Nature Friendly Farming Network

A Practical Guide

to Climate Action for UK Farming

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Our climate is changing and on-farm action is urgently needed. As a farmer-led UK-wide network, we know business as usual is not an option.

While agriculture is a driver of greenhouse gas emissions, it also has a positive role to play in climate mitigation and there are many changes farmers and land managers can make to contribute towards achieving net zero.

Regardless of location, system or past, every farm can adopt simple solutions that will help reduce emissions, sequester and store more carbon, improve the fertility of our natural resources, protect habitats, enhance ecosystem function and prepare the farm landscape for the challenges of global warming.

We hope the actions within this guide will support you in your journey to climate-friendly farming.

What is Net Zero?

Net Zero is achieving an overall balance between emissions produced and emissions taken out of the atmosphere. In order to stabilise climate change, carbon dioxide (CO2) emissions need to fall to zero and emissions of other greenhouse gases also need to be constrained. According to the Intergovernmental Panel on Climate Change (IPCC), we must reach net zero by 2050 in order to meet the global warming target of 1.5°C outlined in Paris Agreement.

Under the Climate Change Act in the 2019, the UK made a commitment to meet net zero by 2050. Achieving net zero will require all sectors to act urgently, with the UK farming and land use sector contributing significantly by helping to both reduce emissions and sequester more carbon. The longer it takes all sectors to do so, the more global warming will occur and the more the climate will change.

A Whole Farm Approach

Alongside the drive to meet net zero, recognition is growing that a holistic approach to farm management is equally as necessary in providing adequate adaptation to a warming climate.

When efforts to decarbonise are valued alongside other measures that work with nature instead of against it, farms can improve the fertility and quality of their natural resources to the benefit of both climate mitigation and the farm business.

As we move closer to achieving net zero, and to reinstating the balance between what we sequester and emit, we must avoid any actions where carbon savings could result in perverse outcomes for nature, wildlife and the environment.

Things all farmers can do to begin acting on climate change

- Create a whole farm plan. Look at existing opportunities and constraints for your land, and the surrounding land. Create a whole-farm plan which looks to the future and factors in potential changes coming from climate change (e.g. drought, flooding, rising temperatures, pests and disease) and which seeks to work with farmers, foresters and land managers in the surrounding landscape
- Work towards your Maximum Sustainable Output. Use the work of the NFFN and Nethergill Associates and consider getting advice from a trusted advisor to support you in reviewing your MSO, considering how profitability could be linked to your partnership with nature
- Review your farming systems and find the best approaches within your own system. You may want to consider step changes or a whole system change, e.g. pasture-fed livestock, agroforestry, organic, paludiculture or agroecology
- Consider undertaking a farm carbon audit to identify the carbon capture components and sources of emissions on your farm. There are a variety of carbon calculators which can help with this

The Centre for Innovation Excellence in Livestock (CIEL) highlights the importance of being able to measure and monitor emissions and mitigations. It compares different carbon accounting and reporting tools including AgRE Calc, Cool Farm Tool and Farm Carbon Calculator, among others. It found that whilst there are strengths in each tool, there are common knowledge gaps including a lack of representation for embedded emissions and robust quantification of carbon sequestration. It is worth doing your research to find a calculator tool which can best meet the needs of your business.

Fertiliser Use

- Create a nutrient management plan to identify how to minimise artificial fertiliser application
- Lock nitrogen (N) into soil by using catch & cover crops and prevent the loss of fertile topsoil and nutrients
- Plant species that require less N fertiliser or will 'fix' N into the soil e.g. legumes such as clover, vetches, trefoil, sainfoin or lucerne
- Use organic manures & slurries instead of synthetic N fertiliser
- Review your domestic regulations on storage and use of organic manures, slurries and synthetic fertilisers
- Review stocking rates to match the natural carrying capacity of the land
- Consider precision technology for a highly targeted method of application

