

Environment Baselining Pilot

What is the Environment Baselining Pilot?

The Environment Baselining Pilot is a five-year project led by the Agriculture and Horticulture Development Board (AHDB), supported by QMS and Hybu Cig Cymru – Meat Promotion Wales (HCC).

The pilot aims to assess the environmental impact of farms across Great Britain and understand the complete picture of on farm emissions by building a robust dataset on environmental performance. From measurements of soil carbon stocks in soils, trees, hedges and roots, the dataset seeks to reduce reliance on national and international averages and support sustainable food production and future environmental decision making.



Why does it matter?

Climate, biodiversity and food security are often discussed as competing priorities on farm. The pilot is building an evidence base to help the sector understand how these priorities can be delivered collectively.

The project aims to understand and explore:

- Whether more accurate data and knowledge can support better decisions on farm to improve their environmental position
- The range of on-farm GHG emissions and carbon removals and how they can be improved over time
- Soil carbon stocks, the link with soil health, and the soil's capacity to remove and store carbon
- The environmental impact of agricultural practices
- The possibilities of new technology for measuring environmental change

What is being collected?

The project involved 178 farms across Great Britain, including 35 in Scotland, 22 of which supported by QMS. Through innovative technology, the pilot establishes a detailed environmental baseline.

Soil Health

- Soil organic carbon assessments
- Soil nutrient status
- Soil characteristics and condition
- More than 53,000 soil cores collected across 5,000 fields

Carbon Stocks

- Carbon stored in soils
- Carbon stored in trees, hedges and roots
- Whole-farm carbon stock assessments
- Carbon sequestration and removals
- Farm-level greenhouse gas emissions estimates

Landscape

- LiDAR scanning and 3D land mapping
- Run-off risk assessments
- Identification of opportunities to improve land and water management

What has been found so far?

Soil is the largest carbon store

Analysis suggests that around 95% of estimated carbon stocks on participating farms are stored in soils, highlighting the critical importance of soils as a natural carbon asset

Current methodologies may significantly underestimate carbon stocks

Early findings indicate that 30% or more of soil organic carbon is located below the commonly measured depth of 30cm. This suggests that traditional approaches to measuring carbon may have significantly underestimated the amount of carbon stored in soils.

Scotland's Carbon Storage Potential

Initial analysis suggests participating Scottish farms may store higher levels of carbon than the wider Great Britain average, with Scottish soils storing 139 tonnes of carbon tonnes per hectare on average compared to 128 carbon tonnes per hectare in Great Britain. Some Scottish fields exceeded 600 carbon tonnes per hectare, demonstrating the variation that exists between soils.

Around 95% of carbon stocks measured on participating farms are stored in soils

- In beef, 87% of emissions come from top five sources (feed digestion, manure management, feed production, land-use change and fuel), while in sheep, 91% of emissions come from top 5 sources
- 60% of Scottish farms' soil nutrients are in an optimum pH range compared to 54% for the UK

Emissions for Cattle and Sheep

In beef, 87% of emissions come from top five sources while in sheep, 91% of emissions come from top five sources. Initial results for Greenhouse Gas emissions (GHG) found that 60% of all emissions in beef and 67% of all emissions in sheep are due to the process of feed digestion. These are 1-2% lower than the UK average.

Next steps

The Environment Baseline Pilot will continue over five years, providing industry with a comprehensive dataset to recognise consistent on-farm environmental efforts and provide farmers with the right knowledge to safeguard agriculture in the UK and work toward net zero by 2050.

Participating farms will receive tailored plans to support practical improvements, while the industry will benefit from a growing evidence base as the project continues. Initial results have been communicated with farmers and growers through roadshows across summer 2026.



The data collected is set to be analysed further by independent scientists in the future and a report of the pilot's first year of results is set to be released this coming winter. For more information, visit [AHDB's Environment Baseline webpage](#).