Farm Net Zero: Livestock Factsheet

Overview

Greenhouse gases (GHG) are the source of climate change. In the UK, agriculture is responsible for 10% of the GHG production. Agriculture produces three main greenhouse gases: carbon dioxide, nitrous oxide and methane. Carbon dioxide is the most common GHG globally and therefore provides the benchmark for measuring other GHGs damage, referred to as CO2e / CO2 equivalent.

Political legislation has stated that the UK will be Net Zero by 2050, with the NFU aiming to achieve that in UK agriculture by 2040.

To achieve net zero farms must understand what their current farm carbon footprint is to highlight the potential reductions and opportunities.

Greenhouse Gases on Livestock Farms

The journey for livestock farms in the UK to net zero incorporates a reduction in emissions and increase in carbon sequestration on farms. Any residual emission on farms can be offset by carbon sequestration opportunities on farms.

UK agriculture produces all three of the main GHGs, but is only responsible for a small amount of CO2 compared with nitrous oxide and methane where agriculture produces larger quantities when compared to other industries.

On livestock farms the majority of these emissions are from biological processes that underpin the daily rhythms of the animal, such as feeding and dunging. However, as with most complex biological processes, there are a range of factors that influence the scale of these emissions and many of them are open to management changes and improvements.

Unlike any other industry, agriculture has the ability to sequester (absorb) large quantities of carbon from the atmosphere. Giving farmers the ability to be at the forefront of the fight against climate change.

Greenhouse Gas (GHG)	Carbon Dioxide Equivalent (CO2e)
Carbon Dioxide (CO2)	1
Methane (CH4)	25
Nitrous Oxide	298

Typical sources of emissions on livestock farms:

Carbon Dioxide

- Fuel and Electricity use
- Land use change
- Disturbing soil through cultivation or poaching

Nitrous Oxide

- Fertiliser use
- Manure storage and application

Methane

- Ruminant enteric methane
- Manure Management including storage and application

Carbon Sequestration

- Soil organic matter
- Farm biomass

Opportunities for Livestock Farms to Reach Net Zero

There are some key practices that will help to reduce emissions and improve the ability of the farm to reach net zero. Some suggestions are listed below. These topics will all be explored further in subsequent factsheets.

Resource Use and Efficiency

Manure Management

- Use nutrient management plans
- Manure and slurry storage, ensure adequate sized storage, cover where possible
- Use low emission spreading methods

Energy Use

- Reduce energy consumption
- Use renewables where possible
- Reduce diesel usage

Inputs

- Carry out soil testing to understand crop requirements
- Use organic fertilizers where available, testing sources and topping up requirements where required
- Incorporate legumes into the sward and arable rotation
- Apply artificial fertilizer that suit the crop requirements

Productivity Efficiency

Livestock Efficiency

- Ensure maximum health of livestock is maintained, improving feed conversion efficiency. Reduce disease, lameness and mortality rate
- Increase genetics to promote efficiency through the breeding
- Optimise use of data collection to assist in management decisions
- Improve animal housing and handling facilities to improve efficiency

Feed Strategy

- Use home-grown feed where available
- Ensure the quality of home-grown feed
- Where possible source feed with high sustainability credentials (it is acknowledged this is a difficult area with limited guidance)
- Ensure feed utilization and efficiency
- Investigate the use of feed additives which reduce emissions and improve efficiency

Sequestration

- Improve soil structure by reducing compaction
- Carry out regular soil testing which includes organic matter analysis
- Use green manures and cover crops to build organic matter in the soil
- Reduce tillage and bare soil where possible
- Increase diversity in the sward to promote root structure, increasing the content of legumes
- Move towards mob / rotational grazing allowing fields to have rest periods
- Increase hedgerow size and tree features in the landscape