# Towards Net Zero in UK agriculture

## Supporting your transition to a more sustainable future



HSBC UK

In association with

UCL

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# Supporting your journey to Net Zero

In 2019, the UK became the first major economy to legislate and commit to Net Zero carbon emissions by 2050. That timeline has accelerated, with the UK Government announcing an even more ambitious climate change target in April 2021 – of achieving a 78% cut in emissions by 2035. It makes the need for action even more pressing.

This transition to Net Zero will require transformational change across many sectors, and will require action from businesses of all sizes. There is no one-size fits all approach to Net Zero, and different businesses in different industries will face distinct challenges and opportunities.

At HSBC UK, we are committed to supporting our customers to unlock the benefits and manage the challenges of becoming more sustainable and achieving Net Zero. Our partnership with UCL's Institute for Sustainable Resources is designed to explore sector decarbonisation pathways, helping our customers by providing the insights and practical guidance they need to embark on and pursue their Net Zero journeys.

That partnership has culminated in 'Towards Net Zero in UK Agriculture', a report based on information from scientific literature, policy and science policy, alongside interviews with farmers from different sectors across the UK. It proposes what needs to be done for UK agriculture to play its part in achieving Net Zero by 2050 and calls on wider societal and institutional support to help it achieve this goal. As we face increasing pressure to act now, it is a timely reminder of the challenges and opportunities we face on the journey to Net Zero.

It's a journey we are undertaking alongside you. Globally, HSBC is committing to be Net Zero for our own operations and supply chains by 2030 or sooner, and to align the financed emissions from our portfolio of customers to achieve Net Zero by 2050 or sooner. Our sustainable finance strategy is a bold commitment to build a more sustainable, resilient and inclusive future. Helping our clients unlock the path to Net Zero offers them a significant commercial opportunity too, which is why we've also increased our financial commitment, from $100bn to between $750bn and $1tn of sustainable finance by 2030.

Understanding the benefits and opportunities that Net Zero offers and familiarising ourselves with the challenges it will inevitably bring is a key step on the transition pathway. By making this guide and the broader report available, our aim is to support you as you journey towards Net Zero.



**Rob King**
Head of Sustainable Finance
HSBC UK



# The time to act is now

The UK Agriculture sector faces ambitious targets and significant changes in its journey towards achieving Net Zero, but with many of the steps along that journey requiring investments of time and money, the key message is that action is required now.

Many progressive, forward-thinking businesses are already embarking on their plans or are keen to start. They have realised that there's a clear link between improved environmental credentials, higher productivity and access to more buyers for their produce. Others are taking a wait and see approach, seeking clarification on the successor to the Basic Payment Scheme and what that will mean in terms of sustainability and the push to Net Zero.

There are, though, risks in doing nothing. The information we already have from DEFRA shows that the new scheme in England will be based on farmers taking action, rather than just the amount of acreage farmed. So investing in change now will help ensure businesses are ready to make the most of what the new scheme offers when it comes.

Commercial and consumer pressure is also mounting. Farming businesses are facing higher demands around welfare, provenance and sustainability. Pursuing a strategy towards Net Zero now offers competitive advantage.

The research undertaken with UCL and the comments from the agricultural businesses interviewed as part of that, shows that the journey towards Net Zero is likely to involve upfront costs with an uncertain payback period perhaps taking some time to realise.

That aligns with our own long-term approach to agriculture which, as a cyclical sector, requires a long view. This long-term approach is particularly important when investing in projects to decarbonise your business and pursue a future that's Net Zero.

Measurement will be an important part of helping farming businesses review their investment performance, providing robust data to support decision-making. Baseline measurements of existing activities and their carbon footprint, and regular reporting may indeed become key parts of accessing support and, while the debate on methodology continues, there are a number of tools available to support businesses wherever they are on their decarbonisation journey.

In this guide, we take a look at what Net Zero means for UK Agriculture, the key findings from the research, and offer some practical pointers for how you can move towards a better future. Our ambition is to support a just transition to Net Zero – where all farmers and land managers can fulfil their responsibilities and benefit from the opportunities this presents.



