Sustainable production systems

The James Hutton Institute

Agriculture contributes around **18% of Scotland's total greenhouse gas emissions** making it a significant contributor to climate change. Conversely, it is also one of the sectors worst affected by climate change.

Farming and crofting will need to adapt to cope with the consequences of flooding, drought, unseasonable weather, and increased pest and disease risks.

The Hutton supports and enhances the productivity of the agri-food sector through genetic and agronomic improvements. Much of this research involves adapting crops to climate change or mitigating the impact of production on climate change by reducing greenhouse gas emissions and sequestering carbon. This includes developing crops and techniques that:

- **improve drought tolerance**
- **reduce tillage**
- **reduce fertiliser requirements**
- **reduce pesticide and herbicide applications**
- **reduce nitrous oxide emissions**
- **improve soil carbon.**

To meet agriculture's emission envelope under the updated Climate Change Plan, agriculture needs to, with urgency, reduce its emissions by around 30% from 2021 levels by 2032.

The Hutton's research is reducing the carbon footprint of agriculture and helping the industry contribute towards net zero ambitions. It also enables farmers to adapt and maintain viable agricultural systems benefiting both the rural and wider economy. It sustains value chains (including seed merchants, maltsters and animal production as well as crop production) in the UK and Scotland.