Benefits

- Less vulnerable to market forces, e.g. current high price of N fertiliser
- Soil fertility improves with less N fertiliser
- Reduce the need for pesticides: N fertiliser fosters fungal diseases and weeds – which need pesticides
- Improved biodiversity & water quality
- Improved profitability and reduction in variable costs
- Improved water & air quality with a reduction in run-off
- Reduction of emissions

Crop Management

- Use catch & cover crops to reduce nitrate leaching, reduce soil erosion risk, improve soil structure and provide an N source to the following crop
- Consider introducing spring cropping, or use of fallows
- Cultivate land in spring not autumn for spring cropping to avoid stimulating the mineralisation of N from organic matter when there is little N uptake by the subsequent crop, resulting in increased nitrate (NO3) leaching
- Increase diversity and duration into your crop rotations by introducing legumes in arable rotations, and grass leys and livestock onto arable farms
- Minimise tillage where possible

Benefits

- Funding may be available via government incentive schemes for catch & cover crops and the environmental benefits they provide
- Crop rotations help to prevent disease and pest outbreaks in annual crops
- Complying with regulation on soil erosion, leaching and run off
- Improved biodiversity, soil health & weed management through livestock grazing
- Reduces reliance on synthetic fertilisers with a reduction in cost

Soil Management

- Routinely assessing soil health is a first step in effective decision making on soil health - there are a variety of apps to support you, such as the SOCiT App, Farm Crap App and Soil Mentor App
- Carry out soil analysis, mapping & testing
- Carry out visual assessment of soil testing using the top 40cm of soil
- Increase soil organic matter by using animal manure and certified composts in place of N fertiliser, bringing livestock into arable farm grass leys and using green manure, cover and undersown crops
- Designing crop rotations and plant species for the nutrients they draw into the soil, including the introduction of temporary leys in livestock systems
- Reduce soil movement & disturbance by using lighter machinery, trying reduced till/no till farming, avoiding overgrazing, avoiding trafficking over and grazing wetland. On peat soils, less disturbance helps increase organic matter in soils vulnerable to oxidation
- Halting the cultivation of peat soils and blocking man made peatland grips to reduce the loss of peat and water run-off

Benefits

- Healthy soil is a valuable long-term asset
- Soil compaction can lead to increased surface run-off as well as drought stress, fewer grazing days, poor root growth and reduced yields overall
- Incentives available through England's Sustainable Farm Incentive for creating a soil management plan, increasing soil organic matter and for reducing soil compaction. Future schemes in devolved nations are likely to place more emphasis on good soil husbandry and associated environmental benefits
- Comply with regulations

Grassland Management

- Converting improved grassland into species-rich grassland
- Management of species-rich habitats: graze livestock on a rotational basis allowing suitable swards and hay meadows to flower
- Alternate cutting periods so flowering plants can set seed
- Reintroduce cattle after cutting to help trample seed into the ground and aid seed germination
- Reduce artificial fertiliser use

Benefits

- Diversity in plant species benefits both animal health and soil health
- Carbon capture
- Reduced run-off and improved water retention
- Increase in number and diversity of insect pollinators

Livestock Management

- Introduce legumes & herbal leys into grassland which reduces the need for N fertiliser
- Improve animal health, breeding & breed selection to increase fertility, growth rates and reduce morbidity
- Consider using low-input native breeds which can often be for longer outwintered
- Match stocking rates to the natural carrying capacity of the land
- Change feeding techniques & feed sources by pasture rearing or using home-grown protein sources for animal feed, co- and by-products in livestock feeds, and new technology (e.g. precision feeding)
- Reduce use of imported feedstocks, particularly ingredients such as soy and palm which contribute towards global deforestation
- Consider changing grazing patterns, e.g. rotational or mixed or mob grazing

Benefits

- Adapting to changes in demand: consumers are moving towards less but better meat production and higher-welfare animal products
- Prepared for the marketplace: retailer and supplier requirements for net-zero production methods
- Improved profitability in the medium- and long-term by reducing costs & being less reliant on market forces (e.g. imported feed)
- Comply with regulations