**Martin Hanson**
Head of Agriculture
HSBC UK



# Net Zero and UK Agriculture

Agriculture contributed £10.4bn to the UK economy in 2019 and produced 53% of the food consumed in the UK. The UK Agriculture sector has a key role to play in mitigating climate change, by:

- Reducing its own greenhouse gas emissions (GHGs)
- Increasing its carbon capture and storage potential.

Whilst there is no specific target for the agriculture sector as part of the UK Government's Net Zero by 2050 goal, the NFU has announced a target date of 2040 for England and Wales.

The agriculture sector accounted for 10% of GHGs in the UK in 2018. The three main types of GHG emitted are nitrous oxide, methane and carbon dioxide.

These emissions, which we can see in Figure 1.1, come from various farm sources. Methane, for example, which accounts for 56% of GHG emissions in the sector, comes from both enteric fermentation from ruminant livestock (47%) and from the decomposition of manure under anaerobic conditions.

Figure 1.2 shows that a quarter of total agriculture emissions come from soils, which emit GHGs as part of the biological fixation of nitrogen by crops, ploughing in crop residues, and the cultivation of organic soils.

Reducing methane emissions in particular to zero is difficult. That means that, in order to achieve Net Zero, the sector will need to capture and store carbon to offset this. Methods such as soil improvement and afforestation will be key to achieving this.

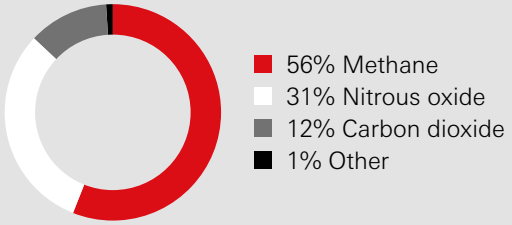
Balancing the action required to create a more sustainable and resilient agriculture sector with one that focuses on productivity and profitability is essential for a just transition to Net Zero.

That transition also comes at a cost – one that will vary depending on individual circumstances and actions. The research reports a range of methods of measuring the costs and benefits of activities and actions to reduce GHG emissions. More detail on the scope and limitations of these can be found in section 4.5 of the report on p38.

More detailed information on emissions from UK Agriculture can be found in Section 1.4 of the main UCL report on p9.

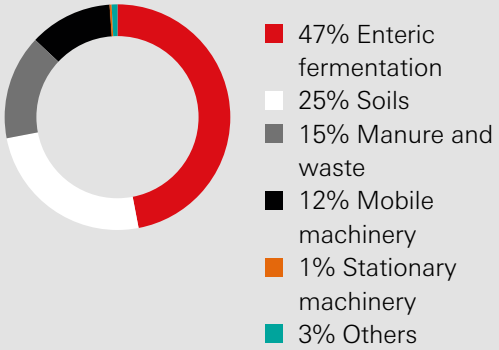
> **“At the end of the day, farming is a business: farmers need to take the steps to retain profitability and productivity while pursuing Net Zero and resilience to other changes to farming.”**
>
> David Miller, Farm Manager, Wheatsheaf Farming Company

**Figure 1.1 UK Agriculture emissions by GHG**




Source: Defra, 2018. Percentage of agriculture emissions in the UK, by type of greenhouse gas, based on a total of 46 $MtCO_2e$ GHG emissions for the sector.

**Figure 1.2 Emissions by activity**




Source: Defra, 2018. Sources of agriculture emissions in the UK, by activity.

# Regulation supporting the path to Net Zero

With Net Zero targets set at 2050 (2045 in Scotland), new policies to regulate progress are likely to emerge in the coming years. These will be both sector specific and those with a broader scope, for example, covering areas such as food waste and energy use.

## Changes to the Basic Payment Scheme

From 2021, a new generation of farm support schemes will be introduced in stages, with the current scheme of direct payments phased out over a seven-year period.

The schemes are designed to support the journey to Net Zero, with payment directed to:

- Support farmers/land managers to provide 'public good', or in other words, managing land, water or livestock to mitigate or adapt to climate change.
- Strengthen agricultural, forestry or horticultural productivity.

The transition to the Environmental Land Management Scheme (ELMS) will take place in stages between 2021 and 2024.

