for the efficient allocation of capital. Work undertaken by the Network for Greening the Financial System (NGFS) in consultation with banks and other stakeholders, highlighted the importance of data to the financial services sector. Some key requirements of data were identified: easy access to reliable geographical and environmental data; timely updates to those data sets; and standardisation of data sets to ensure comparability.³⁰ Through our interviews with the finance sector, farmers being able to submit a high-quality, standardised base layer will address these needs.

We therefore recommend that a cost-benefit analysis be carried out for the potential economic impact of making OSMM data available under the PSGA to farmers and other stakeholders in agricultural decision-making.

As a small pilot, this analysis could be conducted as part of the Landscape Recovery trials whereby farmers taking part in the trials could request open access to OSMM under the PSGA for decision making purposes. This would support the creation of bespoke land management plans built to unlock access to private finance, and could provide a data source on the value unlocked through free access to OSMM.

Trials on data and data access for farmers are also underway through the Food, Farming and Countryside Commission alongside the British Geological Survey, as part of the Geospatial Commission's National Land Data Programme. These trials are to demonstrate how land use data and modelling can improve decision making and help identify possible further data improvements. There is the opportunity for shared learning between these trials and Landscape Recovery to ensure the true value of data access can be captured.

User Experience

Bringing all data sets into a single access point will provide many benefits to different sectors of the economy. For the full value of openly accessible data to be realised, it will require engagement by as many users as possible, including farmers.

There are important issues and perceptions around data within the farming community including data access and privacy. To ensure as many farmers as possible use this data and can benefit from this data being made easily available, these concerns will need to be addressed – chiefly, ensuring that data shared is public data only, and that farmers understand how data will be used.

It is important to consider the implications of a more digitally integrated farming system for those members of the farming community who may not have experience in using online data sets and online programmes to gain business insights, or to access income streams. To ensure the needs of farmers are met, a 'ground up' approach to implementing new data systems involving members of the farming community will be required. The suggested Landscape Recovery trials are a good opportunity to test this approach and to ensure all user needs and training requirements are identified.

Despite the widespread uptake of the internet within the farming community, there may be individuals who do not have internet access or access to a computer. To ensure fair access to data and wider uptake of the data, a skills assessment should be conducted to identify any skills gaps and corresponding training needs. These will need to be addressed to ensure wider usage of data by farmers.

²⁹ Eftec, ALERC, NBN Trust, BRC/CEH. 2021. Mapping the Species Data Pathway: Connecting species data flows in England.

³⁰ Network for Greening the Financial System. 2021. Progress report on bridging data gaps.

Costs

There will be a number of financial costs involved in the creation of a common access point or enhanced data sharing platform. These include: the creation of the digital architecture that will be needed to support it; training of land managers, central government and other possible users of the platform; and possible updates to government systems to ensure they are compatible with the common access point. There will also be maintenance costs involved with the system, and it is important that there is an annual budget earmarked for maintenance to ensure the system runs smoothly and any errors or technological issues can be addressed quickly. There could be costs involved with quality control and data verification, infrastructure upgrades, resourcing costs and possible audit costs.

Coverage

The Group recommends that the development of the data sharing initiative be carried out in consultation with the devolved administrations. If there are similar projects underway in Wales, Scotland and Northern Ireland, then learnings can be shared between projects to ensure efficient use of resources. It should also be carried out in consultation with the private and eNGO sectors as end users of information which may have interests across the UK.

Beneficiaries

The above recommendations will provide a variety of benefits for multiple stakeholders:

Farmers and Land Managers

For farmers and land managers, improved access to field parcel and environmental data, and access to OSMM will help address challenges with Data Access; Affordability; and Resource Commitment.

Data Access

At present, information on farm field parcels and habitat data is held in multiple locations. Bringing these data sets into a single location will greatly improve access to information for farmers and land managers.

This will allow farmers to more easily understand the natural capital assets they have on their farm and to make informed business decisions.

Affordability

Making access to this data free, and having access to OSMM at no cost for an accurate representation of the land, will increase the engagement of farmers with the supply chain and ecosystem services markets by removing any additional pressure on farm finances.

Resource Commitment

Easy access to accurate environmental and OSMM will reduce the amount of time spent searching for, and interpreting multiple data sets. It will also save time when submitting data into the supply chain or into private sector data programmes providing insight to farmers.

UK Government

Improved access to high-quality data on a wider scale and the provision of OSMM to farmers, will address concerns for the UK Government around; Environmental Reporting; Policy; and Cross-Departmental Collaboration.

Environmental Reporting (domestic and international)

Having field parcel and habitat data easily accessible through a common access point will enable a 'state of nature' to be efficiently calculated. This can be used as a benchmark from which to begin measuring progress against domestic and international climate and environmental targets including 30x30, emissions reductions and the creation of wildlife-rich habitat.

Policy

Having accurate field parcel and habitat data held in an easily accessible location can help provide the UK Government with an overview of land use across the country, ensuring a smooth transition to ELMs and that interventions are consistent with policy objectives and local priorities around habitat restoration, food production, carbon sequestration and flood risk reduction.

Cross-Departmental Collaboration

With multiple departments responsible for meeting the UK Government's environmental targets, having this common access point and all data available in one place, will allow for a holistic view across different land-use departments such and could also provide real time information flow and collaboration between departments to efficiently meet these targets.

Financial Services Sector

For the financial services sector, data is essential in assessing climate-related risks and opportunities, for timely and accurate regulatory reporting, and for the efficient allocation of capital.

Having easy access to important data sets and farmers having access to OSMM, will better enable banks and financial institutions to target farms for financial support and free baselining tools, and will help address challenges of: Data Accuracy; and Reporting Burdens.

Data Accuracy

Having easy access to a wide range of habitat data, and farmers in their client base submitting high quality, standardised maps through OSMM will enable the financial sector to begin to more easily and accurately set science-based targets to track scope 1 and 3 (if applicable) GHG emission reductions across their asset portfolios. Furthermore, it would enable financial institutions to more easily and accurately locate and assess their interfaces with the natural environment and source nature-related risk data for TNFD reporting. This would result in a more detailed understanding of risks embedded in their asset portfolios for more efficient distribution of capital into the farming transition.

Reporting Burden

Having easy access to habitat data through a common access point, and standardised high quality maps from their farming client base via OSMM, will allow financial institutions to more easily collate data for various mandatory reporting requirements including those for the FCA, scope 3 emissions reporting in line with TCFD

recommendations, progress on portfolio alignment to net zero pathways for the Net-Zero Banking Alliance and for upcoming Sustainability Disclosure Requirements. Furthermore, a UK-wide data strategy would ensure ease of use and standardisation across their client base that may span more than England alone.

F&B and Retail Sector

For the food and beverage and retail sectors, having environmental data more easily accessible and farmers having a high quality spatial mapping programme as standard will help them target farmers in their supply chain for financial support, premium payments or the provision of free baselining tools and address concerns with data accuracy; and reporting burdens.

Data Accuracy

Easily accessible habitat data, and standardised high quality maps from their farmer suppliers, will enable the sector to more easily track GHG emission reductions across the supply chain and ensure that any information submitted for reporting requirements is accurate. It will also allow a company to more easily locate and assess their interfaces with the natural environment and source nature-related risk data for TNFD reporting, delivering a more detailed understanding of risks embedded in the supply chain.

Reporting Burden

Being able to easily access habitat data and high quality standardised maps from their farmer supplier will allow larger companies to more easily collate data for reporting requirements such as scope 3 emissions for climate disclosures in line with TCFD recommendations, as well as Scope 1 emissions for Streamlined Energy and Carbon Reporting and upcoming SDR. Furthermore, a UK-wide data strategy would ensure ease of use and standardisation across geographically dispersed supply chains.

³¹ Network for Greening the Financial System. 2021. Progress report on bridging data gaps.

Buyers of and Investors in Ecosystem Services

For buyers of, and investors in ecosystem services, farmers having access to priority habitat and spatial data sets will address challenges with: Data Accuracy; Verification, and encouraging Greater Participation in Environmental Markets.

Data Accuracy

Easily available habitat data and sellers of ecosystem services having access to OSMM, will allow full accounting of ecosystem services to take place more accurately and more easily across landholdings.

Verification

Having environmental data more easily accessible, and all farmers using OSMM as the base layer for field parcels will allow buyers and investors to easily verify any claims on environmental improvements made by land managers.

Greater Participation in Environmental Markets

Through access to OSMM, farmers will be better able to develop an environmental Land Management Plan to identify and capture the opportunities available from environmental markets. This will increase opportunities to invest in these markets for buyers.



Priority Environmental Outcomes Metrics

Priority Environmental Outcomes Metrics

Challenge and Opportunity

As outlined in the **Background** section of this report, the UK Government has reoriented agricultural policy towards supporting the delivery of environmental outcomes alongside food production. The UK has ambitious goals for how the agriculture sector can function in alignment with nature and help the country achieve net zero and other environmental commitments.

The private sector is also increasingly working with farmers to help them deliver on their own environmental objectives and aid in increasing resilience of the food supply, through offering financial support or the provision of tools or measurement assistance. To aid in this transition, banks, as well as food and beverage firms including retailers, are seeking to understand the baseline environmental impact of farms in their portfolios and supply chains and use farm-level environmental data to identify appropriate areas for intervention, provide financial support where appropriate, and to track progress.

There are four core barriers preventing private sector finance from flowing to support farmers transitioning to nature positive farming which the below recommendation would address:

1. a lack of consistency in the environmental data farmers are asked to provide to different stakeholders
2. a lack of confidence on the part of banks and F&B retailers in the quality of data provided
3. a lack of incentives and support for farmers to collect and provide data, and
4. a lack of confidence across stakeholders around what constitutes high-integrity measurements.

The UK Government has set out multiple environmental targets and commitments for the agricultural sector, including activities required for England's new

agricultural subsidy schemes. However, it has yet to explicitly and simply state a set of priority environmental outcomes expected from the farming sector in particular or guidance on measurement practices for those outcomes. Although multiple pieces of environmental legislation and commitments have been released in recent years, farmers are unclear on what the overarching environmental vision is for the agriculture sector, the opportunities available to them, and which data they should be collecting and monitoring in order to demonstrate impact.

This also means that banks, supermarkets, and food and beverage companies are unclear on the data they need to collect from farms, and in some cases are asking farmers for different sets of data or the same data, measured in different ways.

At the same time, farmers do not feel incentivised to collect data or to provide environmental data to the private sector unless selling ecosystem services against which that data is required, or for specific certification schemes.

Unless environmental outcome targets are expressed simply and farmers are incentivised to collect data, Government risks being unable to track progress against its own commitments.

Collecting this environmental data will not be without its own challenges, including questions of cost and concerns around data privacy. [See **Data Access and Availability**]

However, the direction of environmental reporting for the private sector cannot be ignored. Stakeholders across the food supply chain are increasingly seeking farm-level environmental data to meet disclosure requirements.

Additionally, UK farmers will need to be able to compete with foreign producers for market access. For example, the EU's Corporate Sustainability Reporting Directive (CSRD), which came into force in January 2023 for the

2024 financial year, will require all large and listed companies to report on their environmental impacts, dependencies and financial risks³² UK retailers could substitute UK agricultural products with imported ones (particularly from the EU) if they see better progress against environmental objectives on foreign farms.

There is an opportunity now for government to work with the private sector and farmers in ensuring environmental data collection is appropriate – by identifying a set of priority environmental outcomes metrics, and then ensuring that challenges around collection and provision of data for those metrics are addressed, including ensuring farmers are not forced to provide private and commercially-sensitive data.

High-level guidance on the measurements underlying each metric, and the sharing of costs of farmer data provision and measurement are also needed.

Farm Environmental Outcomes Data

There are multiple environmental outcomes across agriculture which farmers can measure on their land. There also are multiple indicators and measurement approaches for each outcome metric.

A selection of data collected under different schemes is outlined in **Table 3** below.

Scheme	Environmental Metrics	
Environmental Improvement Plan 2023	Pollutant Emissions GHG Emissions Soil Health (in development) Area of Woodland Volume of Inputs Pollution entering waterways (interim)	Habitat: quantity, quality & connectivity (in development) Relative abundance and/or distribution of widespread species (interim) Impacts from flooding (in development) Impacts caused by drought (in development)
Red Tractor	Animal welfare Antibiotic & hormone use Manure management Use of plant protection products	Soil management Water usage Fertiliser use Impact on wildlife
Leaf Marque	Soil fertility Crop health & protection Pollution control Energy efficiency	Water management Landscape & nature conservation Society engagement Animal welfare

³² EU Corporate Sustainability Reporting

Scheme	Environmental Metrics	
RegenAgri	<ul style="list-style-type: none"> Cover crops Crop rotation Inter-cropping Fertiliser usage Irrigation practices Soil Health Grazing patterns Pasture biodiversity 	<ul style="list-style-type: none"> Animal feed sourcing Animal Health Habitat Conservation Water Quality Community Involvement Energy Source Emissions
Global Farm Metric	<ul style="list-style-type: none"> Yields Yield quality Crop diversity Farm Biodiversity Farm Habitats Air, soil & water quality Average climatic conditions Extreme weather events Growing season Soil carbon storage & Sequestration Soil Health 	<ul style="list-style-type: none"> Soil conservation (erosion) Soil Water Holding Habitat Water Holding Inputs Nutrient balance Macro & micro-nutrient stocks Energy & Fuel usage Infrastructure Environmental fit of crops & animals Lifecycle of crops & animals Crop health Animal health & welfare
Soil Association Exchange	<ul style="list-style-type: none"> Soil health Water Quality Biodiversity 	<ul style="list-style-type: none"> Net emissions Land access Flood risk

Table 3: Examples of Habitat Data Languages Environmental Data Schemes

Recommendation

We recommend that the UK Government determines a set of priority environmental outcomes metrics, messaged clearly and simply for England’s farms by working with stakeholders across the food supply chain. These outcomes could align with the agricultural targets set out in the Environmental Improvement Plan 2023 (EIP23) but be targeted specifically toward farmers. The establishment of a priority set of environmental outcomes metrics for agriculture would provide a vision and direction around which the farming, agrifood and finance sectors can galvanise to unlock opportunities to support the transition.

To ensure that the outcomes are measured in a consistent and comparable fashion and which does not unnecessarily burden farmers, we also recommend developing overarching guidance on how to measure each metric..

Finally, we recommend that the UK Government, working with the private sector, seeks to incentivise and support farmers to measure and collect priority outcome data in order to ensure farmers can positively engage in demonstrating environmental delivery in line with agreed metrics.

