

# EXPLAINER

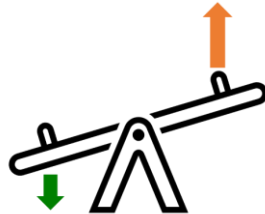
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## What net zero means to farming

### What does net zero mean for agriculture?

It's all about balance. To achieve net zero, we firstly need to reduce our greenhouse gas emissions (GHG) as much as possible.

Agriculture is part of the solution to climate change being almost uniquely placed, as both a source and a sink, to balance remaining emissions by taking carbon



dioxide out of the atmosphere.

Our ambition is for agriculture in England and Wales to reach net zero by 2040. It is **not an expectation that every farm** will be able to reach net zero, but everyone can look at their everyday practices to produce climate-friendly food, energy and fibre. This should not be achieved by exporting our emissions to other countries because of reduced production here. Net zero measures go hand in hand with efficient farming systems that are fit for the future. At its core, net zero is about using inputs more efficiently and locking up carbon.

### What can I do on farm to contribute to net zero?

Our ambition sets out three pillars of activity we can take:

Pillar 1 Resource use efficiency	Pillar 2 Carbon storage on farm	Pillar 3 Renewables and bioeconomy
<p>Now more important than ever, becoming more efficient will reduce costs. The aim is to use inputs more efficiently to produce the same or more. Here are some things to look at:</p> <ul style="list-style-type: none"> <li>• Usage of fuels and electricity</li> <li>• Nutrient management, e.g. planning, precision application</li> <li>• Including legumes in arable and hort rotations, and livestock systems.</li> <li>• Feed management including the selection of feed</li> <li>• Improve animal health</li> <li>• Loosening and preventing compacted soils in cropland, hort and pasture</li> <li>• Anaerobic digestion to convert animal manures into renewable energy and fertiliser</li> <li>• Breeding using better genetic selection.</li> <li>• Gene editing (England only) where permitted for disease resistance to improve health and productivity of crops</li> </ul>	<p>There are a variety of ways to remove carbon from the atmosphere and store it in vegetation and soil. You can store carbon by:</p> <ul style="list-style-type: none"> <li>• Adding organic matter to arable and hort soils</li> <li>• Maintaining and improving grassland management including mob grazing and reseeded</li> <li>• Gapping-up hedgerows, and increasing their size and length</li> <li>• Planting more trees and managing woodland on farm</li> <li>• Restoring peatland and wetland, and phasing out peat as a growing media.</li> </ul>	<p>Increasing renewable energy, growing bioenergy crops and bio-based materials promote greater self-sufficiency, business resilience and the circular economy.</p> <ul style="list-style-type: none"> <li>• Installing solar PV on rooftop or ground-mount</li> <li>• Consider wind turbines</li> <li>• Invest in biomass heating</li> <li>• Growing bioenergy crops as an energy feedstock for carbon-negative industries</li> <li>• Supply bio-based materials to the construction and manufacturing sectors</li> <li>• Anaerobic digestion of crops and residues</li> <li>• Check other renewable alternatives like heat pumps and mini hydro.</li> </ul> <p>Get in touch with <a href="#">NFU Energy</a> to see what will work best for your farm.</p>

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## Why are we working towards this net zero target?

The 2015 Paris Agreement is a UN international treaty limiting global warming to 2C while aiming to keep within 1.5C. In 2019 when the UK passed into law the target of net zero by 2050, it was clear that all sectors of the economy would be affected.

NFU and NFU Cymru recognised the need for farming to reduce our impact on climate and, importantly, to have a voice. We seek to establish a policy, trade and regulatory environment to facilitate the industry to transition to net zero. We work to strengthen farming's position in the supply chain, identify research gaps and to facilitate our members to take action.