## Proposed rollout of ELM scheme

| | |
|---|---|
| Pilot: | Running in 2021 for 5,500 land managers. |
| Tier 1: | Will start in 2022 and known as the 'Sustainable Farming Incentive'. It is expected to cover familiar areas of environmentally-focused farm management, such as care of hedgerows, integrated pest management, and improved soil health. |
| Tiers 2& 3: | From Autumn 2024. 'Local Nature Recovery', addressing natural flood management, restoration of habitats, rights of way, and education infrastructure will be introduced. |

'Landscape Recovery' aims to deliver larger and longer-term, permanent changes, such as the restoration of peatlands, woodlands, coastal habitats and other ecosystems.

However, many of the details on how payment rates will be calculated or how large the payments will be, remain uncertain.



## Additional support schemes

New capital grant schemes are also planned to run alongside the ELM scheme, for example:

- The Farming Investment Fund (from Autumn 2021), including a funding line for farming equipment and technology.
- The Farm Transformation Fund
- Slurry Investment Scheme

Further regional and local initiatives are likely to be developed alongside national schemes to support improvements in farm productivity and environmental land management.

## Four nations policy direction

Across the four nations, several policies are in force or under development, with national relevant policies also in place (see figure 3).

**Wales** – policy direction in Wales is similar to England, with the Basic Payment Scheme (BPS) and separate rural development schemes due to be replaced by a single 'Sustainable Farming Scheme'. This will reward farmers for taking actions to reduce global warming.

**Northern Ireland** – planning is underway for the development of appropriate policy.

**Scotland** – the Common Agricultural Model of support, including the BPS, will be retained for the most part until 2024. New, ambitious targets have been set under the Climate Change Plan Update of 2020, and policy is being developed to achieve these. Consultation with the sector is underway and there remains strong interest in the use of farm carbon audits. In February 2020, a £40m Agricultural Transfer Programme was announced to help farmers reduce GHG emissions and restore habitats.

Although the scale of future support for the sector is, in some respects, unclear, what is certain is that future agriculture policy will be focused on environmental actions addressing not just climate change, but biodiversity, pollution and flood risk.

More information on regulation and policy can be found in section 3 of the main UCL report.

> **"I think inevitably, there's got to be change; by the very nature of what ELM schemes are going to try and achieve, people are going to have to change."**
>
> David Miller, Farm Manager, Wheatsheaf Farming Company

**Figure 3. Key policies for Net Zero in UK Agriculture**

**Nationally relevant policies**
Ten Point Plan
Agriculture Act 2020
Shared Prosperity Fund
BEIS Bioenergy strategy (2012)
Clean Growth Strategy (2017)

**Scotland**
Agriculture Act (Scotland)
Sustainable Agriculture Capital Grant Scheme



**Wales**
Sustainable Land Management Framework

**England**
ELM and Transition Plan
Set of new capital grant schemes
Several tree planting incentives

# Strategies to achieving a Net Zero agriculture sector in the UK

Considering the challenges and opportunities of transitioning to Net Zero identified through UCL's research, they suggest three core approaches or strategies for the UK Agriculture sector to adopt in order to achieve Net Zero. We outline those three approaches here, with details of the actions that can be taken as part of those, and the potential benefits available.

| Set of approaches to Net Zero | Actions | Benefits |
|---|---|---|
| **1.** Improving farm productivity and efficiency | GHG emissions can be reduced by…<br>• Using fertilisers more efficiently.<br>• Improving agricultural practices.<br>• Gaining more knowledge about on-farm emissions, nutrients, and resource use.<br>• Improving the management of manure.<br>• Improving buildings and machinery, which use carbon-emitting fossil fuels as their energy source. | • More accurate delivery of nutrients, lower pollution.<br>• Increased use of legumes or loosening soil compaction can reduce the need for cultivation/fertiliser and reduce costs.<br>• Health benefits from better waste management, and less pollution.<br>• Anaerobic digestion can convert manures/crops into renewable energy.<br>• Improved buildings can boost animal welfare and lower productivity costs. |
| **2.** Planting trees, protecting and restoring habitats and soil | GHGs can be captured by …<br>• Planting more trees on farms, and on suitable land in hedgerows, forests and woodlands.<br>• Conserving existing soil organic carbon stocks and restoring carbon stocks in depleted soils.<br>• Improving the management of forests to make them more productive.<br>• Planting bioenergy crops such as miscanthus.<br>• Restoring and protecting peatlands. | • Increased biodiversity, air quality and flood protection.<br>• Harvesting offers an income stream.<br>• Shelter in hot weather.<br>• Participation in the bioenergy market. |
| **3.** Shifting agriculture towards renewable energy and bioenergy | GHG emissions can be reduced by…<br>• Generating and/or utilising renewable energy on-farm, including bioenergy generated from farm waste.<br>• Growing bioenergy crops, which can contribute to energy needs on the farm, increase crop diversity and income, and help prevent soil organic carbon loss.<br>• Utilising bio-based materials for on-farm construction | • Self-sufficiency in energy terms.<br>• Diversification of crops.<br>• Lower costs. |

More detail on measures to help you achieve Net Zero can be found in Section 2 of the UCL report on p13.

# The benefits of transitioning to Net Zero

## Greater efficiency

Many of the steps on the pathway have the additional benefit of improving on-farm efficiency. Soil improvement, targeted breeding, no-till measures, can all lower resource consumption and lead to a reduction in cost.

## Competing in a target-driven supply chain

Many large retailers and other companies within the food supply chain have announced their own targets when it comes to sustainability, often in response to pressure from stakeholders. Sainsbury's, for example, has targeted Net Zero by 2040 and carbon reductions in its supply chain will be important. Businesses that can show a clear strategy and progress will benefit from competitive advantage.

## Unlocking incentives

The UK and devolved governments are taking a carrot and stick approach to reach Net Zero. Over the next few years, a range of schemes to fund capital investment are likely to be rolled out and businesses that have considered their sustainability strategy will be best placed to apply.

## Mitigating the impact of climate change

Changes to the UK climate pose a significant risk to the sector, with crop viability and productivity likely to be affected, greater risk of pests and diseases, animal welfare concerns, as well as increased incidence of natural disasters, such as flooding. Although we can't turn back the clock, being part of the transition to Net Zero will help stop further steps towards irreversible climate change and support a more resilient and sustainable agriculture sector in the UK and globally.

## Complying with regulations

As the UK pushes ahead with its Net Zero target, there will be intense focus on areas that can contribute to decarbonisation. New policies will emerge specifically targeting the agriculture sector, whilst other broader policies on energy use and food waste, will have implications for farms and land use. Potential development of policies on health and social areas could also affect the markets for food.

## Responding to changing food consumption patterns

As an increasing number of people choose to eat less meat, for health, social or environmental reasons, the need for land under agricultural production will potentially fall. Repurposing that land, for carbon capture and storage or bioenergy offers opportunities to diversify income.

**"With shelterbelts, when the wind comes and the heavy rain comes, sheep and cattle would get shelter. Trees provide an enormous amount of actual heat themselves, in addition to warmth and shelter for livestock."**

John Smith, J & A J Smith

**"Shorter age to slaughter means that they're on the planet for less time, so they're not producing their actual natural emissions. But equally, they're not eating anywhere near as much food to get there."**

Dan Burling, Burling Brothers Limited

# Guidelines to support your transition to Net Zero

While the diversity of sectors and farms that make up UK agriculture will require a diversity of approaches, there are some overarching practical considerations. Here are some common tactics to help you on your journey to reducing emissions while maintaining your productivity and profitability.

01 **Gather and organise data from farm activities; measurement is critical.**
Measure and create a baseline for all relevant activities, choosing a calculator/tool that suits your business and gives you confidence. Robust data may become essential to accessing support.

02 **See Net Zero, not as the primary end goal, but as an important contribution to larger goals.**
Steps to Net Zero also offer efficiency benefits and can increase profitability and productivity in the long-term. Increasing focus from stakeholders also makes pursuing sustainability key to future-proofing your business.

> **"If you can't measure it, you can't manage it. And if you can manage it, you can improve it."**
>
> James Brown, Director, Pollybell Farm

03 **Seek expert advice.**
Access industry-led events, and speak to your existing consultants, including your HSBC relationship manager, for guidance and support.

04 **Joining peer to peer learning groups can provide a wealth of practical experience.**
Sharing knowledge and best practice with others in the farming community can help contribute to sector learning and provide support through transition.

05 **Focus on soil health.**
Soil monitoring and management offers fundamental benefits for farms across arable, fruit and vegetable and livestock sectors, and should be considered a first step for those who haven't done this before.

06 **Be prepared to accept some risk and initial losses, learn from trial and error, and go out of comfort zones.** [see page 82 of the report for more information on cost: benefit analysis] Practical as well as systemic improvements can help achieve a balance between investment for the long-term and some immediate benefits.

07 **Accept that measurable change takes time and effort; be consistent.**
Seeing the benefits of changes to farm practices takes time and patience, but the returns will be worthwhile.

> **"You have to stick with it and not dip out after the first two years."**
>
> Andy Bason, Manager, Newhouse Farm

08 **Work with nature, for nature.**
Adopting new measures can help productivity and diversification, for example, improving woodland or peatland habitats can boost tourism or education. Promoting healthy ecosystems offers multiple benefits.

09 **Technology is a crucial tool towards Net Zero.**
Technological innovations offer great potential to support farms on the journey to Net Zero, but much will depend on individual resource in terms of finance and expertise to maximise these.

10 **Recognise that there is a growing role for farmers as leaders and innovators.**
Farmers are at the forefront of changes in environmental management and food supply, and that experience will be vital for other sectors transitioning to Net Zero. Supporting UK agriculture on this journey should be a key focus for Government, lenders and supply chain partners.

More detail on the guidelines can be found in the main UCL report in section 4.2 on p30.

# Conclusion and key findings

The farmers interviewed as part of UCL's research were optimistic that Net Zero is achievable with the right knowledge and support, and that pursuing that goal will lead to positive transformation for the sector.

The research found that the agriculture sector stands to be significantly affected by climate change, which will impact both operations and productivity. That makes it imperative that the sector is part of the solution. Whilst the target may seem daunting, what the research makes clear is that the transition to Net Zero is likely to take place in a series of progressive steps, rather than a giant leap. Those steps offer potential benefits in terms of efficiency, productivity and profitability, although realising the full extent of those benefits may require a long-term perspective and a willingness to adapt to change – something the UK's agriculture sector is certainly familiar with.

## Exploring new opportunities

Nature-based solutions can offer multiple benefits for agriculture and the environment, sustaining the eco-system that the sector depends on and reducing emissions. However, the research also points out that the journey to Net Zero offers opportunities for more innovative approaches and greater potential co-operation between different farms.

Measurement is essential to provide a baseline and assess progress. While standardisation is a growing focus that will encourage the use of carbon calculators and allow target-setting, selecting a tool that suits the farm and provides confidence is important. Baseline measurement of different aspects of the farm, including its operations, main outputs, environmental impacts, and GHG emissions, is essential in determining a plan towards Net Zero