- **Phase 1** - UK Government to set out priority outcomes metrics to guide environmental data collection on farms
- **Phase 2** - Assess and agree on measurement guidance for each metric
- **Phase 3** - Support and incentivise farmers to collect data

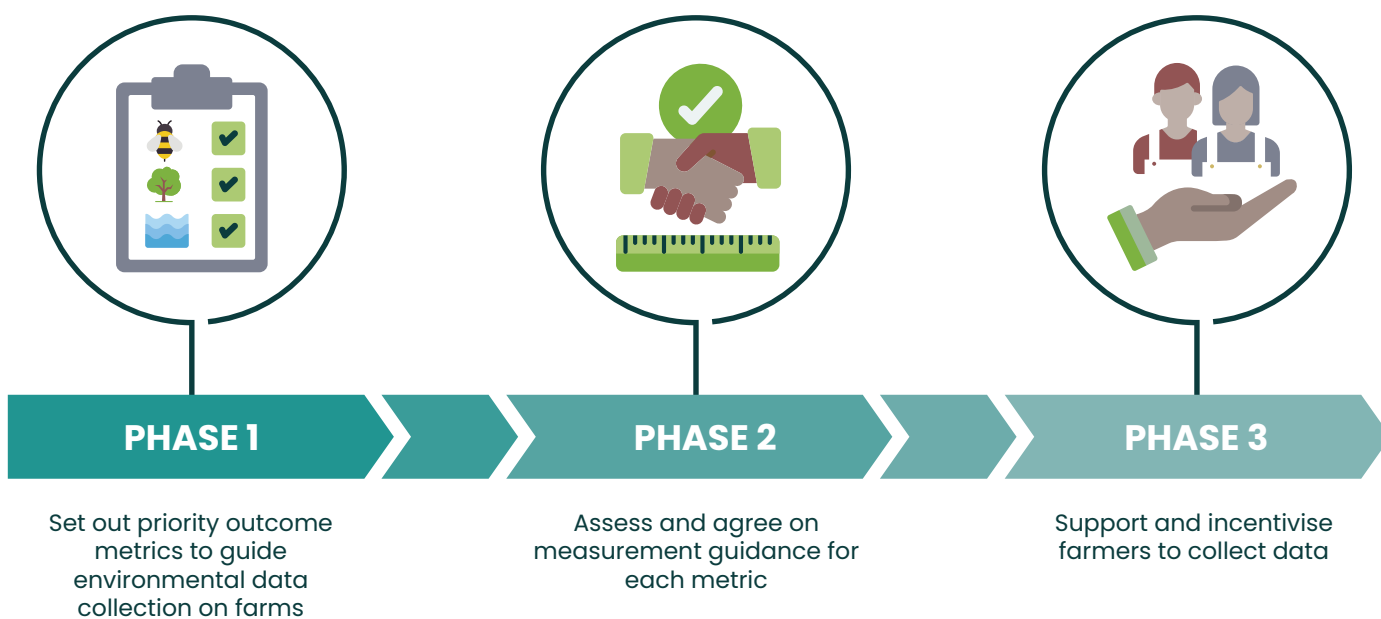


Figure 2: Key Enabler: Priority Outcome Metrics

Roadmap to Implementation

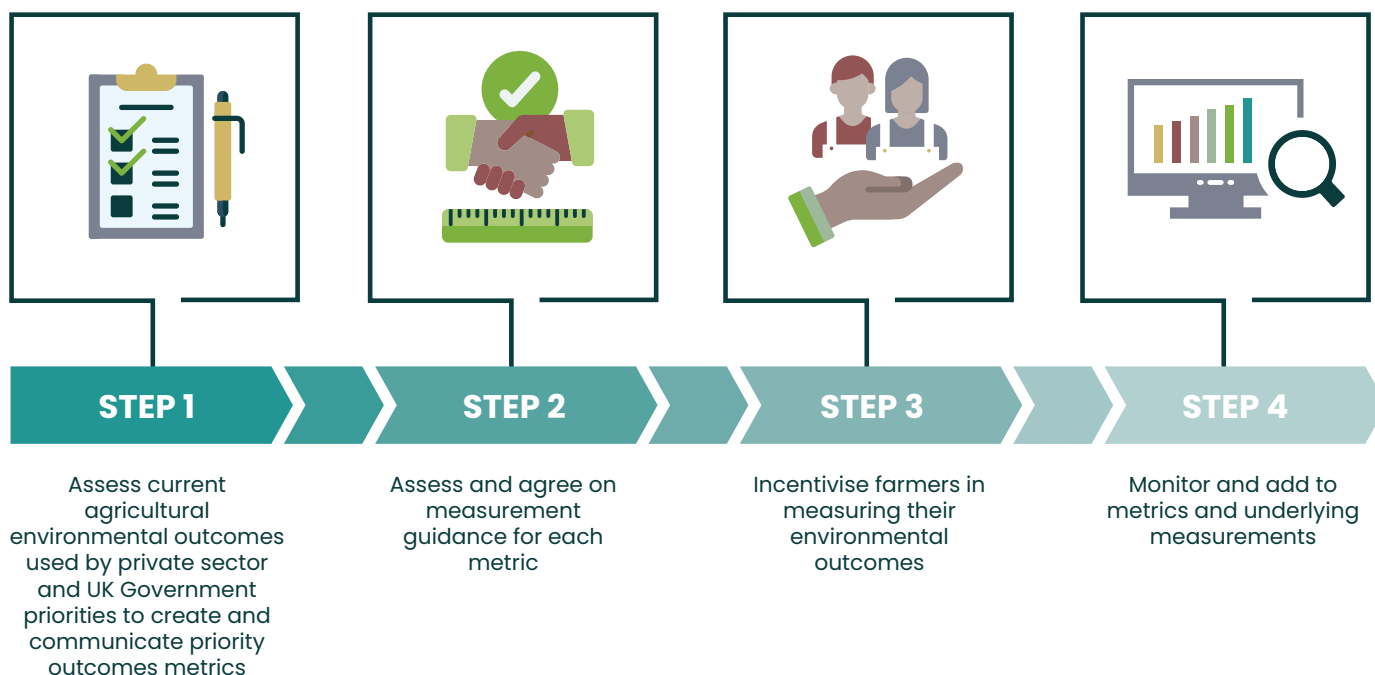


Figure 3: Key Enabler: Priority Outcome Metrics Roadmap to Implementation



Step 1:
Assess current agricultural environmental outcomes used by private sector and UK Government priorities to create and communicate priority outcomes metrics

We recommend that government sets out four to six initial key environmental outcomes it will require from the agriculture sector and ensure that these align with work already in progress by the private sector and that they are supported by the farming sector. These recommendations should enhance or support those within EIP23 to ensure that agriculture-specific outcomes are aligned with broader environmental targets.

Outcome metrics endorsed by government will need to be science-based and, in addition to aligning with the environmental data needs of the private sector, should capture the most urgent environmental outcomes for England.

There are several environmental outcome targets laid out by the UK Government – without making the explicit connection to agriculture. From workshops with our

Strategic Working Group and other UK stakeholders, in addition to interviews with a broader group of farming participants, the following priority metrics have been identified as aligning government commitments with private sector requirements:

➤ **Soil Health**

Soil health is defined as the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals and humans. It is dependent on several factors that include soil structure and compaction, organic matter, soil biology and nutrient balance.³³ Soil health is therefore critical in determining long-term productivity and resilience of agricultural land and is also closely linked to other environmental outcomes such as water quality and retention, biodiversity and carbon sequestration.

³³ Environment Agency. 2019. The state of the environment: soil

Food manufacturers and retailers are increasingly focusing on soil health in their supply chain to ensure resilience and improve productivity. From the UK Government's perspective, having a clear understanding of soil health can aid in developing policies and programs to achieve the aims of environmental policies, such as bringing 40% of soils under sustainable management by 2028, as set out in the 2023 Environmental Improvement Plan, as well as ensuring sustainable management practices are in fact achieving improved soil health. Banks are also interested in soil health as healthy soil is key for productivity and resilience of farming businesses. With a £3.4 billion financing gap for sustainable soil management, interest in developing financial support for soil health by financial institutions is likely to increase in the coming years.³⁴

➤ Net Emissions

Net emissions includes both emissions from agricultural activity, buildings, machinery and livestock as well as sequestration levels of land (through soils, woodland, crops and peatland). Agriculture currently accounts for 11% of the UK's emissions. It is estimated that as other sectors decarbonise, agriculture could account for 30% of UK's emissions by 2030.³⁵ⁱ As the UK has adopted legally-binding targets to reach net zero by 2050, substantially decreasing emissions from the agriculture sector will be integral to achieving that aim. The agrifood sector will require supply chain emissions data to aid in reporting on TCFD. Banks similarly are reporting on TCFD and financed emissions of loan portfolios and will require this information.

➤ Biodiversity

The global biodiversity crisis has led the UK Government to set targets to improve biodiversity by 10% by 2042, in addition to committing to protecting 30% of land and sea for nature by 2030 under the Global Biodiversity Framework. Additionally, Biodiversity Net Gain will become mandatory for small sites in April 2023 and for other planning permissions in November 2023. A £19.4 billion finance gap has been estimated for protecting and restoring biodiversity in the UK after accounting for current public and private committed spending.³⁵ⁱⁱ Biodiversity loss also impacts food production by driving down pollinator numbers

necessary for crop production as well as microorganisms which keep soil fertile. The private sector, including food retailers are increasingly concerned with biodiversity loss in their supply chains as it increases risks to the food supply. Additionally, global commitments to halt and reverse biodiversity decline and catalyse finance for nature restoration has galvanized interest in the space on the part of government and financial institutions.

➤ Water Quality & Nutrients

In the 2023 Environmental Improvement Plan, the UK Government laid a target for reducing nitrogen, phosphorous and sediment pollution from agriculture into the water environment by 40% by 2038.³⁶ Measuring water quality and nutrient levels on farms will be key to decreasing pollution and meeting government targets for water quality throughout the country.

As mentioned previously, the Taskforce on Nature-Related Financial Disclosures (TNFD) is finalising a framework for corporates to measure and report on the nature-related risks in their operations and supply chains which will include impacts on water quality.

➤ Flood Risk

UK farmland is facing increased risks of flooding due to climate change in the UK while simultaneously being a solution to flood risk mitigation beyond the farm through the provision of Nature-based Solutions (NbS), such as vegetation planting.³⁷ The role of vegetation in flood risk reduction is a function of the vegetation characteristics (leaf area, root permeation and rates of hydrology loss from leaves) and the location of the vegetation (soil type, topography and position within the catchment).

Data that estimates the contribution of vegetation to reducing surface runoff would be useful in both determining the risk of flood, and flood prevention ability. On risk, interventions could result in lower insurance premiums and increased borrowing capacity, in addition to unlocking payments for flood alleviation. For example, the Wyre River Project is a natural flood management project where farmers are being paid to put interventions on their land to reduce flooding [See **Case Studies**].

³⁴ GFI, eftec, Raymond Consulting. 2021. The Finance Gap for UK Nature

³⁵ⁱ Mission Zero: An Independent Review of Net Zero

³⁵ⁱⁱ GFI, eftec, Raymond Consulting. 2021. The Finance Gap for UK Nature

³⁶ Environmental Improvement Plan 2023

³⁷ UK Climate Risk. Findings from the third UK Climate Change Risk Assessment (CCRA3) Evidence Report 2021 – Agriculture and Food



Step 2:
Assess and agree on measurement guidance for each outcome metric

With multiple approaches to measuring environmental outcomes on farm, government should convene with the private sector and farmers to agree on guidance on best practices for data measurement and verification. This will help build confidence among both farmers and the private sector. It will also incentivise innovation in the development of robust, science-based measurement, reporting and verification (MRV) tools.

Rather than endorsing a single measurement approach, it would be advisable to provide over-arching guidance to leave room for future innovations and to allow for different MRV tools to develop. We recommend that


guidance focuses on just two or three measurements in order to prevent farmers from having to gather multiple different data points. For example, in Table 4 below there are seven different methods for measuring soil health. If these can be narrowed down to two that, while not perfect, capture a ‘good’ view of soil health this would ease the data collection process on farms.

Guidance could outline the benefits and drawbacks of different measurement protocols to help farmers and the private sector choose the most appropriate and cost-effective, and also highlight best practices such as transparency and ground-truthing.

Outcome	Measurement	Tools and Providers
Soil Health	Earthworm Count Soil Structure Soil pH Loss on Ignition (SOM) Dumas Test(SOM) Walkley-Black (SOM) VESS Method	Independent Agronomists NatCap Research Soil Association Exchange Yara
Net Emissions	Land Cover Operational Emissions Tillage Crops Dry Ignition (Soil Organic Carbon) Soil Bulk Density	Agrecalc AI Dash & Other Remote Sensing Technologies CO2AI Cool Farm Tool Farm Carbon Toolkit Greenly NatCap Research Soil Association Exchange

Outcome	Measurement	Tools and Providers
Biodiversity	Management Practices (used as proxy) Habitats Habitat Connectivity Species Count Earthworm Count (Soil Biodiversity) Pollination	BioAcoustics Defra/Natural England’s Biodiversity Metric LandApp NatCap Research NatureMetrics eDNA Soil Association Exchange
Water Quality & Nutrients	Management Practices (used as proxy) Water Quality Measurements (Nutrient Levels) Farm Gate Nitrogen Balance	Farm Carbon Toolkit NatCap Research Soil Association Exchange Yara
Flood Risk	Topography Infiltration Rates On-farm hydrology	Aegaea ArcGIS Defra Flood Risk Tool Floods and Agriculture Risk Matrix (FARM) LandApp NatCap Research

Table 4: Summary of Measurements and Tools by Outcome



Step 3:
Incentivise farmers to measure their environmental outcomes

Although there are free tools farmers can use to calculate emissions and estimate other environmental outcomes, ground truthing and verification can be costly for farmers. In addition to data collection being regarded as resource-intensive, farmers have valid concerns around the use of their environmental data which can disincentivise collection. [see **Data Access and Availability**]

The costs of collecting and verifying data could be shared across government and the private sector in order to incentivise data collection at scale.

There are several examples of both approaches highlighted at the end of this section.

The Soil Nutrient Health Scheme is a publicly funded programme in Northern Ireland that evaluates soil health on the country’s farms. The Origin Green programme in Ireland conducts broader sustainability measurements at no cost to farmers. (See **International Examples Section** for further detail)

The finance sector has also begun supporting their lender farmers to collect environmental data. Lloyds Bank is working with the Soil Association Exchange (See **Box 3**) to offer the service free of charge to 1,000 of their portfolio farms. NatWest is currently piloting use of the Global Farm Metric on their lender farms (See **Box 2**) Similarly, Oxbury is currently working with Agrecalc, the LandApp, Downforce and Terramap to support their farmers to begin reporting environmental data. The varying metrics and tools used by different financial institutions and supermarkets makes data comparison difficult and increases the cost and complexity of data collection and analysis.

Below we highlight the role of monetary incentives. It is important, however, to highlight the tensions around payments for data collection. As covered in [**Data Access and Availability**] farmers are concerned about the future use of their environmental data. The ability for farmers to control their own data, even if paid for, will be imperative.

Monetary Incentives

- i. Provide grants for environmental outcome data collection on farms

The UK Government could provide a grant to farmers to incentivise them to collect their environmental outcome data. The value of such a scheme would need to be carefully considered with input from farmers to ensure it is effective in incentivising data collection. Within SFI you could have a baselining standard that could encourage effective baselining approaches.

- ii. Work with major retailers to understand where they are best placed to provide financial incentives

The private sector should be willing to incentivise farmers to collect and provide data – as it is supportive of their own reporting needs. Arla, a farmer-owned multinational dairy cooperative and the largest dairy in the UK, has introduced a successful programme to incentivise environmental data collection on their farms. The Climate Check programme offers a premium price on milk for those farmers who collect and share key environmental data with Arla. This has allowed Arla to gain an accurate picture of the environmental impact of their dairy farms and provide targeted advice to farmers to improve their impact and to help Arla reach its internal climate targets [see **Box 19** for further details].



Step 4: Monitor and add to metrics and underlying measurements

It will be important to monitor progress towards priority environmental outcomes and be prepared to add to or change target outcomes metrics in the future.

There are several outcomes beyond those outlined above, for example, which were identified by stakeholders as being key to developing a holistic view of farm sustainability, but which do not currently have consensus across all beneficiaries listed above as being integral to each party’s data needs.

These include:

- Animal Welfare
- Water Usage
- Public Access

Measurement approaches may also need to change as new technologies emerge. Retaining a dialogue with farmers, the private sector and the scientific community will be imperative for the UK Government to keep abreast of measurement innovations and regularly update guidance.

Considerations

The establishment of priority environmental outcomes metrics with underlying measurement guidance will need to take into consideration the following points:

▶ **Functionality**

The priority outcome metrics and measurement guidance set by Defra should be clear and usable for farmers and should reflect the data needs of stakeholders across the agricultural supply chain.

▶ **Governance**

Farmers need to be assured that there are appropriate governance structures in place to protect and manage their environmental data. How environmental data is accessed and stored is a key concern for farmers who want to ensure that they retain adequate control of how their data is used and benefited from. See **Data Access and Availability** for important considerations around data access and privacy.

Beneficiaries

Agreeing on a priority set of environmental outcome metrics would support multiple stakeholders.

UK Government

With the transition out of the Basic Payment Scheme (BPS) and into ELMs, and with the targets in the EIP23, the UK Government has made it clear that positive environmental outcomes will be expected from English farmers and land managers. Yet, environmental outcomes metrics have not been explicitly presented in the context of agriculture, leaving farmers, banks and the agrifood sector uncertain as to what they will need to measure.

Additionally, there is currently no monitoring mechanism to demonstrate to Defra that the new agri-environment schemes will deliver on intended environmental outcomes. This could present a material and reputational risk to government as ELMs is rolled out and legally binding deadlines for environmental targets draw nearer.

