Adapting agriculture and forestry to climate change

Martin Haworth, National Farmers’ Union England & Wales

Europe’s rural areas in action - Facing the challenges of tomorrow

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Adapting agriculture and forestry to climate change

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The NFU champions British farming and provides professional representation and services to its farmer and grower members.

NFU Reports
The Impact of Climate Change on UK Farmers

- Elevated carbon dioxide levels
- Temperature
- Water availability
- Weather extremes
- Occurrence of pests and disease
- Sea level rises
Factors affecting yields

![Graph showing the relationship between relative CO₂ concentration and relative yield.](image)

![Graph showing the relationship between maximum air temperature and number of grains per ear.](image)
How should industry adapt?

- Early action preferable
- Reduce the vulnerability of the sector
- Increase the industry’s resilience from an environmental and economic perspective
- Increase potential to fulfil the opportunities
Comprehensive early actions

- Prioritise no regret “Win-Win” options
- Soft measures such as
  - Collecting rainwater for use in dry periods
  - Spraying crops at night to prevent evapotranspiration
  - Preparing buildings for more stormy weather
  - Checking irrigation systems for efficiency
  - Shelter / shade belts for livestock
- Advisory services are key
Case Studies

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Fact Sheets

Climate change series

What is climate change and how will it affect agriculture?

In December 2006, 60% of farmers surveyed in England as a part of this project said they were already affected by climate change and 75% expect to be affected in the next ten years. These fact sheets aim to explain the impacts, opportunities and challenges of climate change on different farming sectors and suggest ways to adapt and combat climate change on the ground.

What is climate change?

Change is part of the Earth’s natural dynamic system. Climate fluctuations have been happening for thousands of years and will continue to happen in the future. Greenhouse gases (GHGs) such as carbon dioxide, methane and nitrous oxide are released by natural processes. We need some of these gases to keep the planet at a habitable temperature, all without them Earth would be about 50°C colder. However, human activity releases more GHGs causing imbalance in the natural system.

The agricultural industry and farmers themselves are working hard to improve farming and growing practices to reduce the emissions released from this sector.

Farming contributes 5% of the UK’s GHG emissions. This includes about 20% of methane emissions, about 12% of nitrous oxide emissions and 1% of carbon dioxide emissions.

Methane has around 20 times the greenhouse effect of carbon dioxide and is released by natural livestock emissions and reversion.

Nitrous oxide has around 310 times the greenhouse effect of carbon dioxide and is released from the production and use of fertiliser (including from manure-spreading and soil disturbance).

Carbon dioxide is released by burning fossil fuels (e.g. fuel in tractors, farm vehicles, machinery and the production of agricultural chemicals), changes in land use and land management.

The warming effects of climate change are felt both globally and nationally. While it’s difficult to be sure of the size of the changes, the UK is likely to experience:

- Increasingly warmer weather
- Lower annual temperatures
- Warmer, winter winters
- Hotter, drier summers
- More summer droughts
- More extreme weather events such as high summer temperatures and more winter storms
- Fewer frosts and cold winter spells
- Sea levels rise potentially by up to 0.3m on parts of the UK coast the century

The impacts of climate change may be likely to vary geographically across the UK. The latest climate
Farming Futures farmers: adapting to and mitigating climate change

Changing soil management

New crops - blackcurrant

Renewable energy - willow

Energy efficiency

Food and fuel production

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Water Wise – A survey of NFU members

- Water challenges will be key for farmers
  - 82% of respondents said they were more aware of water efficiency than they were five years ago.
  - 88% of farmers carry out at least one water saving tactic
  - A further 55% have undertaken additional measures to increase their water efficiency.

- A range of projects are already financed through the EAFRD
Water
Water
Increasing the resilience of the sector

- Research and Development
- Smart technologies
- New varieties
- Precision farming
Fulfilling the opportunities of climate change

• Optimising the Policy Framework
  – CAP Health Check
  – Rural Development Regulations
    • Tools are there
    • Fair distribution of funds amongst MS
    • False barriers between axis
    • Basis for payments