Trees and Hedgerows

- Fill in gaps in hedges & increase hedge width
- Allow hedges to grow taller and wider and ensure flowering plants are allowed to grow around hedgerows at the field margin
- For biodiversity, coppice no more than half of a hedgerow for wood fuel & no more than 5% in any year
- Manage existing woodlands by creating & following a woodland management plan and by working with nature and natural processes to enable successive generations of trees and shrubs to adapt to climate change
- Plant new trees and hedgerows. Start by getting advice on the possibilities available for tree planting on your farm and create a management plan & consider following the UK Forestry Standard
- Consider agroforestry and incorporating livestock or crops with trees
- Plant in double staggered rows: 0.5m between the rows and 0.3m between the plants in each row. Incorporate saplings to grow into hedgerow trees in tree shelters every 6m.

Benefits

- Carbon capture
- Financial incentives available
- Improved biodiversity & habitat connectivity
- Natural pest management
- Flood risk management
- Improved water quality
- Improved soil health and quality
- Improved animal health, fertility and reduced morbidity when trees introduced into livestock systems (and vice versa)
- More stock-proof, reliable field boundaries

Habitat Management

- Understand the potential and take stock of what you already have by identifying and documenting the current habitats and species on your farm and creating a habitat map
- This can be used to inform your farm management plan and key decisions on your farm
- Seek advice from an advisor
- Improve & expand existing habitats by following the habitat map, improving and expanding the habitats you already have, e.g. linear features like hedgerows; wet features such as ponds, ditches and watercourses; field and riparian margins; meadows; and even scrub
- Enhance areas of natural & semi-natural habitat
- Create and connect habitats to achieve more for nature and climate. Consider working with neighbours and local advisors to identify priorities and co-ordinate nature restoration efforts
- Engage with local Councils to understand species and habitats to support in your area & enter land management schemes which encourage landscape-scale projects

Benefits

- Carbon capture
- Financial incentives available
- Improved biodiversity & habitat connectivity
- Natural pest management
- Flood risk management
- Improved water quality
- Improved soil health and quality
- Prepared to meet government targets for biodiversity restoration
- Adapting to changes in consumer demand of products which are farmed in harmony with nature
- Resilience to changing climate (e.g. pest and disease outbreaks) and extreme weather events (drought, flooding, wildfire)
- Diversified income stream i.e. ecotourism

Water Management

- Buffer and protect water courses by establishing grass and/or woodland buffer strips alongside watercourses, or sensitive habitats, to intercept any overland flow, trap sediment, pesticides & prevent access for livestock
- Plan & manage to prevent flooding & drought. Soil, crop and habitat management actions as well as tree planting will support this.
- Monitor and appropriately maintain field drains and ditches. Identify places where run-off occurs & manage impacts, such as soil compaction risk from livestock or machinery.
- Re-wet and create new wetlands. Consider constructing a wetland or sustainable drainage system (SuDS) which can reduce localised flooding, trap/treat pollutants and provide a wetland habitat
- Re-wet peatland soils
- Harvest & store rainwater

Benefits

- Financial incentives available
- Improved biodiversity
- Protecting natural assets and farm infrastructure, which provides resilience to changing climate and extreme weather events, such as drought, flooding, wildfire
- Carbon capture
- Comply with regulations

Energy Management

Reduce energy and fuel use by:

- Switching to renewable energy sources
- Where possible, using energy efficient vehicles and machinery
- Reducing vehicle emissions through changes in agricultural practices, such as reduced tillage

Benefits

- Reduction in carbon emissions
- Reduction of fossil fuel use
- Improved air quality

Be part of the solution. Join today

Benefits

- Join a community of like-minded farmers
- Be part of a strong united voice for farming with nature
- Shape future policies for food, farming, nature & climate
- Share knowledge and learn from others
- Access practical tips and advice
- Take part in training and events

If you agree with our manifesto, join for FREE to help ensure a sustainable, regenerative farming future for us all.

Sign up online at www.nffn.org.uk/join-us

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