Explicitly setting out the environmental outcomes the UK Government expects from agriculture will be the first step in tracking progress towards the Government's environmental goals.

It will allow Defra to determine the value for money of ELMs and to ensure that the practices and inputs paid for in the schemes are delivering on environmental outcomes. Greater awareness of the outcomes being delivered will highlight gaps and help inform policy if needed.

Farmers and Land Managers

Establishing a set of priority environmental outcome metrics will provide farmers with greater clarity on what to measure on their farms. With guidance around those measurements, they will also be better able to manage resources and costs, as well as understand the commercial value of their data and the commercial opportunities available to them from delivering outcomes.

Furthermore, farmers may benefit from the subsequent unlocking of private sector or government support – paying for baselining tools in addition to rewarding them for practices in line with environmental outcomes.

Finally, alignment from multiple stakeholders around a priority set of outcomes metrics would help to reduce reporting fatigue for farmers, increasing the time they can spend on animal and crop production and delivering environmental outcomes by reducing their reporting burden. As mentioned in previous pages, there are considerations around data privacy, costs and resourcing that must be taken into account. These are detailed in the **Considerations** section for the **Data Access and Availability** chapter.

F&B and Retail Sector

The food and beverage and retail sectors have increasing external environmental reporting requirements which may require working with farmers to provide environmental data. (See **Background** for details on reporting requirements).

An agreed set of environmental outcome metrics will help these firms gather comparable data from their supply chain, allowing them to track progress toward environmental objectives. Many supermarkets and food manufacturers are looking to support their supply chain in meeting environmental targets. An agreed set of outcomes would help to unlock and target this support.

Financial Institutions

Banks also have external environmental reporting requirements which may require working with farmers to collect environmental data. (See **Background** for details on reporting requirements).

Banks may need environmental data to assess agricultural loan risk as well as to develop financing schemes which would support or benefit farmers moving to low-emission and nature-positive practices. An agreed set of environmental outcome metrics would ensure that the private sector is aligned on the data being asked for, and that data will be comparable across farms within portfolios. This is important for banks that are seeking to measure Scope 3 emissions of clients within the food supply chain.

Furthermore, the upcoming UK Green Taxonomy will set out technical screening criteria for the agriculture sector to demonstrate their sustainability against robust, science-based definitions, to help enable access to finance earmarked for sustainable economic activities. Data access has been identified as a potential key challenge in reporting against the taxonomy. Setting out priority outcome metrics prior to the launch of the Taxonomy will aid financial institutions in developing a clear picture of the sustainability of their financed farms and report against emerging disclosure regimes.

Buyers of and Investors in Ecosystem Services

Buyers of and investors in ecosystem services require high-quality data on the outcomes of ecosystem services projects.

If the private sector and government are working to a common set of priority environmental outcomes from farms, then data collection costs can start to be shared, lowering project costs and increasing the profitability of payments for ecosystem services models.

Box 2: Global Farm Metric³⁸

Global Farm Metric

- ▶ The Global Farm Metric is a framework for measuring farm sustainability. The GFM consists of 12 sub-categories of metrics which cover environmental, economic and social dimensions of sustainability, with some 80 indicators. The metric was developed for farmers to measure sustainability themselves – without the need for external consultants or testing. NatWest and the Sustainable Food Trust have been collaborating for two years to develop the framework and ensure that it meets the data needs of the finance sector.

The aim of the Global Farm Metric is to become adopted globally, to aid governments as well as food and beverage manufacturing and retail sectors to have a common language with which to assess the sustainability of their partner farms.

NatWest is currently adopting the GFM framework to measure sustainability of the bank's agriculture portfolio and provide the bank's farmer clients with support to transition their farming practices to become more sustainable. The framework will, however remain open source which will allow farmers and land managers, as well as their supply chain and financial partners to utilize the framework when measuring their environmental outcomes.

³⁸ Global Farm Metric

Global Farm Metric Framework Categories	
<p>Nature</p> <ul style="list-style-type: none"> Farm biodiversity Farm habitats Air, soil & water quality 	<p>Farmers & Workers</p> <ul style="list-style-type: none"> Opportunities Health & Working Conditions Decision making
<p>Climate</p> <ul style="list-style-type: none"> Average conditions Extreme events 	<p>Crops & Pastures</p> <ul style="list-style-type: none"> Health Lifestyle Environmental Fit
<p>Water</p> <ul style="list-style-type: none"> Inputs Soil Holding Habitat Holding 	<p>Animals</p> <ul style="list-style-type: none"> Health & Welfare Lifecycle Environmental Fit
<p>Soil</p> <ul style="list-style-type: none"> Carbon sequestration & storage Health Conservation 	<p>Production</p> <ul style="list-style-type: none"> Yields Quality Diversity
<p>Nutrients</p> <ul style="list-style-type: none"> Inputs Balance Stocks 	<p>Economics</p> <ul style="list-style-type: none"> Economic Returns Resilience Ownership
<p>Resources</p> <ul style="list-style-type: none"> Other Inputs Infrastructure Energy & Steel 	<p>Community</p> <ul style="list-style-type: none"> Local Services Network Engagement

Table 5: GFM metrics³⁹

³⁹ Global Farm Metric

Box 3: Soil Association Exchange

Soil Association Exchange

- ▶ The Soil Association Exchange is an online platform developed by the Soil Association which will allow farmers to measure environmental outcomes on their farm. The Exchange also offers advisory services to help farmers improve their environmental outcomes, as well as guidance on public and private financing opportunities.

The Soil Association Exchange adopted the Global Farm Metric as a baseline on which to build their measurement protocol but streamlined the framework to improve usability.

The Exchange now uses six priority impact areas with 25 metrics to develop a holistic view of sustainability on farms. Farmers can choose to collect the data themselves or get the assistance of the Exchange's team of agronomists. This data can then be used by farmers to identify areas for improvement and for sharing with their supply chain or financial institutions. The service is free for farmers if they collect the data themselves, but thus far, all of the Exchange's farmer clients have paid to have agronomists visit and conduct data collection and assessments.

The Exchange was developed in collaboration with Lloyds Bank, M&S, Sainsburys, Arla, ABP Food, Compass, Food Buy, Riverford Organic and OMSCO, and is currently being piloted by those companies with farms within their lending portfolios and supply chains. Lloyds Bank is using Soil Association Exchange to provide the service to up to 1000 of its highest borrowing agriculture clients to measure their sustainability and help the farmers develop an action plan to improve the areas they wish to target.



Soil Association Exchange Outcome Areas	
<p>Healthy Soils</p>	<p>Soil Structure Soil Life Soil Chemistry Soil Physical Status Soil Organic Matter</p>
<p>Water</p>	<p>Surface Runoff Avoidance Nutrient Runoff Nitrate & Phosphorous Farm Balance Water Usage</p>
<p>Biodiversity</p>	<p>Woodland Connectivity Landcover Birds Insects Flora</p>
<p>Climate Change</p>	<p>Woodland Connectivity Landcover Birds Insects Flora</p>
<p>Social</p>	<p>Land Access</p>

Table 6: Soil Association Exchange Impact Areas⁴⁰

⁴⁰ Soil Association Exchange



International Government Baseline Programmes

Northern Ireland

The **Soil Nutrient Health Scheme**, launched in 2022 aims to undertake baseline soil sampling for all farms in Northern Ireland by 2026.⁴¹ Farmers who participate in the Scheme will be provided with:

1. Detailed information on the nutrient status of their soils
2. Runoff risk maps for nutrient loss to waterbodies for each field sampled
3. Estimates of carbon stored in their soils and as above ground biomass for each farm
4. Training on the interpretation of soil nutrient reports and generation of farm nutrient plans (provided by CAFRE)

The Scheme is funded by the Department of Agriculture, Environment and Rural Affairs (DAERA) and comes at a cost of £45 million and will test the majority of the 700,000 fields used for farming in Northern Ireland. By the 31 August 2022 cut-off, over 90% of eligible farmers had signed up to the Scheme.

Another option for Northern Ireland's farms to access baseline natural capital measurements beyond soil is through the **Environmental Farming Scheme** (EFS). The EFS pays farmers for carrying out environmentally beneficial farming practices over and above mandatory requirements. The Scheme has three levels: EFS (Wider), where actions have broad ecosystem benefits beyond the boundaries of the farm; ENF (Higher), where actions and benefits are site specific; and EFS (Group), where aggregated groups of farmers are paid to deliver environmental benefits.

Participation in the Scheme requires online training in environmentally-friendly practices, as well as engagement with a qualified EFS Planner who will complete site-specific Remedial Management Plans (ssRMP) for participating farms. The ssRMP will include a Farm Features Report, which is available via the EFS portal on the DAERA webpage. Up to 100% of the fee for the ssRMP can be recovered from DAERA pending certain conditions.

The EFS Planner must assess each field included in the EFS application using the relevant EFS Rapid Condition Assessment (RCA) and determine the EFS priority habitat type(s) present. The findings of the EFS RCA (which cover a range of attributes, for example vegetation height and herb/sedge cover) together with the farm features report information and Northern Ireland Environment Agency (NIEA) habitat data, are used to determine management solutions linked to EFS Remedial Management Options and NPIs for the habitat within the field.

To ensure the farmers get science-based, high quality advice, an EFS planner:

- must be the holder of a suitable qualification such as a Bachelor's degree in Environmental Science, Ecology or Biological Science or an equivalent deemed suitable by Teagasc and/or a member of a recognised environmental professional body or a Chartered Environmentalist as specified by the Society of the Environment;
- must be able to provide evidence of previous experience of developing habitat management plans; and
- must be able to provide evidence of previous experience of providing environmental advice and support to agricultural businesses in relation to land management.

Australia

The **Emissions Reduction Fund** (ERF) provides incentives for emissions reduction projects across the Australian economy.⁴² Eligible projects can earn Australian Carbon Credit Units (ACCUs) which represent one tonne of carbon dioxide equivalent emissions stored or avoided. The ACCUs can then be sold to government through a carbon abatement contract, or to private buyers in the secondary market.

A new pilot programme offers an advance of up to AUS\$5,000 worth of ACCUs to help with upfront costs of baseline soil sampling. Farmers would be required to undertake new land management activities to increase soil carbon and be willing to maintain stored carbon for at least 25 years to be eligible for the programme.

⁴¹ DAERA. Soil Nutrient Health Scheme Frequently Asked Questions

⁴² Australian Government Clean Energy Regulator Emissions Reduction Fund

⁴³ Origin Green Ireland

Another pilot programme, which closed at the end of 2022 supported farmers and land managers in accessing low-cost soil sampling and certified testing in exchange for sharing their data under the Pilot Soil Monitoring Incentives Program. The Australian Government partnered with Southern Cross University and scientific labs to offer a comprehensive suite of soil sampling and testing. Farmers were then connected with soil extension officers who would interpret sampling results and work with farmers to develop a plan to better manage their soils. Additionally, farmers could use their data for monitoring of ERF projects.

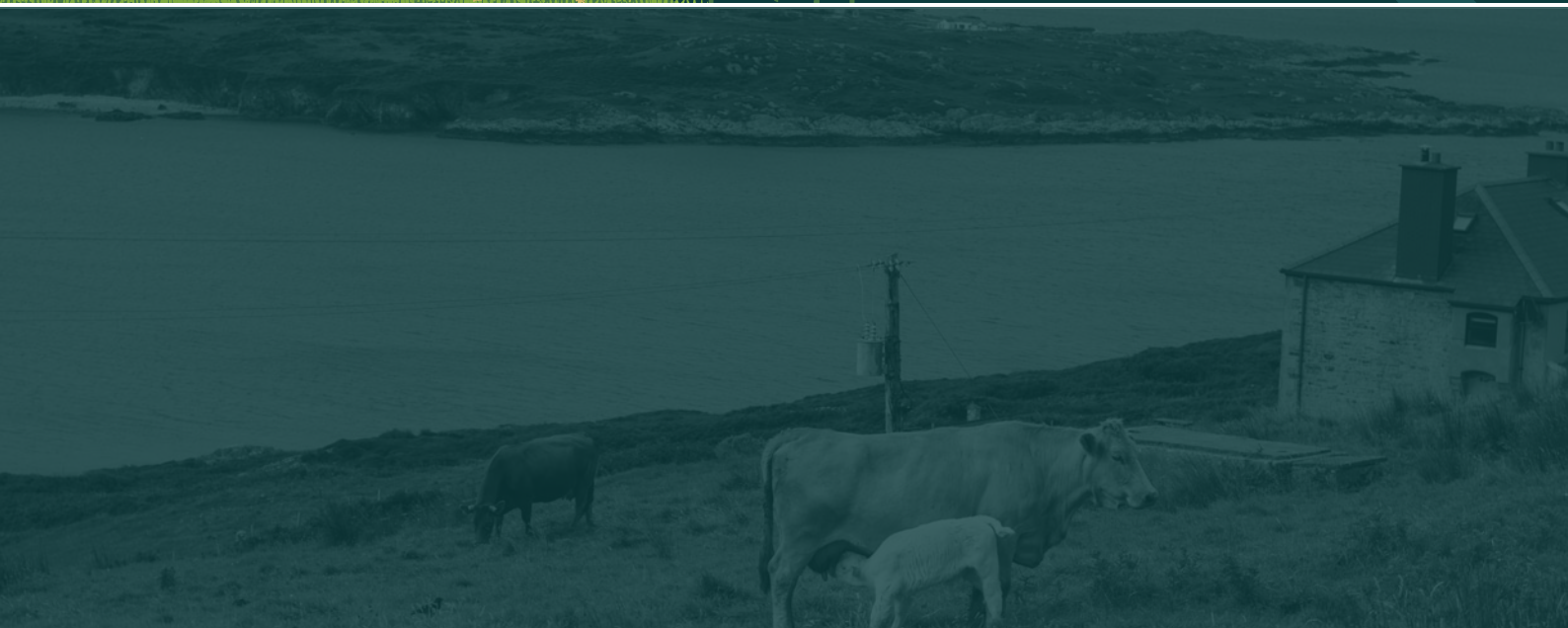
Ireland

Since 2011, the Origin Green programme in Ireland, in collaboration with Teagasc, has been undertaking carbon footprinting on Irish farms. The program began with beef farms and has to-date measured over 50,000 farms, accounting for 90% of Irish beef exports. The program then expanded to dairy farms and has footprinted 15,000 farms.

The Origin Green Programme utilises over 100 independent auditors who undertake approximately 650 weekly assessments to measure and monitor:

- Greenhouse Gas Emissions
- Biodiversity
- Water Use
- Energy Efficiency
- Soil Management
- Socio-economic factors
- Product quality

The data gathered through assessments are then used to develop a farmer feedback report which demonstrates how farm activities contribute to GHG emissions and contains advice on decreasing emissions through management practices and improving on-farm production efficiencies. Reassessments take place every 18 months to monitor progress.



Environmental Markets Guidance & Principles

Environmental Markets Guidance and Principles

Challenge and Opportunity

The recent development of markets for ecosystems services or natural capital, referred to here as environmental markets, presents opportunities for farmers to be paid for delivering environmental outcomes on their farm, in addition to the production of crops and livestock for food and other purposes.

New income streams are emerging from the sale of carbon improvements supported by the development of Carbon Codes, for example. In addition to the Woodland Carbon Code and Peatland Code which can support farmers and land managers with payments for tree planting and maintenance and peatland restoration, the Sustainable Soils Alliance released minimum requirements for soil carbon codes at the end of 2022.

There are several other Carbon Codes in development that will unlock private finance, in addition to emerging compliance markets like Biodiversity Net Gain and Nutrient Neutrality. [See **Table 6**] The provision of reduced flood risk by farmers is another example of new revenue streams becoming available to farmers. These routes to market can unlock private sector finance for farmers and land managers but, as with any nascent markets, several barriers to their success have been identified as they have begun to be operationalized through programmes such as the Natural Environment Investment Readiness Fund (NEIRF). A lack of clarity around additionality, stacking and bundling and the tax implications of generating income through these markets has decreased trust and limited engagement by farmers and land managers. On the buyer side, uncertainty around the quality and consistency of measurement, reporting and verification (MRV) of projects reduces confidence. Many of these barriers were presented in the Financing Nature Recovery Coalition report in 2022 [see **Box 6**], for example, as well as being highlighted by the National Farmers Union (NFU) [See **Box 7**].

Principles around the operation of markets and a roadmap towards overarching standards would help ensure markets develop with integrity, at the pace needed to deliver on environmental outcomes and in ways that give confidence to investors, buyers of services and – for the purposes of this report – farmers and land managers as sellers of those ecosystem services.

Additionally, as these markets develop, a revision of tax policies and consideration of the implications and efficacy of current grant schemes is needed.



Box 4: Codes vs Standards

Codes vs Standards

- ▶ For the purposes of this report we use the words Codes and Standards interchangeably. However, it is worth clarifying the difference and highlighting how the UK Codes define themselves.

Codes, or Codes of Practice, have historically been developed to provide guidance for practitioners in a certain industry or sector through a set of best practices and/or minimum requirements. For example, the International Carbon Reduction and Offset Alliance (ICROA) have published a Code of Best Practice that aims to define international best practice for offset-inclusive carbon management and represents the minimum requirements that carbon certification programmes must meet to be accredited by the Code.

Standards can be prescriptive in nature and often set out specific requirements or processes to be met by a user of that standard, for that user to be able to claim adherence to the standard. The Wilder Carbon Standard, for example, sets out specific requirements that must be undertaken or adhered to by prospective carbon project developers and buyers (see Box 9 for more details) to claim adherence.

Although named as codes, the Woodland Carbon Code (WCC) and the Peatland Code (PC) are in fact standards according to the above definitions and the WCC, PC and ICROA also class themselves as standards. The WCC and PC both set out prescriptive requirements for project developers to adhere to in order to access carbon payments and for buyers to know they are purchasing high integrity carbon credits. The WCC for example, requires project developers to use a specific calculation tool following specific guidance to calculate carbon sequestration. The ICROA Code of Best Practice encourages the use of calculators, without prescribing a specific one. The WCC was officially endorsed by ICROA in 2021, meaning that the WCC's processes and procedures adhere to the requirements set out in ICROA's Code of Practice.



Recommendation

There are an estimated 80+ projects under development across England that are seeking to attract private finance through the sale of ecosystem services – many of which include farmers as deliverers of outcomes – some 40 per cent of NEIRF projects, for example, are being delivered by farmers. There are also projects led by farmer collectives. [See **Aggregation Models**]

Within these projects, farmers may be delivering flood management interventions paid for by beneficiaries such as local authorities or water utilities. Farmers may be being paid to change practices to offset additional nutrients created by housing development. Some farmers are developing biodiversity net gain units to be sold to property developers. Some farmers are selling carbon credits (for offsetting) or carbon certificates (for insetting), and in many cases farmers are looking to sell multiple ecosystem services. In several cases, farmers are selling at a landscape or catchment scale in aggregated models [See **Environmental Farmers Group**]

What has emerged from the work of these projects – some of which have been testing revenue models for over two years – is a common set of barriers to success. Many of these barriers can be resolved with standards or rules, or, where standards would be premature, a set of overarching principles to provide direction and instill confidence.

In the recent Independent Review of Net Zero, the role of the UK Government in providing guidance and standards for integrity of and confidence in carbon markets was highlighted as key to meeting net zero commitments.⁴⁴

We welcome the appointment of the British Standards Institution (BSI) to deliver a three-year Nature Investment Standards Programme to support markets for carbon, biodiversity and other ecosystem services in the UK.

The work will cover the full range of nature-based solutions and will develop a framework for investment standards that support flows of private finance into nature recovery, enhancement, and creation. Key deliverables for the programme as a whole will include:

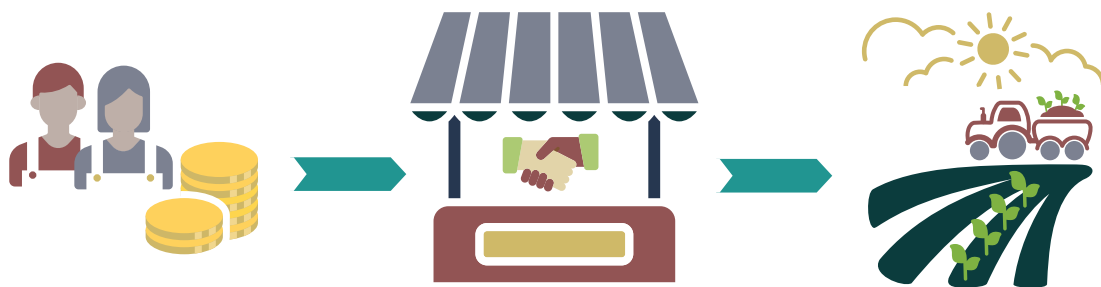
- A framework for nature investment standards with a road map for addressing key standardisation gaps;
- An overarching governing standard, setting out principles for high-integrity nature markets, and its related system of standards;
- Additional standards, which will address priority needs, identified in the discovery phase.

The focus and outputs from this programme will be informed by extensive stakeholder engagement and consultation, with the initial discovery phase starting in early 2023.

As the BSI commences its discovery phase, we recommend the following key issues be addressed by government through the establishment of principles, standards or rules – either individually or as an overarching set. We recognise that only some of the below will fall within the remit of the BSI.

Furthermore, as it will take some time for the BSI to develop standards, we recommend that the BSI engages regularly with those leading in the sector, including the major environmental NGOs and the managers of the Big Nature Impact Fund (part of the UK Nature Impact Investment Strategy), as the sector develops its own interim principles to support the building of a high quality, high impact UK nature market.

⁴⁴ Mission Zero. Independent Review of Net Zero. Rt Hon Chris Skidmore OBE



Principles, Standards and Rules for Environmental Markets

Figure 4: Key Enabler: Environmental Markets Guidance and Principles



1. Principles: Balancing Rights of Landowner and Tenant Farmers

Tenanted holdings (either wholly tenanted or mixed-tenure) make up 64% of total farmable area in England and therefore play an essential role in delivering environmental outcomes and improved natural capital.⁴⁵ There is a lack of confidence among tenant farmers, however, with regards to entering into private natural capital markets. In a survey of tenant farmers for the Rock Review in October 2022, most of those familiar with emerging opportunities to sell ecosystem services said they were ‘unsure’ of whether they would enter contracts.⁴⁶

When asked about the factors preventing them from entering private schemes, more than 40% of respondents selected the following three reasons, 1) need for advice, 2) need for landlord consent, and 3) uncertainty of new markets.

On this second point, the Review highlights that agricultural tenancy agreements are specifically for agricultural purposes, which means that natural capital improvement can only be achieved within an agricultural context. This can include natural capital that is ancillary to the farming operation such as developing small areas of woodland (e.g. windbreaks), managing hedgerows and other activities typical within government agri-environment schemes, or such as through increasing soil carbon content. The Rules of Good Husbandry are also open to interpretation with

regards to the ability of tenant farmers to enter into natural capital schemes when the nature of the tenancy changes.

As many natural capital projects require long term contracts, typically in excess of 30 years, project contracts often exceed the length of tenancies. Entering into natural capital projects then will require the consent of landlords, and many of the financial benefits of the projects may accrue to landlords following the end of tenancies. Indeed, Woodland Carbon Code projects require the consent of the landlord where project land is tenanted, with the landlord signing up to the same obligations as the tenant (for example, to replant if trees fail). This may disincentivise tenants from entering natural capital markets.

The Strategic Working Group echoes recommendations from the Rock Review that: *Defra set out clear guidelines to ensure that tenants are rewarded and not disadvantaged for their work in maintaining and improving the natural capital asset and managing the associated flow of ecosystem services.*

A further recommendation from within the Rock Review to be considered is that: *natural capital is owned by the landlord which aligns to their ownership of the land, while the trade and income that come from that land via the management of the land, specifically ecosystem services, should belong to the tenants.*⁴⁷

⁴⁵ The Rock Review: Working Together for a Thriving Agricultural Tenanted Sector

⁴⁶ Ibid

⁴⁷ Ibid



2. Standards: Carbon Codes and Other Market Standards

We recommend that Defra develop an overarching set of principles or a standard for environmental markets. This would cover both voluntary carbon markets, compliance markets and other payments for outcomes

markets, such as those providing natural flood management, and would coordinate the codes and standards being developed for those individual markets. [See **Table 7**].

	Markets and Codes	Developers
Compliance Markets	Biodiversity Net Gain Credit Markets (in development)	Natural England & Defra – Sept 2023
	Nutrient Neutrality	Natural England
Established Voluntary Codes	Woodland Carbon Code	Scottish Forestry
	Peatland Code	IUCN
	Soil Carbon Minimum Standards	SWAG SW
	Wilder Carbon Standard	Wilder Carbon, led by Kent Wildlife Trust
Codes in Development	Agroforestry Carbon Code	Soil Association
	Hedgerow Carbon Code	The Allerton Research & Educational Trust
	UK Saltmarsh Carbon Code	UK Centre for Ecology & Hydrology
Codes in Early Development*	Seagrass Carbon Code	Plymouth City Council
	Sussex Bay Kelp Carbon Code	Adur & Worthing Council
	UK Freshwater Biodiversity Code	Bristol Avon Rivers Trust

* These early development codes do not yet have their scientific grounding laid out and some may be incorporated into other emerging codes

Table 7: Environmental Markets

An overarching set of principles or standard would ensure that emerging environmental market codes adhere to a minimum set of requirements and would therefore aid in the development of robust, high-integrity environmental markets, increasing confidence of both buyers and sellers of ecosystem services and improving environmental outcomes. The UK Government could draw on Wilder Carbon’s standards [See **Box 9**] and soil carbon minimum requirements developed by the Sustainable Soils Alliance [See **Box 4**] to guide development.

We recommend the inclusion within this set of principles or guidance to address the following:

- **Project governance:** Guiding principles should set out how emerging codes or market standards should ensure project governance is transparent, accountable and fair – for example, using a recognised registry to register, track and permanently retire verified credits.

- **Means of verification:** There are many ways of measuring environmental impact. Different markets require different levels of verification that the environmental outcome has been achieved. A standard or set of principles should provide clarity on the level of granularity needed to verify environmental projects. Monitoring, reporting and verification processes should be defined. Additionally, guidance should be able to adapt to innovations in measurement to increase accuracy and reduce transaction costs.
- **Approach to quantifying credits:** Guidance for how emerging codes should quantify credits would ensure credits are of a high quality. The approach to quantifying credits should be transparent and easily understood by parties engaging in the markets and be based on sound scientific methods. Approaches should also be updated as new scientific evidence becomes available or new measurement techniques are developed.
- **Double counting:** There should be provisions which address the challenge of double counting, ensuring the same unit or credit cannot be sold twice, or be counted towards a producer's own environmental claims, such as net zero, and also sold to a buyer who will use it to offset their own residual emissions. The establishment of an industry-level registry can help prevent double counting risk. Examples of such registries in existence are the IHS Markit Carbon Meta-Registry launched in 2021 [See **Box 6**] and FarmVault which was launched in 2023 in France by Soil Capital and its peers via the Climate Agriculture Alliance. [See **Box 5**].
- **Community & Social considerations:** Environmental projects often have impacts beyond the scope of the project, including impacts on other environmental outcomes or community and social impacts. A high-integrity environmental project seeking to sell into private markets, should have safeguards in place as well as clear guidance on best practices to avoid negative impacts on community [See **Do No Significant Harm and Social Safeguards** below]. In line with emerging guidelines in Scotland, a project should seek to have positive benefits such the creation of jobs and public access within its aims.⁴⁸
- **Length of Delivery:** Clear timeframes for delivery of environmental benefits including maintenance should be laid out within each market, recognising that they may be different.
- **Risk Reduction:** Projects will be subject to risk of failure of delivery due to fire, disease or climate change. Any accreditation programmes should reference and include mechanisms to mitigate unavoidable losses including buffer requirements. This is especially important for units such as Pending Issuance Units in the Woodland Carbon Code. Buyers need to be made aware of the inherent risks of non-delivery of credits when entering into PIU transactions, and when PIUs may or may not be suitable.
- **Buyer standards:** Companies purchasing carbon credits to offset emissions are under increasing pressure to reorient transition plans and decrease their reliance on carbon credits. High-integrity voluntary carbon markets should require that, as a minimum, companies decrease their own emissions first before purchasing credits. Government could provide guidance on how codes and markets could implement buyer-side stipulations to ensure markets are delivering on the environmental outcomes they are seeking to. Examples are included within global Voluntary Carbon Markets, as well as being tested by UK projects such as the Wilder Carbon Standard. Ensuring buyers are assessing and disclosing nature-related impacts and dependencies under the Taskforce for Nature-related Financial Disclosures (TNFD) would also ensure carbon credit projects have broader impacts on nature than carbon sequestration alone.
- **Additionality:** Purchasers of ecosystem services and natural capital offset credits typically pay for benefits that are additional to the condition of the asset should those markets not have existed. In other words, would the project have gone ahead were the financial reward created by the existence of a market for the ecosystem service not in place? As environmental objectives are met, baselines may shift and additionality of new projects may need to be reconsidered. Any standard or set of principles should set out clear guidance on how additionality should be measured within environmental markets with a view to how any future updates may most smoothly be incorporated.

⁴⁸ Scottish Land Commission. Responsible Natural Capital and Carbon Management

- **Do no Significant Harm and Minimum Social Safeguards:** The impact of natural capital projects, in particular carbon projects on other environmental and social outcomes is increasingly a concern of buyers and other stakeholders (community members). Demand for large tracts of land for afforestation can lead to increased land prices and become a barrier to ownership for new entrants and decrease land available for food production. Bioenergy projects can also have negative effects on biodiversity. The upcoming UK Green Taxonomy requires economic activities which are classified as “green” investments, in addition to making a substantial contribution to one of six environmental objectives, to Do No Significant Harm (DNSH) to the other five, whilst meeting minimum social safeguards.⁴⁹ Incorporating the DNSH and minimum

safeguards principles into environmental market codes could ensure that negative environmental and social impacts are minimised. The upcoming Taxonomy will include criteria for DNSH and minimum safeguards which could be incorporated into private natural capital markets.

- **Gaps in Codes and Standards:** Codes are emerging to tackle the various means of capturing carbon but there are still gaps. Standards around flood risk reduction projects and nutrient markets may be required. While the the Sustainable Soils Alliance’s minimum requirements for soil carbon projects are welcome, these need to be rubber-stamped by government provided they meet requirements for high-integrity markets.⁵⁰

Soil Carbon Minimum Standards

- In December 2022, the Sustainable Soils Alliance published their recommendations on minimum requirements for soil carbon codes in the UK. The recommendations include minimum requirements for the creation of carbon codes as well as guidance for making codes stronger than the minimum requirements. The proposed minimum requirements include the evidence needed to demonstrate carbon sequestration, an approach to quantifying carbon credits as well as guidance on permanence and additionality.

Box 5: Soil Carbon Minimum Standards⁵¹



⁴⁹ (1) Climate Change Mitigation, (2) Climate Change Adaptation, (3) Sustainable Use & Protection of Marine Resources, (4) Transition to a Circular Economy, (5) Pollution Prevention & Control, (6) Protection & Restoration of Biodiversity & Ecosystems

⁵⁰ Financing Nature Recovery UK: Scaling up High-Integrity Environmental Markets Across the UK

⁵¹ Sustainable Soils Alliance Minimum Standards



3. Rules: Stacking and Bundling

Most environmental outcomes projects seeking private finance will need to stack different revenue streams in order to make a profit and provide a return to upfront investors. This can mean selling carbon sequestration in the form of carbon credits or certificates in addition to selling other outcomes, or a project working for two compliance markets at the same time (biodiversity net gain and nutrient neutrality).

We welcome recent guidance from the UK Government stating that, if a project is developing a habitat bank to sell biodiversity net gain units to meet a compliance need, it can also sell carbon credits from that habitat bank if additional measures (tree planting for example) have been taken beyond meeting the compliance need alone. However, there is still some confusion around stacking and its implications on meeting additionality

rules, including if or how public money for activities can be stacked with private money for outcomes.

Rules for stacking give clarity and confidence to farmers as project developers and sellers of credits and units (in addition to the wide land management and project development sector).

Bundling refers to a suite of environmental benefits that are sold as a package.⁵² Principles should include guidance on requirements for services (even if bundled) to be subject to the same robust quantification and verification as if sold separately.

We recommend that any stacking rules are subject to revision as markets develop based on regular feedback from project stakeholders (sellers, buyers and investors).



4. Principles: Insetting

Insetting refers to financing environmental projects to reduce a company's own supply chain emissions, in turn reducing the need for subsequent offsetting. There are advantages for farmers taking part in insetting, rather than selling into the offset market.

For example, if a farm is paid for its carbon improvements by the offset market, it can no longer benefit from that same carbon claim since it has gone to the offset purchaser. However, if a farm is paid for its carbon improvements by actors within the supply chain for Scope 3 improvements, that carbon claim can be shared by both the farm and the purchaser.

There are still some technical implementation issues around insetting where convergence of standards is needed, such as how to define supply chain relationships in the context of commodity markets that do not enable physical traceability of farm products. More broadly, there is also a nervousness on the part of farmers that they will be forced by the supply chain to make environmental improvements on their land without being paid to do so.

It would be helpful for Defra to formally address and clarify the role of insetting (working with farmers or

farming representative bodies and the agrifood sector), so as not to delay engagement of farmers with supply chain participants. Since supply chains can be global, government signposting of the central role of the Science Based Targets Initiative FLAG guidance, and its underpinning by the GHG Protocol, as the reference standards would be appropriate and helpful.

The growth of insetting is also tied to the development of a robust Soil Carbon market. [See **Gaps in Codes and Standards** above]

Tax Policy Review

With inheritance tax, current rules may increase the tax burden for landowners where diversification takes place into non-agricultural activities such as environmental improvements – whether by the landowner themselves or by a farm tenant.

As identified by the Country Land and Business Association (CLA), land that is managed for environmental outcomes (biodiversity, tree planting, carbon sequestration, etc) or for social objectives may lose valuable inheritance tax reliefs leading to an

⁵² Theory and Practice of 'Stacking' and 'Bundling' Ecosystem Goods and Services: A Resource Paper

inheritance charge that may adversely impact on the ongoing viability of the business as a whole and the environmental or other public benefits it delivers.⁵³ Furthermore, as farmers seek to diversify income streams that may also include ecotourism, education, farm shops that support or complement environmental improvements made on land, there may be issues around how income and corporation taxes and business rates will be applied that need to be reviewed. Guidance is needed on how the VAT will apply, but also how changing the nature of the business will impact income or corporation tax (e.g. whether non-agricultural activities will be taxed as trading income or property income).

We recommend that tax policies, legislation and guidance are reviewed by HMRC with input from Defra to ensure that the current tax system is supportive of

- a) land managers and landowners’ ambitions to meet environmental targets or provide environmental outcomes; and
- b) the ability for private sector finance to support those outcomes (through banks, investors or buyers of ecosystem services or environmental outcomes).

The recent call for evidence and consultation on the tax treatment of ecosystem markets and agricultural property relief implications is a welcome first step in addressing the concerns raised above.

Assessing Grant Scheme Impacts on Environmental Markets

In addition to a clear set of principles or standards to provide clarity around rules of engagement in environmental markets, we also recommend a regular review of the role of government grant schemes in these markets’ development.

Grants have been extremely helpful in supporting farmers in the provision of additional environmental outcomes on their land. [See Box 9] However, there may be the opportunity for private sector finance to replace some woodland grant schemes for long-term projects, with investors providing upfront capital to landscape scale projects.

There may also be some unintended consequences of generous and unchecked government grants. For example, taxpayers may end up paying for private investors to benefit from tree planting. This could have the unwanted effect of increasing land prices in rural areas.

We recommend that as markets are developing at pace, the UK Government regularly review the value for money of woodland grant schemes and assess their impact on the flow of private investment for nature.

Considerations

Within the work above, we recommend that project developers and the private sector are included within stakeholder engagement so that any standards or principles are relevant in practice. We also recommend that any guidance builds in future changes in environmental targets, data availability and measurement and land management innovations, by including opportunity for frequent review.



⁵³ The CLA Rural Business Unit: Simplifying the Tax Rules for Diversified Rural Businesses

Box 6: Farm Vault⁵⁴

Farm Vault

- Developed by the Climate Agriculture Alliance in France, FarmVault is a tool designed to reduce the risk of carbon sequestration and emission reduction being double counted by farmers who are enrolled in multiple carbon payment programmes simultaneously. It does this by allowing carbon programme operators to register a farm on FarmVault in a centralised and encrypted database, to verify if that farm is already enrolled with a different programme or not. The tool will inform the programme operator if that farm is enrolled in a programme that is compatible or incompatible with theirs.

Compatible carbon programmes may include soil carbon and woodland carbon, for example, and farms may be involved in multiple, compatible carbon programmes at the same time. Two programmes for soil carbon, however, would be incompatible and the programme operator would not be able to register that farm on their programme. If the farm in question is enrolled in a compatible programme, then the carbon programme operator can register that farm on their programme and the database is updated.

Carbon programmes integrated into the tool include those designed at a national level by the French Government, such as Arable, Carbon Agri, Hedgerows, Plantation Orchard and Ecomethane, as well as private sector programmes such as Gaïago Carbon, Soil Capital, Rize, Oléoze and Regeneration.

⁵⁴ Climate Agriculture Alliance. 2022. Launch of Farm Vault



Box 7: Soil Carbon Minimum Standards

IHS Markit Carbon Meta-Registry

- ▶ In 2021, IHS Markit, part of S&P Global Inc, launched the Carbon Meta-Registry as a platform to reduce the risk of double counting and double claiming of carbon credits and to improve access to carbon credits, promote transparency and build trust in carbon markets. The platform aims to connect independent carbon markets and registry systems around the world, to reduce the risk that credits are counted or claimed twice in different markets or programmes.

To do this, the Meta-Registry can highlight to programmes and countries when a project may have been registered in more than one programme. The Meta-Registry can also track units across jurisdictions and programs as they progress through their lifecycle and the platform maintains unit information on one distributed ledger and flags when a unit transaction may require making a corresponding adjustment. The UK Peatland Code and the UK Woodland Carbon Code are two such programmes registered on the IHS Markit Meta-Registry.

Box 8: Financing Nature Recovery Coalition⁵⁵

Financing Nature Recovery Coalition

- ▶ The Financing Nature Recovery Coalition is a group of experts from finance and civil society who were brought together over 18 months by Broadway Initiative, Finance Earth and the Green Finance Institute to identify barriers to private finance flowing to nature recovery and the recommend solutions to help scale such investment.

The Report of published in June 2022 focused on market design, market governance and market operation. It recommended that the UK Government establish a governance and institutional architecture for UK environmental markets by summer 2023. Additionally, the Coalition recommended establishing a system of high-integrity standards for environmental markets.

⁵⁵ Financing Nature Recovery UK: Scaling Up High Integrity Environmental Markets

Box 9: NFU Principles for High Integrity Environmental Markets⁵⁶

NFU Principles for High-Integrity Environmental Markets

- The National Farmers Union released Five Key Principles for the Development of Environmental Markets in Agriculture in June 2022. The NFU acknowledged the opportunities presented by private environmental markets for farmers but saw key barriers to engaging in them. The Principles were set out to ensure emerging markets are fair to farmers by being accessible, transparent and provide fair compensation to farmers. The 5 Key principles are set out below:
- Environmental Markets must work alongside the domestic production of food, energy and fibre
- Public Policy and government initiatives must support the development of private markets
- Environmental markets require clear rules and standards to allow farmers and buyers to participate with confidence
- Markets should be accessible across a range of farm sizes, tenures and business structures
- Farmers must be fairly rewarded for the delivery of environmental goods

⁵⁶ National Farmers Union. 2022. Principles for High-Integrity Environmental Markets

Box 10: England Woodland Creation Offer⁵⁷

England Woodland Creation Offer (EWCO)

- ▶ The England Woodland Creation Offer is a grant scheme administered by the Forestry Commission and funded by the Nature for Climate Fund, available to land managers and farmers to encourage investment in woodland creation. It incentivises the creation of new native woodland, extension of existing native woodland, creation of native woodland along watercourses and creation of native woodland where woodland can create public access. The scheme covers the capital costs of tree planting (up to a maximum of £10,200 per hectare) as well as maintenance payments of £350 per hectare for up to 10 years. Additional Contributions can also be received by land managers for targeting EWCO plans for Nature Recovery, Water Quality, Flood Risk Management, Riparian Buffers, Social Benefits and Access.

EWCO projects that have been registered under the Woodland Carbon Code can generate carbon credits to be sold on the private market or to the UK Government if the project was successful in a Woodland Carbon Guarantee auction. However, a recipient of EWCO funding cannot sell ecosystem services for which they have already received funding for those services through an Additional Contribution. For example, a EWCO recipient cannot sell water quality benefits if they have also received a payment for water quality as an Additional Contribution.

From 2025, EWCO will be absorbed into Countryside Stewardship. It is expected that existing EWCO agreement holders will be able to transition their maintenance payments into Countryside Stewardship from 2026.

⁵⁷ HMG. 2021. Guidance: England Woodland Creation Offer

Wilder Carbon Standard

- The Wilder Carbon Standard for Nature and Climate, launched in 2021, was developed to guide the design of high-integrity nature-based carbon removal projects in the UK. The standard goes beyond the traditional focus on woodland creation carbon offsets and takes a minimum intervention approach, naturally regenerating (wherever possible) a range of native habitats, including other land use types such as grasslands, peatlands, and wetlands or a mixture of these within a project area.

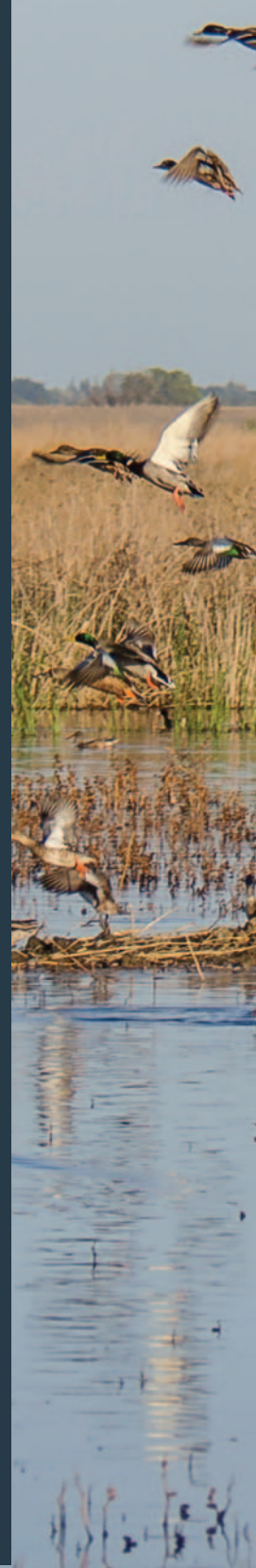
The Wilder Carbon Standard is underpinned by a set of principles relating to biodiversity, carbon data and ethical buyers to ensure projects deliver on their carbon reduction objectives, whilst minimising adverse effects on other environmental outcomes. The Standard is structured in three sections, outlined below:

- 1. Partner Eligibility :** outlines the standard to which project implementing partners and unit buyers must adhere to. For example, unit buyers must have a public commitment to achieving net zero emissions and a credible plan to achieve net zero in line with guidance from science driven targets. The standard also outline land title and tenure requirements and the legal agreements which project partners must enter. Additionally, this standard sets out the responsibilities of audit, monitoring and verification partners.
- 2. Project Eligibility:** sets out the types of projects which are eligible for accreditation and how projects must demonstrate compliance with the biodiversity principle. This standard also defines additionality and permanence and outlines mechanisms for projects to stack different income streams.
- 3. Project Documentation & Design:** outlines how project implementers will document the baseline and post-intervention scenarios to demonstrate impact, how delivery and monitoring plans will be designed and submitted, and which data are needed to report on outcomes.


Two projects following the Wilder Carbon Standard have already been validated by Soil Association Certification, with many more in development. Units from these projects are now for sale, and the Wilder Carbon team are mobilising a community of practice to deploy the Wilder Carbon Solution at scale across the UK.

Part of this includes the development of a farm focused nature-based solution (NbS), by teaming up with Farm Carbon Toolkit to offer the tools and advice to determine the best integration of NbS and agriculture for a future land management system that achieves multiple benefits for the public good.

The Farm Focused NbS provides an all-encompassing toolkit for land managers to assess, plan, deliver and fund a carbon reduction plan that, crucially, supports habitat restoration as a way of: firstly insetting farm business residual carbon footprint within their own holdings or landscape, and then; accessing the voluntary carbon market (VCM) to leverage carbon finance to deliver the management practice for the long term.



⁵⁸ Wilder Carbon Standard for Nature and Climate



Aggregation Model Support

Aggregation Model Support

Challenge and Opportunity

Aggregation models which bring multiple land managers together, provide a suitable mechanism through which farmers can gain access to private finance and alternative revenue streams for the delivery of environmental outcomes. They also facilitate the delivery and monitoring of nature-based solutions and environmental improvement projects at scale.

They enable:

- environmental projects to reach the scale required by investors,
- farmers to come together to achieve economies of scale when delivering and selling ecosystem services, and
- the delivery of landscape scale solutions to meet the UK's target environmental outcomes.

While there are several farming aggregation models operating around the UK, there is limited evidence of further knowledge sharing and collaboration between groups and little evidence of shared governance principles. There is also a funding gap for the early development of aggregation models, including legal costs.

Concerns around both the sustainability and integrity of aggregation models can deter farmers from joining an aggregation project, or from establishing their own.

Aggregation Models

There are several opportunities available to farmers to sell environmental outcomes or ecosystem services and attract private sector finance if they come together at scale. In addition to the sale of peatland or woodland carbon credits into voluntary offset markets, some water utility firms are paying groups of farmers for reduced nutrient run-off. Farmers may also be able to create habitat banks that sell Biodiversity Net Gain (BNG) units. In some examples, farmers can deliver natural flood

management interventions and monetise the resulting reduction in flood risk to beneficiaries including Local Authorities [see **Table 8** for further examples].

Many farmers are already familiar with working collectively through cooperatives or clusters. The Game and Wildlife Conservation Trust (GWCT), for example, set up the first pilots of farmer cluster groups in partnership with Natural England in 2014.⁵⁹ Since then, the number of known farmer clusters captured by GWCT has grown to include over 120 clusters covering more than 660,000 hectares in England, Scotland and Wales.⁶⁰ However, as farmer clusters are often not formalised, there may be clusters that have not been accounted for in these figures. For example, 180 groups of farmers have been funded through the Countryside Stewardship Farm Facilitation Fund, at the time of this report.

These clusters are groups of farmers and other stakeholders in a landscape, coming together to address localised environmental concerns. They are often farmer-led with the help of facilitators, technical experts and trusted advisors. This 'ground-up' approach builds engagement with local communities and ensures that land and any funding is managed by communities already embedded within the landscape. Priorities of these groups range from monitoring, protecting and restoring bird and mammal species to improving soil health and soil carbon sequestration.

As new markets for ecosystem services develop, farmers will now also need to aggregate together at catchment or landscape level to reach the scale of delivery required by buyers and investors.

In England specifically, 40% of all farms are under 20 hectares in size and therefore almost half of farmland opportunities for ecosystem service enhancements come from small scale holdings.

Despite there being examples of farmers forming groups to access payments for ecosystem services schemes, these aggregation models are not widespread.

