Net Zero Carbon in the UK Farming Sector: A Practical Guide

Key Points:

- How much will it cost?
- What do policymakers need to do?
- What can farmers do?
- What can the public do?
- What can investors do?

Introduction

Net zero carbon refers to achieving an overall balance between emissions produced and emissions taken out of the atmosphere. Achieving net zero is required to meet the Paris Agreement, which aims to keep global temperatures below a 1.5°C rise above pre-industrial levels. According to the Intergovernmental Panel on Climate Change (IPCC), there is less than 12 years to contain global warming within the 1.5°C target. To achieve the scale of change needed, action must be taken now to reduce emissions and lay the foundations for the longer-term transformation required.

Governments of the UK, Wales and Scotland, asked the Climate Change Committee (CCC) to reassess the UK's long-term emissions targets. Based on the latest evidence the CCC has proposed UK scenarios for achieving net zero within current technologies and an acceptable economic forecast. The UK Government has committed to implement the recommendations of the CCC, creating a legally binding net-zero carbon target for 2050.

Contribution of agriculture and land use to achieving Net Zero

Achieving net zero will require all sectors to act urgently, the UK farming and land use sector can make a significant contribution, helping to both reduce emissions and sequester more carbon. A recent report produced by Green Alliance[1] has demonstrated that cutting emissions from agriculture (e.g. vehicle emissions, fertiliser use, reduced livestock numbers), restoring ecosystems, planting trees and protecting soils, could reduce emissions from the UK land use sector by 60% from 47MtCO_2e per year in 2016 to approximately 19.6MtCO_2e per year by 2030.

[1] Brandmayr, C., Kelsey, T., Petersen, M. and Gordon, B. (2019) Cutting the Climate Impact of Land use, Green Alliance

The NFU has recently set out an ambition to achieve Net Zero from agriculture by 2040 (in England & Wales)[2].

Potential measures to achieve Net Zero from UK Agriculture and land use

There are no easy fixes, achieving net zero carbon from agriculture and land use will require a range of mechanisms. Realising net zero will require change, it is not possible to just tweak around the edges. Trade-offs are inevitable; however, it is possible to plot a course to net zero carbon that also delivers thriving wildlife, a vibrant farming sector and good quality food.

- **How Much Will It Cost?**

A recently published independent study has estimated that at least £3 billion[3] a year is needed to support nature and carbon friendly farming in the UK. This is just under the current UK CAP budget which should be protected and reinvested to reward farmers that deliver public goods, such as recovering nature, protecting the climate, and ensuring clean water and air. Spending the money this way could make a significant contribution to meeting the environmental priorities of all four UK countries. Directing this funding to ensure quick wins should be a priority given the climate emergency.

- **What Should Policymakers Do?**

Farmers can lead the way, however, achieving a net zero agricultural sector will require a comprehensive policy and legislative frameworks in each of the four countries utilising a range of mechanisms, including:

- *Regulation* – NFFN supports the use of effective regulatory standards to underpin carbon and wildlife friendly farming. Enforcement of and compliance with regulation is needed to drive up standards and protect investment in environmental delivery. Trade measures will also be required to ensure that imported produce meets equivalent standards.
- *Incentives* – well funded environmental land management schemes are needed to reward the delivery of public goods including nature and carbon stewardship. Environmental productivity grants and low-cost loans could help to support shifts in agricultural practices towards nature and carbon friendly farming. This could be particularly important in the transition from CAP to post-Brexit policies.
- *Market instruments* – the NFFN supports mechanisms such as carbon labelling to inform consumer choice and carbon markets to drive private investment.
- *Training, advice, and support* is needed to drive uptake of nature and carbon friendly measures. Country governments have an important role in ensuring access to good quality and trusted advice, training and guidance.
- *Funding:* At least £3 billion a year is required to support nature and carbon friendly farming across the four UK countries.

[2] NFU (2019) 'Net zero' agriculture https://www.nfuonline.com/cross-sector/environment/climate-change/
[3] Rayment. M. (2019) Paying for Public Goods: How much will it cost and how might we pay? Final Report
A report for the RSPB, the National Trust and The Wildlife Trusts

- **What Can Farmers Do?**

There are many changes farmers can make to contribute to delivering net zero carbon. Whilst some of these changes will be simple, many will require support including funding and advice. We have drawn up an evidence-based list of interventions farms, and indeed other land managers can do, if supported by incentives such as well-funded environmental land management schemes and environmental productivity grants in all four UK countries. The NFFN does not expect farmers to adopt all necessary actions immediately, funding and advice are required to support a careful transition.

Big positive changes: *(longer-term or targeted changes)*

- Peatland restoration and management, including areas of farmed lowland peatland
- Planting native trees and woodland. NFFN advocates a policy of the right tree, right place and for the right land management reasons (e.g. ensure carbon and biodiversity benefits)
- Incorporate agroforestry on some of their land
- Conserve and manage existing trees and woodland
- Conserve and enhance grassland and heathland
- Conserve and enhance coastal habitats such as saltmarshes

Things all farmers can do: *(shorter term changes and easier wins)*

- Undertake a farm carbon audit to understand the sinks and sources of emissions on their farm.
- Protect, enhance and create on farm wildlife habitats (e.g. meadows, trees, margins, ditches, ponds)
- Maintain and restore tall thick hedgerows
- Reduce energy and fuel use, e.g.
    - Switch to renewable energy sources
    - Where possible use energy efficient vehicles and machinery
    - Reduce vehicle emissions through changes in agricultural practices such as reduced tillage.

Actions for Livestock farms

<u>Positive steps</u>

- Reduce stocking density particularly on intensively managed grassland
- Pasture feed livestock or use home grown feedstocks
- Keep native breed livestock
- Go organic
- Introduce agroforestry
- Best practice manure and/or slurry management

Things to avoid:

- Use of artificial fertilisers
- Reliance on concentrates

Actions for Arable

Positive steps

- Introduce spring cropping or use of fallows
- Reduce tillage (where appropriate)
- Use nitrogen fixing crops in the rotation
- Use cover crops
- Use improved crop varieties, nitrogen-efficient cultivars
- Introduce agroforestry
- Make most efficient use of mineral fertilisers

Things to avoid

- Bioenergy and anaerobic digestion

Actions for Mixed

Positive steps

- Go organic
- Introduce spring cropping
- Use nitrogen fixing crops in the rotation
- Reduce stocking density particularly on intensively managed grassland
- Pasture feed livestock or use home grown feedstocks
- Introduce agroforestry
- Use cover crops
- Use improved crop varieties, nitrogen-efficient cultivars
- Make most efficient use of mineral fertilisers
- Use manure and slurry as fertiliser appropriately and incorporate into soil.

Things to avoid:

- Use of artificial fertilisers
- Reliance on concentrates
- Bioenergy and anaerobic digestion

Actions for Pig and poultry

- Reduce use of imported feedstocks
- Appropriate stocking densities
- Reduce ammonia emissions through best practice manure management
- Practice sustainable soil management
- Introduce agroforestry

Things to avoid:

- Reliance on concentrates
- Bioenergy and anaerobic digestion

Actions for Horticulture

- Practice sustainable soil management

- Use improved crop varieties, nitrogen-efficient cultivars
- Introduce agroforestry

Things to avoid:

- Use of artificial fertilisers
- Peat-based growing media, this has a high carbon cost and there are more sustainable peat-free alternatives

- **What Can the Public Do?**

The public have a key role in supporting a shift to net zero and nature friendly farming, by:

- Asking their MP to back funding for nature and carbon friendly farming
- Supporting a farmer to undertake a carbon audit or nature survey of their farm
- Reducing food waste
- Choosing a sustainable and healthy diet, shifting to less but better meat, and reducing food miles
- Putting pressure on companies to label food so consumers can understand the carbon footprint of food.

What Can Private Companies Do?

- Invest in habitat creation projects such as peatland restoration
- Invest in nature and climate friendly farming
- Improve food sourcing to actively choose products with a lower carbon footprint and which are nature friendly
- Reduce the length of shorter and more transparent supply chains
- Improve food labelling to support consumer choice e.g. carbon labelling