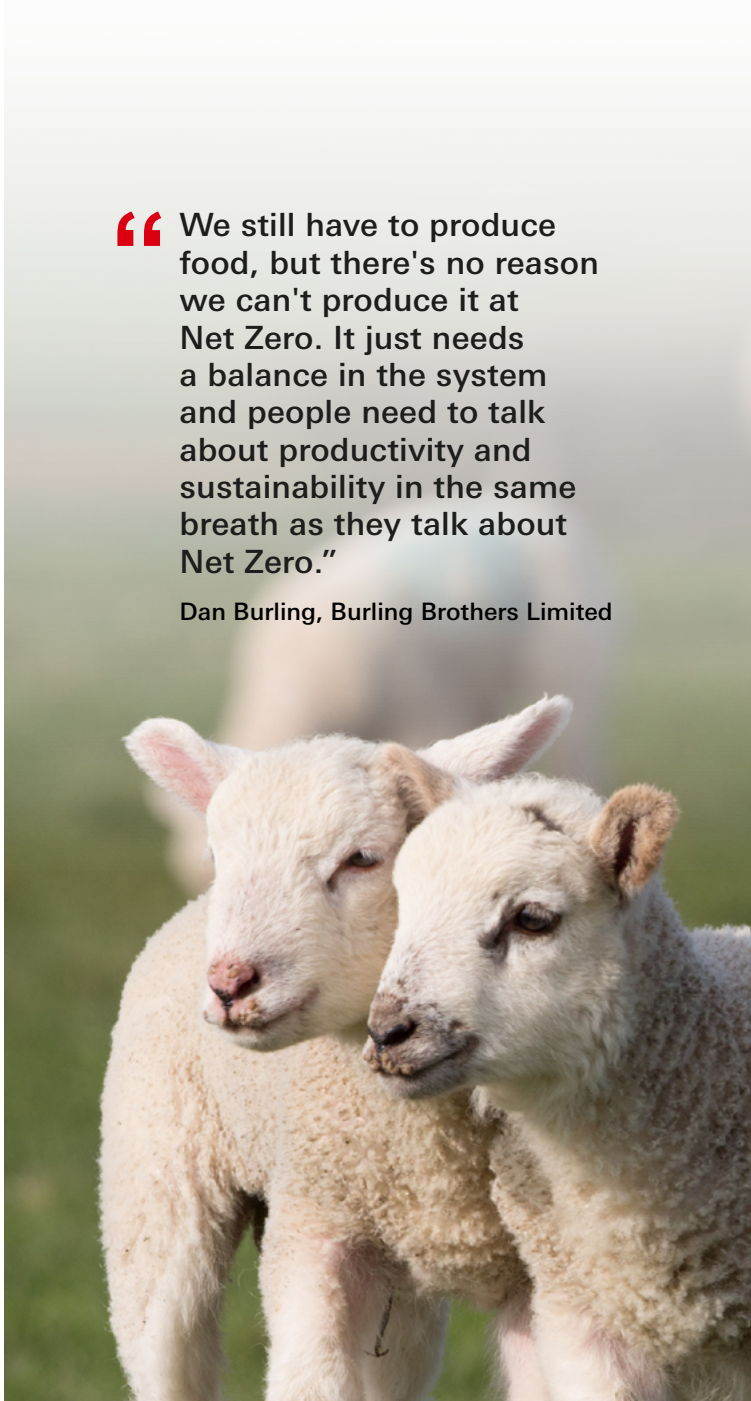
As the BPS is phased out, farmers will need to focus on efficiency and the environment and schemes to support them on this transition will be important. Although there are differences in timings and approaches across the devolved administrations, and questions about policy development and support post-EU departure remain, the direction is clearly on environmental outcomes and moving towards the measurement and management of GHG emissions and carbon removal.

## Now is the time to act

What is clear, is that business as usual is not an option. Early engagement with and adoption of strategies to Net Zero are needed. Many of the businesses highlighted in the research, are already seeing a link between improved productivity and environmental credentials, for example, and as early indications of the shape of future policy and support for the sector show a strong bias towards environmental management, UK agriculture needs to respond.

The time for starting your journey to a more sustainable, productive and profitable future is now.

For more information on support available and to discuss your options in more detail, please speak to your Relationship Manager or visit our website.



> **"We still have to produce food, but there's no reason we can't produce it at Net Zero. It just needs a balance in the system and people need to talk about productivity and sustainability in the same breath as they talk about Net Zero."**
>
> **Dan Burling, Burling Brothers Limited**

# Further information

The report is available on the HSBC Centre of Sustainable Finance.

You can download a full version of the UCL research here.

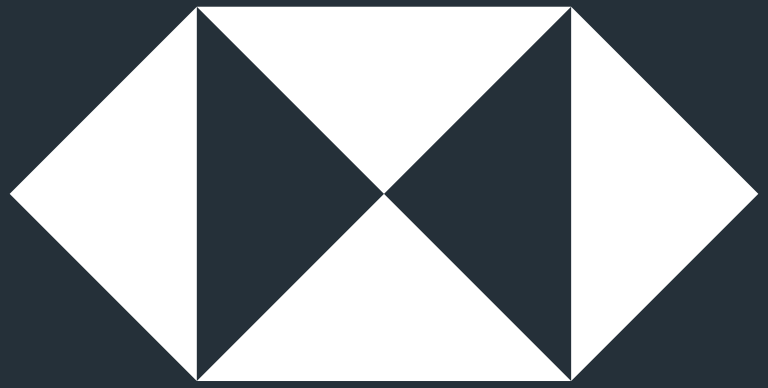
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## Contact us

Visit: www.business.hsbc.uk/agriculture

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