⁵⁹ Farmer Clusters

⁶⁰ Farmer Clusters Map

A summary of aggregation model types that are currently accessing nature markets in the UK is provided in Table 8 below:

Aggregation Model	Project	Model Structure	Key Features	Private Finance Mechanisms Unlocked
Farmer Cooperative	Environmental Farmers Group (EFG) *	Natural Capital Trading Cooperative Model	Originated from farmer clusters. Farmer-led model including small to large scale farmers, including tenant farmers.	Biodiversity Net Gain Nutrient Neutrality Voluntary carbon markets and supply chain carbon insetting
Farmer Cluster Groups	North East Cotswold Farm Cluster Group	Community Interest Company (CIC);	Farmer cluster group with objectives to improve soil health, map, create, enhance and link priority habitats through private and public funding.	Voluntary carbon markets Biodiversity Net Gain, Water quality Natural flood management
Landscape Enterprise Networks (LENS)	East of England LENS *	Demand side led and supply side aggregation	Supply and demand aggregation of NbS interests in a landscape. Supply side coordinated through supply aggregators for joined up proposition.	Flood risk mitigation Water quality GHG emissions reduction Carbon sequestration
River Catchment Led	Wyre NFM *	Wyre NFM – Community Interest Company (CIC)	Use of private sector finance to deliver flood risk reduction via natural flood management.	Natural flood management Carbon sequestration Water quality Biodiversity
	Poole Harbour *	Poole Harbour Agriculture Group Community Interest Company (CIC)	Multi-stakeholder group formed to reduce the levels of nitrogen in the catchment's waterways.	Sale of nitrate credits

Aggregation Model	Project	Model Structure	Key Features	Private Finance Mechanisms Unlocked
Farmer Led	Wending Beck Environment Project *	Limited Liability Partnership	Originated from neighbouring farmer partnership.	Biodiversity Net Gain
	Green Farm Collective *	Limited Company	Formed through shared values of soil health.	Carbon offsets Biodiversity improvements Regenerative agricultural premium products
Private Sector Led	Arla *	Farmer Owned Cooperative	Dairy farmer owned cooperative – profits of business shared amongst farmers.	Regenerative agricultural premium products – specifically a premium paid on milk price for completing carbon baselining and implementing sustainability actions on farm

* summaries and case studies of these models are provided in the **Appendix**

Table 8: Aggregation Models in England

Box 12: Community Interest Companies

Community Interest Company

- 📌 A number of aggregated groups of farmers have used the Community Interest Company or CIC model. Community Interest Companies (CICs) were first established in the UK in 2005. They are a type of limited company that trades with a social purpose, or carries out other activities for the benefit of a community.

CICs are intended to use their assets, income and profits for the benefit of the community that they are formed to serve. They therefore have a number of additional features compared to a traditional limited company, including being subject to an 'asset lock' that ensures assets are retained within the company to support its activities or otherwise used to benefit the community. Case studies on the use of this structure can be found in the Appendix of this report.

Recommendation

Recognising the benefits offered by aggregation groups to constituent farmers, we propose the below recommendations that can collectively support the ongoing success of aggregation models, enabling farmers to access private sector capital alongside public funding.

- **Phase 1** – Creation of a Community of Practice for existing and emerging models to share knowledge and best-practices for farmers.
- **Phase 2** – Identification of development funding for aggregation models, including from the private sector.
- **Phase 3** – Development of overarching Aggregation Model Principles to instil farmer confidence.

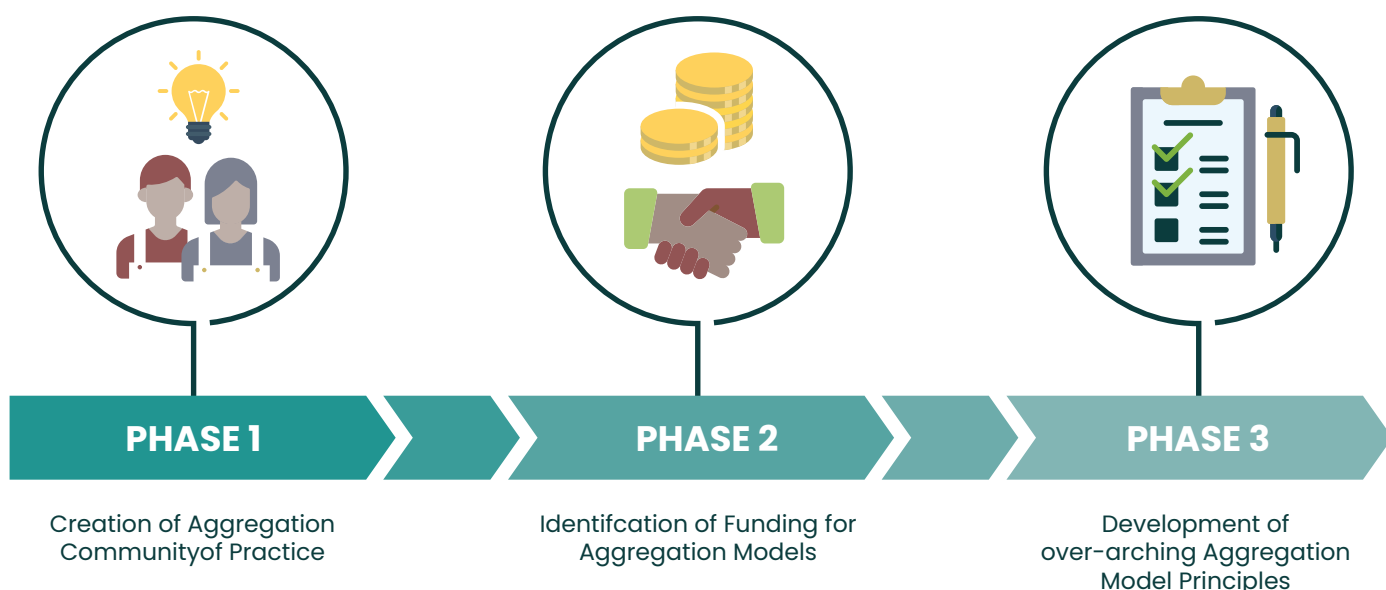


Figure 5: Key Enabler: Aggregation Model Support





Step 1: Determine Content and Host of Community of Practice

Communities of Practice are groups of individuals or organisations that are brought together through a shared interest in a specific subject area, typically with the goal of furthering their expertise in and delivery of said subject area. They are designed to facilitate peer-to-peer and collaborative learning that enables members to develop what is considered to be best practice in that area.⁶¹

Examples of Communities of Practice focussed on green finance and nature restoration include the Natural Environment Investment Readiness Fund (NEIRF) Community of Practice in England, and Scottish Nature Finance Pioneers (SNFP) in Scotland. These are designed to increase capacity and capability of project developers, as well as to foster collaboration and knowledge exchange between land managers, eNGOs, businesses and financial institutions.

Having an Aggregation Model Community of Practice would provide a platform for peer-to-peer learning and knowledge exchange, accelerating the development of new farming clusters and other aggregation models. Information can be shared between participants on key considerations when starting an aggregation model, including but not limited to

- formation of legal structures
- revenue generating options
- potential tax implications
- example or template legal documentation
- the regulatory environment around trading
- different drivers of aggregation (investor/buyer driven, land manager driven)
- income identification
- examples of different legal structures of aggregated groups
- the benefits and drawbacks of various aggregation models in operation

Through sharing case studies and the facilitation of discussion groups, early stage aggregation groups can more swiftly overcome these barriers.

The Community of Practice can be hosted by external organisations, with content shared across multiple relevant platforms for broader knowledge exchange. Possible hosts include those within farm education, such as The Institute for Agriculture and Horticulture (TIAH) that aims to help farmers upskill, develop bespoke learning pathways and signpost farmers to important resources. Another option to host the Community of Practice is the Green Finance Institute (GFI). The GFI has experience developing learning materials for farmers and project developers in accessing private markets, and in supporting the NEIRF Community of Practice. The Environment Agency which already hosts the NEIRF Community of Practice and works with Catchment Partnerships, could provide an alternative, working with the private sector and sharing findings cross-border.

In addition to supporting aggregation models, the Community of Practice can also support knowledge exchange on topics beyond aggregation models for the farming community, such as practical ways of baselining soil carbon. It therefore would benefit from having a partnership with farming groups, if not hosted by a farming group directly.

⁶¹ National Voices. 2017. Enabling change through communities of practice.

The Institute for Agriculture and Horticulture

- ▶ TIAH aims to provide tailored advice and practical tools to help develop training and skills for farmers and other professionals in agricultural and horticultural businesses. Alongside support from Defra, the Institute was developed by a project group that included the NFU, AHDB, farmers, employers, industry leaders and higher education specialists. TIAH was established as a charity in 2021 and it aims to reduce the fragmented way the industry approaches skills and training. It acts as a co-ordinating force for both employers and employees.

Acting as a hub, TIAH directs users to relevant training courses and information based on their career goals, collects data on the current state of the labour market, and includes a capability framework to assist individuals in identifying the skills they need. It will also simplify audits and record keeping across the industry by providing independent Continuing Professional Development (CPD) records and collating personal achievements, to be used to demonstrate compliance. Although TIAH's initial scope is England, it is engaging with the devolved nations to encourage future collaboration.



Step 2: Assess Potential Government Funding and Guidelines for Funding

Access to funding has been identified as a key barrier to the wider development of farm aggregation models. Anecdotally, the establishment and development of some larger aggregation models to a stage of active trading can require between £100,000 to £200,000. These costs can include headcount, training, marketing, natural capital baselining, legal, tax and accounting costs. The largest share of aggregation start-up costs have been attributed to natural capital baselining, legal and accounting costs and time given in-kind.

The time taken to develop aggregation models to a stage when revenue streams can be realised can be up to two years, including time spent on business case development, financial modelling and stakeholder engagement. This presents a level of uncertainty for group members as cash flow from the future sale of ecosystem services is not guaranteed.

Sourcing funding for the first two years is therefore critical to de-risking the development of aggregation models and the ability of farm clusters to form and deliver ecosystem services. Aggregation models currently do this through a combination of different funding sources, including annual farmer contributions per hectare, company sponsorships through CSR budgets, membership subscriptions and public and philanthropic grants. With a demand-led model like LENS, some of these costs may be covered by the private sector.

Potential Public Sector Sources of Funding

If government does not have the appetite to set up a dedicated fund to support aggregation models, it could explore the use of current funding pots to cover some early-stage development costs associated with aggregation models.

Countryside Stewardship Facilitation Fund

The Countryside Stewardship Facilitation Fund is one such source of funding that could be expanded (Further details in **Box 12** and in **Case Studies**). While the Fund does not pay for the establishment of aggregation models, it could expand its remit to provide funding towards operational costs such as legal costs – requiring models to be part of a Community of Practice to speed up development and ensure the adherence to best practices.

The Fund has already proven to be successful at delivering Countryside Stewardship priorities and addressing land management issues within funded groups.⁶² As such, the Fund provides a good foundation to aid development of aggregation models through a series of possible enhancements.

These could include the following:

- Inclusion of green finance and natural capital markets in facilitator training.
- Ensuring that the application process to the Fund is simple and the administration processes are efficient.
- Providing funding for activities that will enable the creation and expansion of aggregation models at scale, such as legal advice on specific key topics.
- Linking the Fund to the Community of Practice laid out above.

Box 14: Countryside Stewardship Facilitation Fund

Countryside Stewardship Facilitation Fund

- The Countryside Stewardship Facilitation Fund supports individuals to act as ‘facilitators’ to bring together groups of farmers, foresters and other land managers, with the goal of improving environmental outcomes in their local area. The most recent window closed in January 2023 that will provide funding for projects to 2026. There will be further application rounds in 2023 and 2024.

This is a competitive process that will fund activities for farmer groups of up to 80 land holdings. These activities include the costs of facilitation and collaboration, training of group members to better deliver Countryside Stewardship priorities in target priority areas and/or securing funds from other sources. Successful applicants can receive up to £50,000 per year for activities, including training sessions and testing of soils.

At the time of writing, there are 180 groups with over 4,000 members that cover over 10% of the priority habitat in England, circa 230,000 hectares. Some of these groups have remained as local partnerships, others have formed Community Interest Companies, Charitable Incorporated Organisations, and Charitable Companies Limited by Guarantee. Those who have become legally constituted can benefit from an increased legal and administrative capacity, which in turn can support the delivery of private investment in natural capital and nature recovery. Some projects however, choose not to become legally constituted as they feel it is more beneficial for the project as a whole and is less complicated.

⁶² Countryside Stewardship Facilitation Fund

Countryside Stewardship

The middle tier of ELMs is a continuation of Countryside Stewardship due to the scheme’s popularity and familiarity with the farming community. Farmers will be rewarded for working together with neighbouring farms and landowners to join up nature recovery across landholdings⁶³ and therefore could be a potential source of funding.

Landscape Recovery


The highest tier of ELMs is Landscape Recovery and this scheme is designed to encourage landowners to deliver landscape scale improvements in natural capital. The scheme accepts applications from projects covering a minimum of 500 hectares and could be a source of funding for aggregation models. Local forums can provide a pathway for the formation of Landscape Recovery groups and government may convene local forums through the CSFF. Other routes may be via large estates or other partnerships.

Demand-led Funding

Private sector organisations dependent on well-functioning landscapes for their businesses, may be willing to pay for aggregation of farmers in those landscapes to deliver environmental improvements beneficial to their supply chains. Landscape Enterprise Networks (LENS) is an example of such an approach and more detail can be found on LENS in the **case study** section in the **Appendix**.

Philanthropy & Pro Bono Work

Some aggregation models have received funding outside of the normal government grant routes. The Wendling Beck Environment Project, for example, received grant and philanthropic funding, pro bono legal work via an environmental NGO, along with direct landowner contributions.



Step 3:
Develop Principles for Aggregation Models with Endorsement from key partners

Private Sector Sources of Funding

A set of overarching Aggregation Principles, designed to give detailed guidance on aspects of formalising landowner groups, would give confidence to all stakeholders.

A farmer-led process and/or endorsement of guidance would give these Aggregation Principles credibility. Principles can provide an overview of best practice and identify key areas that all stakeholders should consider when aggregating to deliver ecosystem services or environmental outcomes.

Through workshops and interviews, the below considerations were identified for inclusion within these Principles:

🕒 Open Book Accounting

Sharing key financial information with stakeholders, including members and investors, would instil trust in the model from internal and external counterparties. An example of this could include any profit-sharing arrangements between members, so that each individual land manager is aware of their rights to any revenue generated.

🕒 Identification of Ethical Buyers

Providing guidance on how models can identify ethical buyers, for example those with credible decarbonisation plans, would ensure the models only deal with reputable organisations. This would therefore reduce the reputational risk of the model and the landowners.

⁶³ Local Nature Recovery Guidance

➤ Legal Structuring

As legal and administrative costs have been identified as the largest share of start-up costs, guidance around legal structuring and other legal considerations could reduce the time and money spent in the first years before trades are executed. This guidance could include the benefits and drawbacks of different structures, including Community Interest Companies, Limited Liability Partnerships and Limited Companies, along with the tax implications of each structure.

➤ Exit Strategies

As land managers' situations change, there may be unidentified consequences if a land manager wants to exit the model, especially with regards to any permanent land use change that has been implemented. Understanding and articulating the impacts of exiting for land managers, investors, buyers and the group as a whole is a key consideration, and will increase transparency and improve guidance for farmers.

➤ Tax Implications

Land managers should be aware of the tax implications of entering into an aggregation model. For example, if any interventions include taking land out of agricultural production, there will likely be tax implications for individual farmers that must be articulated clearly before agreement. Furthermore, different tax mechanisms will exist for different legal structures involved in an aggregation model. For instance, a Limited Liability Partnership will attract a different tax treatment on profits compared to a Limited Company.

➤ Monitoring of Ecosystem Services

Models should clearly define how baseline natural capital data will be sourced, with cost estimates and costs shared. They should also define how ecosystem services will be valued at an early stage.

Beneficiaries

Aggregating into larger groups to access environmental markets provides a number of benefits for different stakeholders:

Farmers and Land Managers

For farmers and land managers, aggregation addresses a number of key challenges: Lack of Scale and Small Farm Engagement; Knowledge Gaps/Confidence; and Costs:

➤ Lack of Scale and Small Farm Engagement

Aggregating into larger groups allows land managers to access revenue streams from ecosystem service markets that would otherwise be inaccessible as a single entity. Ecosystem service market transactions are typically bespoke and take time and effort from all parties to develop. Delivering an ecosystem service-based solution requires a minimum scale before becoming cost effective due to high transaction costs. Without a certain level of scale, the benefit of the transaction to all parties is eroded.

Farmers looking to transact in ecosystem service marketplaces as single entities may have a weaker negotiating position than a larger landowner or collective of farms. Collective engagement will therefore grant farmers greater power over price setting, while also providing economies of scale on transactional costs, monitoring, reporting and verification.

Some aggregation models, such as the Environmental Farmers Group, also enable small-scale farmers to take part in profit sharing, accounting for the different risk limits of larger and smaller farms. In such models, larger farms that are able to take on more delivery of ecosystem services and associated risks, would receive a higher percentage of revenues from trades. Smaller farms that have contributed to a larger scale however, still receive a percentage.

➤ Knowledge Gaps/Confidence

Aggregating farms into organised groups can enable knowledge exchange between land managers through peer-to-peer learning, thereby increasing the confidence of group members in accessing environmental markets. This is particularly valuable in emerging ecosystem service markets where collective knowledge will allow for accelerated delivery.

Land managers in an aggregated group who may be new to ecosystem services markets, or do not have the time or resources available to understand these markets, can benefit from those that have previous experience or expertise. If an expert facilitator or advisor is involved with the group, then individual members who may not usually have access to this resource will benefit greatly from being part of the group.

➤ Costs

Coming together as a group of farmers into a single model can reduce the administrative costs per farmer of engaging in markets, in addition to potentially reduce baselining, MRV and equipment costs.

Buyers of and Investors in Ecosystem Services

For buyers of and investors in ecosystem services, farmers aggregating into organised groups will help address: the Need for Scale for both environmental and economic outcomes.

➤ Need for Scale

Working with an aggregated group of farmers allows buyers and investors to reach the scale required to make the transactions environmentally and economically viable.

Environmentally, this is particularly relevant in water markets, where without a minimum level of farmer participation in a given catchment, a water company may still need to deploy an engineered 'grey' infrastructure solution alongside nature-based solutions. This can limit the cost-benefit ratio of the nature-based solution delivery. In markets where location may not be a deciding factor, such

as those for carbon credits, scale of delivery across a landscape can lead to benefits that would otherwise be lost in fragmented habitats, such as biodiversity connectivity.

Economically, with 40% of farms under 20 hectares in size in England, transacting with multiple, single farms could increase transaction costs considerably. Dealing with a single aggregation model representing multiple land holdings can be significantly more cost efficient. This is mirrored in costs of administration, monitoring, reporting and verification.

Aggregated models also allow for multiple buyers to take part and share costs. In the case of Landscape Enterprise Networks (LENS), water utilities can participate with other buyers needing the same environmental outcomes to help create an aggregated model of farmers across a landscape.

Private Sector

For the private sector, aggregation of farmers will address the following concerns: Lack of Scale; Environmental and Regulatory Targets; and Resilient Landscapes

➤ Lack of Scale

As with buyers of and investors in ecosystem services, aggregation reduces transaction costs for the private sector and makes implementing nature-based solutions more cost-effective. It also supports landscape and catchment scale outcomes across large geographic areas meeting the economic and environmental needs of the private sector.

➤ Environmental and Regulatory Targets

Farmers aggregating together to address landscape specific environmental issues can reach the scale required to allow private sector companies to meet their environmental and regulatory reporting targets more efficiently. Aggregated groups provide a single touch point allowing the private sector to more easily obtain greater detail on interventions and overall project progress and to be more actively involved with the

groups. Greater transparency provided through larger aggregation models would allow corporates to more easily assess the suitability of implementing environmental improvements through the supply chain via insetting to meet net zero or other environmental objectives.

➤ Resilient Landscapes

Working across a wider landscape, with multiple farms in an aggregated group to deliver large-scale ecosystem service projects, provides an element of insurance against intended outcomes not being delivered. If one element of a project fails then the impact of that failure may be mitigated by the wider group due to diffusion across multiple farms.

As mentioned earlier, aggregated models also allow for multiple buyers to take part and share costs where interests in a landscape overlap. For example, a Landscape Enterprise Networks (LENS) model involving Nestlé, United Utilities and First Milk in Cumbria allowed these entities to financially support farmers. United Utilities benefited from reduced phosphorous in the water supply, whilst Nestlé benefited through increased resilience in their supply chain.

UK Government

Farmers and land managers aggregating together can address the following concerns for the UK Government: Lack of Scale; and Outcome Delivery of Subsidy Schemes

➤ Lack of Scale

Aggregation models can provide the scale required to deliver international and domestic goals, such as the global 30x30 target. This is coherent with the recommendations of the Making Space for Nature report published in 2010, which highlights the importance of wildlife recovery delivered at scale through a more joined up approach across the landscape.⁶⁴

➤ Outcome Delivery of Subsidy Schemes

Shared learning and knowledge building through aggregation models may in turn lead to a greater outcome delivery of agri-environment subsidy

schemes, such as ELMs. Evaluation reports of the Countryside Stewardship Facilitation Fund (CSFF) have highlighted enhanced management of natural capital delivered through group activities when compared to Countryside Stewardship agreements outside of the Facilitation Funded groups.⁶⁵

The Landscape Recovery tier of ELMs relies heavily on farmers coordinating to address landscape specific priorities. This will enable farmers to not only deliver against priority outcomes, but join up delivery across a landscape that involves other land managers, such as those managing Sites of Specific Scientific Interest (SSSIs). Delivering at this scale will allow government to provide support for environmental outcomes more easily and will improve the subsidy scheme's value for money.

Considerations

There are several considerations around the development of aggregation principles that must be addressed:

➤ Content and Input

Content should be determined by a cross-sector group including farmers, the private sector and government – with representation from members of the Community of Practice.

➤ Access

It is important that the principles are easily accessible to farmers and are easily understood.

➤ Hosting of the Principles

Guidance would be most effective if hosted on a government site or on the site of a trusted organisation within the land management community. The host must have the resources to maintain, update and amend the principles as necessary, in collaboration with the Community of Practice to do so.

➤ Endorsement

As above, endorsement by a trusted organisation within the land management community or by government would give confidence to land managers, buyers and investors.

⁶⁴ J.H., Lawton et al. 2010. Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network.

⁶⁵ Environmental Systems Ltd, CCRI, LUC, Natural England. 2020. CS Facilitation Fund Phase 3. Final Report. <https://randd.defra.gov.uk/ProjectDetails?ProjectId=20367>

Additional Considerations

Additional considerations

A list of areas for additional consideration also emerged from Group meetings, workshops and interviews over the six months of the project. These have not been developed in detail, but are included here as useful information and potential areas for future work:

The establishment of a cross-sector working group or forum comprising the farming sector, finance sector, the food value chain and water utilities

This is also a key recommendation in the March 2023 Bankers for Net Zero Fertile Ground report, which offers further details on the role and governance of that forum

Encouraging knowledge sharing among farmers of the business impact of transitioning agricultural practices

While there are efficiency gains to be had for farms transitioning to more nature-positive and low emission practices, information and understanding of the potential to improve efficiencies is not widespread. There are concerns and preconceptions among farmers around the business impact of this transition. Support for the growing number of farmer-led initiatives enabling knowledge sharing between farmers, agronomists and other agricultural practitioners would help the wider farming community with the transition to more sustainable practices.

Improving consumer awareness

There are sensitivities around cost of food increases that butt up against the need to pay for the true cost of food and support farmers in delivering environment outcomes to meet the farming transition (that consumers also require).

There is an opportunity at present to begin to reframe old narratives and for retailers in agricultural supply chains to engage with their consumer base and better connect the needs of farmers, consumers and the environment in order to create a value proposition for nature-positive and sustainable products.

Upskilling & capacity building for farm advisors

Upskilling and accreditation of farm advisors in areas such as environmental markets was identified as an important way of increasing knowledge across the farming sector and instilling trust and confidence in advice given to farmers wanting to access these income streams. The BASIS Certificate in Greenhouse Gases, Carbon and Climate Change Mitigation course is an example and could be widened to include content on environmental markets. Additionally, emerging monitoring, reporting and verification requirements for environmental baselining and outcomes on farms will require farm advisors and agronomists to be upskilled to deliver high-quality MRV services to their farmer clients. These new requirements are likely to stimulate increased demand for environmentally-focused farm advice which represents an opportunity for job creation in rural areas. To ensure advisors are trained and prepared to deliver these services, the UK Government could work with BASIS and other training organisations to develop appropriate and relevant training programs for a new generation of farm advisors.

Addressing conflicts of interest with farm advisor roles

Farm advisors who are employed by chemical companies are viewed as having a clear conflict of interest in the advice they give farmers on pesticide and fertiliser application. Legislating that farm advisors separate their advisory services from sales of inputs along with integrating environmental considerations into advisor training could help to align farm advice with environmental objectives.

Ensuring policy does not negatively impact bank lending

Long-term environmental policy and funding schemes may impact the value of land against which banks are lending. Government should continuously engage with the banking sector to ensure that long-term environmental schemes do not impede banks' appetite to lend to farmers.

Developing a harmonised approach to supporting the transition to nature-positive farming across the UK.

Although this report has had England as its focus, shared environmental goals and an interconnected agriculture system may require a coordinated approach to support nature-positive farming across the UK. The sharing of best practices between the devolved administrations and UK Government, as well as a UK-wide data approach would more smoothly catalyse private sector finance and scale public investment towards the farming transition.

The creation of a meta-registry of environmental credits

As mentioned in Environmental Markets Guidance & Principles, addressing the risk of double counting of

environmental credits is crucial in the formation of high-integrity environmental markets, and increasing the confidence of both buyers and sellers of ecosystem services and improving environmental outcomes. There is a risk that projects generating credits may be listed on more than one registry for the same environmental outcome, and credits could be sold twice. Furthermore, greater transparency is needed around pricing of units and credits. To reduce the risk of double counting and increase transparency, the creation of a meta-registry should be considered by Defra to ensure that environmental credits are listed in a single location and project developers cannot sell the same outcome twice.

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3Keel	Tom Curtis	Partner
Agreed Earth	Kelly Price	Co-Founder/CEO
Agrimetrics	Rebecca Geraghty	Chief Commercial Officer
	Richard Tiffin	Chief Scientific Officer
AHDB	Jon Foot	Former Head of Environment
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British Farm Data Council	Gareth Davies	Member & Co-Founder of YAGRO
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NatWest & RBS	Roddy McLean	Director of Agriculture
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Palladium	Tom Gegg	Technical Lead UK Nature Based Solutions
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Precision Grazing	James Daniel	Director
RegenAgri	Franco Constantini	Managing Director
Riverford Organic Farmers	Harriet Bell	Regenerative Farming Lead
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	Janet Swadling	Head of Communications & Marketing
Wendling Beck	Glenn Anderson	Director of Landscape Strategy
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	Annabel Martin	Upstream Thinking Project Manager
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Table 9: Acknowledgements



An aerial photograph of a vast agricultural landscape. The top half shows a golden-brown field with a combine harvester in the distance. The bottom half shows a dense, green forest. A dark grey rectangular box is overlaid on the left side of the image, containing the word 'Appendices' in a bright green, sans-serif font.

Appendices

Barriers in Full

Barrier	Farmers/ Land Managers	Finance Sector	Supermarkets / F&B	PES Buyers
DATA BARRIERS				
Lack of agreed farm boundary information	✓	✓	✓	✓
Lack of digital farm boundary data	✓	✓	✓	✓
Lack of agreed habitat baseline data	✓	✓	✓	✓
Lack of access to agreed data at both farm parcel and habitat baseline level	✓	✓	✓	✓
Lack of incentives around data collection	✓	✓	✓	
Cost of data collection				✓
Lack of clarity around outcomes metrics	✓	✓	✓	✓
Concerns on data sharing	✓			
Concerns on access to private data	✓			
CONFIDENCE BARRIERS				
Lack of awareness of finance opportunities including grants	✓			
Lack of understanding of transition risk or cost/opportunity of transition	✓	✓	✓	
Lack of clarity around government outcomes desired	✓	✓	✓	✓
Knowledge gap on appropriate management practice interventions	✓	✓	✓	✓
Lack of trust in environmental market development	✓	✓	✓	✓
Confusion around contract lengths	✓	✓		✓

Barrier	Farmers/ Land Managers	Finance Sector	Supermarkets / F&B	PES Buyers
Lack of clarity around additionality and stacking rules	✓			✓
Lack of confidence in aggregation models	✓		✓	✓
Lack of clarity around outcomes metrics	✓	✓	✓	✓
Lack of systems approach (cross-sector collaboration)	✓	✓	✓	✓
IMPLEMENTATION BARRIERS				
Lack of confidence in aggregation models	✓	✓		✓
No soil carbon code agreed	✓		✓	✓
Lack of access to agreed data at both farm parcel and habitat baseline level		✓	✓	✓
Tax implications	✓			✓
Government grants/subsidies risk of crowding out private sector funding	✓			✓
Lack of clarity around outcomes metrics	✓	✓	✓	✓
Lack of clarity around additionality and stacking rules	✓			✓

Figure 6: Full list of Barriers



Aggregation Model Case Studies

Box 15: Wyre Catchment NFM Project

Wyre Catchment NFM Project

- ▶ The Wyre Catchment Natural Flood Management Project is the first example in the UK of the use of repayable private investment enabling the delivery of natural flood management. The Project is led by the Rivers Trust, Wyre Rivers Trust and the buyer group – including United Utilities and the Environment Agency. The project is located near Churchtown, an area faced with increasingly severe and frequent flooding, and out of scope for further ‘grey’ flood defences.

Aggregation was key to ensuring the success of this project. Natural flood management solutions often need to be delivered in volume across a catchment. Similarly, many organisations can benefit from flood risk reduction, but there is a hesitancy for one buyer to pay for natural flood management over several years. Aggregation of both buyers and sellers was therefore required.

Around 15 land managers have agreed to host up to 1,000 interventions – such as hedgerow planting and pond creation – on their land for up to nine years, with the possibility of extending the project to up to 50 years. These land managers, mainly farmers, receive a lease payment for this hosting that is paid by the buyer group, while up-front costs of installing these interventions are met with investment from impact funds and high-net-worth individuals. Upon confirmation of scientific targets being met in Year Five, the buyer payments increase significantly to begin investment repayment. If these targets are met, investment will be repaid in full by Year Nine.

The Project is run through a Community Interest Company (CIC) limited by guarantee and with a 100% asset lock, meaning any excess profits can only be spent on further flood-risk reduction for the community. This structure was seen as the best choice, as the project team felt strongly that neutral ownership (no equity) would be an advantage, and that the choice of legal entity should reflect the fact that this project exists primarily to benefit the local community.

Almost all contracts are made through the CIC. The Rivers Trust runs the CIC’s operations through an Asset Management Contract. The Wyre Rivers Trust is also contracted for the installation, major maintenance, and monitoring of the interventions. Each of the buyers and landowners have individual contracts with the CIC, and each buyer/seller contract is identical in terms, apart from payment figures.

Over two years, the project cost £120,000 to develop. Going forward, £15,000 p.a. is dedicated to the running of the CIC, plus £20,000 p.a. for project management and monitoring in the catchment effectively captured within the annual payments made by buyers.

Box 16: Poole Harbour Nutrient Management Scheme

Poole Harbour Nutrient Management Scheme

- The Poole Harbour Nutrient Management Scheme is a farmer-led initiative in the Poole Harbour Catchment of Dorset, aimed at reducing the levels of nitrogen in the catchment that have historically caused excessive eutrophication (algae blooms) in its waterways. It is governed by farmers of the catchment, with support from the NFU, Environment Agency, Natural England, Wessex Water, and the Dorset Catchment Partnership.

Aggregation is required due to the scale of the environmental issue impacting the whole catchment. Overall, the Scheme aims to reduce agricultural nitrate run-off in the catchment by 600 tonnes per year by 2030. To give a sense of scale, previous scientific estimates showed that an average hectare of farmland in the catchment leaches 0.027 tonnes of nitrogen per hectare per year.

These targets were given the Environment Agency, which proposed a Water Protection Zone in 2016 that would place blanket restrictions on all relevant businesses to reduce nitrogen levels through a 'glide path' up to 2030. The project team, driven by the farmers of the catchment and the NFU, counter proposed the concept of a Nutrient Management Scheme.

The Scheme incentivises the ~550 farm businesses in the catchment to participate via its voluntary and market-led approach that offers the chance to 'go the extra mile' for the environment. Farmers able to reduce their nitrate run-off beyond their individual targets can sell the excess nitrate 'credits' to those who cannot meet their own targets. The Scheme will also facilitate the sale of excess credits to other sectors that must reduce their nitrate run-off, including water companies and developers.

The Scheme is now run through the Poole Harbour Agriculture Group Community Interest Company (CIC), limited by guarantee with a 100% asset lock. The CIC was seen as the best choice for the Scheme due to its focus on environmental benefits for the catchment, and the neutral ownership (no equity) structure. It was also much easier to set up than a charity and requires any profits to be shared only for the improvement of the catchment's water quality.



Environmental Farmers Group

- The Environmental Farmers Group (EFG) is a natural capital trading co-operative developed by farmers across several farmer clusters in the Avon catchment. It was founded by farmers in 2021 with two aims:
 - To respond to uncertainties around the new replacement schemes for the Basic Payment Schemes by exploring alternative income streams, and
 - To collectively support environmental uplift in the River Avon Catchment.

The EFG's environmental objectives are: to achieve clean water; reverse biodiversity and species loss; and to reach net carbon zero farming by 2040 in the catchments in which it operates.

Alongside these key environmental outcomes, the EFG as an aggregated farmer-led model aims to provide a fair financial return for the farmers involved in restoring natural capital through the sale of biodiversity units, nutrient offsets and carbon credits.

There are currently more than 90 farmer members within the EFG co-operative model ranging from small 20 hectare farms to farms with several thousand hectares under management. Dairy farms, arable farms and country estates are represented within the group that collectively spans over 40,000 hectares, and includes tenanted and farmer-owned farms.

Members agree to sell natural capital via EFG and EFG sources the trades. In order to develop scale and ensure the inclusion of smaller farms, equalisation is built into the member contracts. 88% of the value of any trade will go to the member farm providing the ecosystem service and/or environmental outcome, 9% is shared with the farms in the catchment area and the remainder pays for the operational costs of EFG.

A further aim of EFG is to have baseline environmental data produced and owned by farmers. It is looking to establish a baseline for the whole group against which improvements can be measured, so that members which have already created environmental improvement projects will not be penalised. Individual farmers can additionally join ELMs, with the EFG being appropriate also for participating in Landscape Recovery.

The aggregation model provides an opportunity for organisations looking for large-scale environmental trades to deal with one body, instead of multiple individual farmers, as well as providing access to recognised scientific monitoring of its "whole catchment" conservation plan, supported by the Game & Wildlife Conservation Trust (GWCT). EFG also brings together landowners and tenants and enables them to develop a common conservation plan for the whole Avon catchment through knowledge sharing on data collection, mapping and understanding the economic and natural potential of the land. With the conservation plan, EFG can track and measure environmental improvements to evidence how its farmers are meeting and/or exceeding government targets.

The Game and Wildlife Conservation Trust through its subsidiary Natural Capital Advisory provides development and support services to EFG, with the NFU providing guidance. It also receives funding from NEIRF and sponsors. Funds are also raised through a subscription fee from its members (£1.25/ha per annum) and sponsorship from local farm suppliers.¹

¹ https://www.environmentalfarmersgroup.co.uk/wp-content/uploads/2022/05/018-019_FWE_130522.pdf

Green Farm Collective

- ▶ The Green Farm Collective (GFC) is a farmer led group focussed on using regenerative farming practices to access natural capital markets including carbon and biodiversity. The Collective is run by a group of six farmers, all having a shared interest in promoting soil health and regenerative agriculture and all having won various awards including Farm Carbon Toolkit's Soil Farmer of the Year, among others. The GFC aims to build a community of like-minded farmers all working towards achieving net zero, improving farmland biodiversity, diversifying farm income streams and promoting local supply chains.

Set up in 2021, the GFC was incorporated as a Limited Company with the six founding farmers as Directors. Costs of set up were covered by the Directors themselves and included legal and accountancy fees for filing at Companies House.

The Collective is driven by a shared desire to scale regenerative farming practices across the country and to diversify farm business income for their members. For example, Directors of the GFC farm across Essex, County Durham, Worcestershire, Gloucestershire, Vale of York, Shropshire and Staffordshire. As such this aggregation model does not focus on a specific catchment, geographic area or supply chain.

The GFC business model includes a membership revenue stream and farmers can join the Collective through the Active Farm Membership by paying an annual fee of £250. Further membership tiers include Individual Advisor membership, Corporate membership (priced on application) and Public membership.

All natural capital and ecosystem services trading happens through Trinity Natural Capital Markets where buyers of natural capital can purchase on farm biodiversity through annual agreements. Biodiversity is sold either as 'broadacre' (care for soil) or 'enhanced' (practices and features that enhance nature – ponds, pollen and nectar field margins). Each biodiversity action is bespoke and is costed independently of other transactions. For carbon, member farmers can sell carbon offsets through the same platform to corporates wishing to offset their carbon emissions.

Revenue is also generated as a percentage fee on transactions with 5% of transaction revenues contributing to Green Farm Collective's running costs and 5% to Trinity Natural Capital Markets for the use of Trinity AgTech's 'Sandy' Platform, with the remaining 90% going to the farmer. Other business lines of the GFC are through selling premium products in local supply chains. Using the GFC brand tied to farming regeneratively, local purchasers are willing to pay a premium for products sourced through GFC affiliated farms.

Active Farm Membership is for farmers who wish to join the Collective and access biodiversity and carbon markets through the GFC. Should those farmers want to trade natural capital and use GFC's brand, then they must adhere to certain criteria. These include a minimum level of land farmed for nature, protecting and minimising disturbance to soils, integrating livestock and minimising Nitrogen use on farm. Farmers trading through the collective will be audited and follow up audits may be repeated at any time. Farmers will also be required to conduct baseline carbon and biodiversity measurements and submit data through Trinity AgTech's Sandy platform and will receive a 15% discount on the cost of baselining.

To increase the uptake of regenerative farming techniques across the country, the GFC also focus on knowledge sharing. A key benefit of the Active Farm Membership, is the access to an online community where member farmers can share experiences and learnings, and also access consultations from the founding members.

Corporate membership is done on a Price on Application basis and packages revolve around branding, promotion, open day stands and affiliation among others.

North East Cotswold Farmer Cluster Group

- ▶ The North East Cotswold Farmer Cluster (NEFCG) CIC came together as a result of conversations that took place during the Covid-19 pandemic regarding how the local farming community could work more collaboratively to ensure a resilient farming community that would be financially and ecologically viable. The initial goals were to ensure there was appropriate knowledge transfer within farming members to enable best understanding and access to the Environmental Land Management scheme (ELMs)) and to promote a more local food value chain in the interests of the health and wealth of the local community.

This led to a formal incorporation as a Community Interest Company (CIC) thus ensuring any surplus funds are reinvested to achieve our social objectives, rather than being driven by the goal of maximising profit. A formal vision statement was therefore adopted: “To lead landscape-scale regeneration of the farmed environment and local food networks in the North East Cotswolds through collaboration and knowledge exchange” and an aim of “growing into an inclusive and pro-active group of local farmers, growers, landowners, foresters and advisers who work and learn together to enhance the natural capital on their land, tackle the climate emergency and build more resilient food and farming businesses.”

A group of 30 founder farmer members developed the group's strategy and agreed on a governance structure comprising a steering group (eight members) and three farmer members as Directors of the CIC. A combination of public funds, private corporate grants and philanthropic donations enabled initial part-time engagement of the founder-facilitator (Tim Field). This seed funding was leveraged up into 100% more funding secured in FY21/22 and a further 125% y-o-y increase in FY22/23, delivering eight projects and knowledge exchange at the landscape scale. Running costs of the farmer group and management of the current project pipeline is in the region of £100,000.

The CIC's six objectives are: 1) Improve the health of our soils; 2) Map, create, enhance and link priority habitats; 3) Support entrepreneurial thinking and the growth a local food economy; 4) Make the most of future policy and access private investment and public funding opportunities; 5) Evaluate progress and landscape/farm level outcomes and outputs; 6) Foster community engagement and outreach.

With this framework formally in place, the NEFCG has grown in just 2 years to over 127 farmer and landowner members across over 40,000ha, has built relationships with UK Government and seen public and grant fund injections via e.g. FiPL, Leverhulme Trust and supporting members to leverage private finance to achieve their goals. These are being formally expanded through a Natural Environment Investment Readiness Fund (NEIRF) grant project with Rothamsted Research and Oxbury Bank to formalise the role of debt finance in transition and now also through a successful application for the Landscape Recovery Pilot – a 50 farm, 3,500ha and multi-stakeholder project to substantially restore and enhance the habitats, natural capital and ecosystem service provisioning capability of the river catchments and farmed environment in and around the floodplain. The project will identify investors seeking differential returns to support the ongoing capital and operational expenditures required over the 20+ year timeframe of the project and seek funding via the plethora of ecosystem services that can be sold to corporate and other funders. These include, but are not limited to voluntary carbon markets, biodiversity net gain, water quality, natural flood management, access to nature etc. The project is now in development phase and building the appropriate legal and financial structures to achieve this bold and necessary ambition including ensuring the landowners/tenants and farming members both within the project boundary and in the cluster receive a fair return for their support of these provisioning and regulating ecosystem services. This work is ongoing throughout 2023 and 2024 and is currently seeking investors.

The NEFCG in general and the Landscape Recovery Pilot Project specifically use the scale offered by aggregation to successfully engage with buyers of ecosystem services.

Landscape Enterprise Networks (LENS)

- ▶ Landscapes Enterprise Networks (LENS) is an initiative launched through a collaboration between Nestlé and 3keel, to promote sustainable agriculture and improve the environmental performance of supply chains. As the name suggests, LENS brings together beneficiaries of landscape scale environmental change together with farmers in an aggregation model.

The programme provides training and technical assistance to farmers to help them adopt more sustainable practices, such as agroforestry, soil conservation, and water management. LENS then brokers negotiations and transactions between buyers of nature-based solutions and groups of landowners who deliver them.

The program also involves collaboration with local governments, non-governmental organisations, and other stakeholders to support the development of sustainable agriculture policies and the creation of ecosystem services markets. Currently, there are LENS groups in Cumbria, East of England, Hungary, Poland, and Italy.

The first step in the LENS process is 'Network Opportunity Analysis' whereby organisations which have a shared interest in the performance of a landscape and its assets are identified. Landscape assets include soils, rivers and streams and provide services such as water quality and flood risk mitigation.

The next step is to work with the demand side interests with common needs, water companies and tourism operators for example, to define a common specification for services. Different businesses may pay for different environmental outcomes across the same landscape.

The supply side will also be engaged to define what can be delivered. LENS will then work to broker a deal between the two groups.

Finally, the network will grow as new businesses and stakeholders are identified and as such, an organisational structure is needed along with governance to manage any future trades in a transparent and accountable manner.¹

In the East of England, a LENS transaction was completed in 2021 through identifying Nestlé Purina, Cereal Partners UK, West Northamptonshire Council and Anglian Water as stakeholders with overlapping interests in the performance of the landscape. The transaction was valued at £1 million with the aim of using nature-based solutions to achieve outcomes including resilient agricultural supply chains, flood risk mitigation, water quality improvements, GHG emissions reduction, carbon sequestration and increase in agricultural land managed in a more 'regenerative way'.

Active stakeholders in the East of England LENS model now include Affinity Water, Anglian Water, Cargill, Cereal Partners UK, Essex and Suffolk Water, Nestlé Purina and West Northamptonshire Council and this consortium is now looking to engage farmers to co-procure ecosystem service outcomes to help meet their various needs. The value of the next trade is expected to be £2.5 million, and the number of farmers engaged has now more than doubled.²

¹ <https://landscapeenterprisenetworks.com/how-lens-works/>

² <https://landscapeenterprisenetworks.com/east-of-england/>

Arla Cooperative

- ▶ Arla is a dairy co-operative, owned by more than 9,000 farmers covering seven countries in Northern Europe. In the UK it is one of the country's biggest co-operatives having over 2,000 British dairy farmers as owners, supplying more than 25% of the UK's milk pool.⁶⁵

As a cooperative, Arla is owned by its members, who pay a membership fee per litre of milk to be a part of the co-operative. Arla has 15 farmer owners on its Board of Directors (BoD) and 179 on its Board of Representatives (BoR), elected through a democratic process through which every farmer owner has one vote. Arla's BoR is its main decision making body and is responsible for appropriating the profit for the year and electing the members to the BoD.⁶⁶

Arla controls the full value chain for its members, whereby its farming owners produce the milk which Arla will purchase at the same price for every farmer regardless of location and will then sell onwards as milk or other dairy products. When Arla products are purchased, all earnings go directly back to the farmer owners. The milk price paid is driven by a number of factors including cost of production and global demand for milk products. Arla's Board of Representatives determines the pricing model which the Arla Board uses when it defines the milk price each month. As Arla farmer owners have agreed to share equally the earnings from each litre of milk they deliver to Arla, all farmer owners share in the performance of milk sales.⁶⁷

There are a number of initiatives within Arla to reward farmers for taking climate friendly actions on their farms. As Arla sets the price of milk each year, it can add on incentives on top of this price to encourage farmers to take these actions. The first example is Climate Check.

Climate Check is an initiative set out in response to an internal target to reduce GHG emissions by 30% per tonne of standardised raw milk and whey by 2030 from a 2015 base year.⁶⁸ Climate Check is a tool containing more than 200 questions collecting data on animal numbers and movements, breed, the feed used, produced and sourced, use of fertiliser, waste and manure handling, use of fuel and energy including use of own renewable electricity. It will also gather data on peat including CO₂ and nitrous oxide emissions from peat soils.

A preliminary carbon footprint of each kilogram of milk produced on each farm will be produced and these results will then be verified by an external agricultural climate advisor who will also provide advisory support on further actions to reduce emissions. Participation is mandatory for organic producers and voluntary for conventional milk producers.

To incentivise participation, farmer owners are paid a premium on the milk price from Arla equating to 0.01 eurocent per litre and in 2022, 95% of Arla's farmers registered data in the 2022 Climate Check. The entire process is audited by Ernst & Young global Ltd and the tool will continuously be aligned with new developments in climate science as well as new developments in farming practices. The tool is however not comparable with other dairies, as it is an internal tool developed by Arla for Arla farmer owners to support them in reducing emissions.

⁶⁵ <https://news.arlafoods.co.uk/cooperative/farmer-owned-our-cooperative-model>

⁶⁷ <https://www.arlafoods.co.uk/about-arla/who-we-are/arla-farmer-owned-cooperative/>

⁶⁸ Arla Foods Climate Check Report 2022. Data Driven Dairy. How Climate Checks Are Driving Action to Reduce Emissions on Arla Farms

Arla Cooperative continued

The Sustainability Incentive Model has been implemented as part of Arla's transition to a more sustainable dairy by motivating its farmer owners to take up actions required to meet Arla's 2030 emission reduction target on farm.⁶⁹ It is a points-based voluntary initiative but submission of Climate Check data is a prerequisite to taking part. Participating farmer members will receive a premium for certain actions they implement on farm, including eligible items that are already in place. A total of 80 points are available and are weighted towards carbon reduction measures. Arla have calculated that if their farmers manage five main levers accurately almost a third of the reduction necessary to meet Arla's 30% reduction target by 2030 will be achieved.⁶⁷ These include fertiliser use, land use, protein efficiency and animal robustness, with 49 of the 80 points available coming from these measures. Remaining measures include actions on sustainable feed, biodiversity and carbon farming, manure handling, renewable electricity and knowledge building.⁶⁷

Farmer members will receive 0.03 eurocent per kilo of milk produced on top of the milk price, and the 0.01 eurocent received for completing Climate Check. With an estimated average based on Climate Check participation, Arla have calculated that SIM will distribute EUR 270 million to their farmer owners in 2023 through the monthly milk price based on current participation in Climate Check.



⁶⁹ <https://news.arlafoods.co.uk/cooperative/farmer-owned-our-cooperative-model> <https://news.arlafoods.co.uk/news/arla-earmarks-up-to-500-meur-eurocent-annually-for-rewarding-climate-activities-on-farm>

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