Climate change is already affecting the way we farm as we see the impact of unexpected swings in temperature alongside droughts, floods and other extreme weather events. Our customers and consumers are increasingly aware of climate issues and will demand climate-friendly products. At a time of intense economic pressure, there is a need to safeguard food and energy security at a national level. For farm businesses, cutting emissions can cut costs through more efficient use of inputs and becoming more self-sufficient.

## What greenhouse gases does agriculture emit?

For most industries carbon dioxide (CO<sub>2</sub>) from burning fossil fuel is the principal emission, while for agricultural systems, it is methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). Reducing these GHG emissions is more difficult than cutting CO<sub>2</sub>, because they result from hard to control natural soil and animal microbial processes. We are unable to prevent all GHG emissions, but we are able to reduce them. You will see emissions measured in units of MtCO<sub>2</sub>e – metric tonnes of all GHG emissions expressed as carbon dioxide equivalent. Our research shows that we could reduce, offset and counterbalance current agricultural emissions of 46.3MtCO<sub>2</sub>e/year (2019) which is about 10% of total UK GHG emissions. Of course, as other sectors decarbonise, the proportion of national GHG emissions attributed to agriculture will rise.

## What about the supply chain?

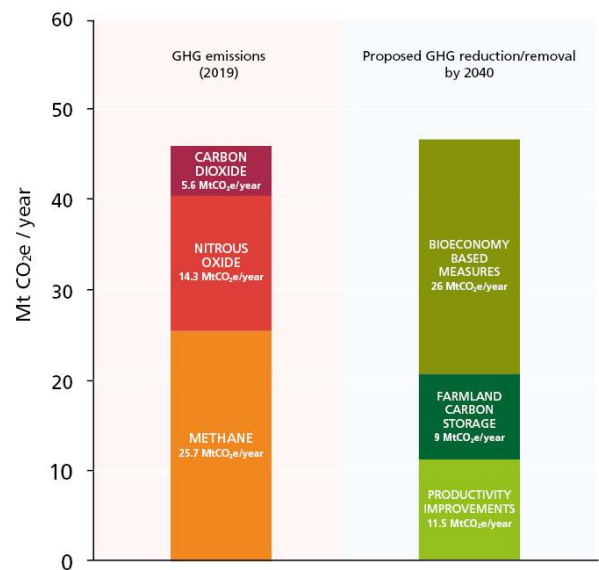
The whole economy, every sector right through to consumers, needs to reduce GHG emissions released into the atmosphere as a result of activities – the carbon footprint. For food and drink manufacturers, agricultural produce makes up a large proportion of their footprint which is why they are very keen to see suppliers working towards net zero. The carbon footprint works a bit like VAT, accumulating and counting at every stage along the journey to the consumer.

## Where should I start?

It is not expected that every farm will be able to reach net zero and everyone will be starting from a different point. There are many ways for farmers and growers contribute towards the ambition; the accumulation of hundreds of small changes will

have a big impact on GHG emissions, so it is by working together that we can make a difference. A good place to start is going online to [Pledge for net zero](#). The simple form shows the types of measures under the three pillars of our ambition. Not only that, but it also shows those beyond farming, including our customers, just how committed we are to net zero.

Another good place to start is to measure your [GHG footprint](#).



Current (2019) agricultural emissions balanced against potential GHG reduction through productivity measures and GHG removals by various methods

## Which carbon calculator should I use?

Each calculator asks for slightly different data and works out the result in a different way, so it is not meaningful to compare between calculators. We recommend finding a calculator that suits your farming system and you are comfortable using. By sticking to the same calculator over time, you will be able to identify where your GHG emissions hotspots are, look at alternative measures to reduce emissions and build a picture over time. This is much more important than focusing on the footprint value alone.

We have published a [review](#) of the three most popular free calculators as did [Richard Findlay](#) (livestock), [Tom Bradshaw](#) (combinable crops) and [Phill Crawley](#) (poultry).

These are very useful tools for establishing a baseline and preparing a plan.

Ask your county, regional or sector board representative for guidance.