

Factsheet – Soil Carbon Monitoring

This factsheet is part of a series that examines factors influencing the sustainability of the dairy industry. We look at the importance of enhancing soil carbon stocks and the benefits of soil carbon measurement.







Why is Soil Carbon Important?

With increasingly high expectations to meet Net Zero emission targets, the UK's dairy sector is feeling the pressure. Yet, this challenge presents a unique opportunity for the sector. Grasslands, an integral part of dairy farming systems, have the potential to act as significant carbon sinks. By embracing farming practices that maintain and build up carbon in the soil, there's a substantial opportunity for soil carbon sequestration to offset on-farm emissions. On the other hand, proper land management is required to avoid releasing stored carbon back to the atmosphere.

Measuring Your Soil Carbon Baseline

Implementing a structured approach is essential for accurately measuring your soil carbon baseline:

6-point sampling, step-by-step:

	Sampling Plan: The sampling methodology is critical for capturing accurate soil carbon data. It should be based on the latest scientific knowledge and align with GHG Protocols. The main goal is to ensure that enough samples are collected across the measured area to ensure changes in carbon stocks can be detected with statistical significance.
	Mapping and Allocation: Implementing a sample allocation that guarantees a comprehensive understanding of field variability is key to a robust analysis of the overall carbon stock. A stratified random sample allocation ensures the samples are representative of different soil types and conditions.
	Field Team Operations: The operations of field teams are important. Your team should plan efficiently and adhere to environmental protocols, including comprehensive decontamination between farm visits. This not only minimizes the environmental impact of the project but also ensures the integrity of the collected samples.
	Mechanised Core Extraction: Core extraction at varying depths is crucial for a detailed soil analysis, as it allows for a more comprehensive examination of different soil layers, enhancing the understanding of the soil's carbon content. Your sampling should involve measurements to depth instead of just focusing on the top 30cm of soil.
	Automated Laboratory Analysis: Utilizing an automated laboratory for soil analysis reduces the cost of analysis while ensuring high levels of accuracy and speed.
	Comprehensive Reporting: Detailed soil carbon reports are essential. The data within these reports are invaluable for informed decision-making regarding land management.






What Next?

Once you have your soil carbon baseline, work with agronomists and environmental specialists to develop and follow a soil management plan.

Usually, soil carbon stocks are reassessed every 5 years – changes are unlikely to be detected over smaller timeframes.

But Why Do I Need to Do It Now?

There are several compelling reasons:

	<p>Immediate Environmental Impact: Enhancing soil health goes beyond farm productivity; it's a key step towards global environmental sustainability. Acting now has immediate positive effects.</p>
	<p>Regulatory Compliance: With environmental regulations becoming more stringent, proactive measures today place farms ahead.</p>
	<p>Knowledge and Data Acquisition: Gaining insights through this initiative prepares farms for current and future environmental standards, positioning them as pioneers in the field.</p>
	<p>Market Differentiation: In a market increasingly favouring eco-conscious practices, adopters of sustainability measures stand out, gaining a competitive edge.</p>
	<p>Closing Window of Opportunity: Each year of delaying action narrows the window to meet climate targets. Not knowing your baseline limits your ability to offset emissions with sequestration.</p>

The Dairy Roadmap

The Dairy Roadmap aims to improve the environmental sustainability of the UK dairy sector whilst ensuring the continued prosperity of the industry, and the provision of safe, affordable, nutritious and sustainable produce for years to come.

This factsheet was produced in association with [Agricarbon](#)

Agricarbon accurately and robustly measures soil carbon stocks at scale. The company provides affordable, accurate audits, based on high-intensity direct sampling and automated analysis, that underpins carbon-buyer confidence in soil carbon sequestration. In turn, this unlocks a wealth of value and finance to support the global transition to regenerative farming and a healthier planet.

The Dairy Roadmap is brought to you by:

