LAND USE for NET ZERO HUB

Setting the Scene: On-Farm Soil Health Measuring & Assessing Initiatives Workshop

WORKSHOP SUMMARY

Introduction

The Soil Health and Carbon Dynamic Topic Advisory Group (Soil TAG) held an expert workshop to present research by the Sustainable Soils Alliance (SSA) on the principal initiatives used to measure and assess on-farm soil health in the UK.

The workshop saw the presentation of key research findings, heard the experiences of some of the organisations behind the different initiatives, and provided an opportunity for participants to discuss the implications of this inconsistent landscape for different stakeholders, including the need and benefits of a more consistent, harmonised approach.

Research Overview

Since 2017, we have seen a growing number and range of organisations (government, industry, NGOs and others) requesting – and sometimes requiring - that farmers measure and monitor soil health for productivity, environmental and regulatory purposes and as a condition for payment. As it stands, these approaches are siloed and disjointed. This can cause:

1. Confusion among farmers – unsure of what approach to use, and for what purpose.
2. Inconsistent data collection - for stakeholders looking to understand change and impact over time.
3. Different interpretations of what a healthy soil is.

As a starting point, the SSA carried out an extensive mapping of 34 schemes which include government policies, certification schemes, carbon calculators.

This research revealed that, while a growing number and range of organisations (government, industry, NGOs and others) are measuring and assessing soil health for productivity, environmental, regulatory and incentivisation purposes, the approaches used vary from one scheme to the next. In particular, different metrics, methodologies, thresholds and terminology make data comparisons difficult. The full research report is available online.

Learning from other initiatives

Participants heard from the following initiatives:

The AHDB Soil Health Scorecard
Funded by the AHDB in collaboration with the British Beat Research Organization (BBRO), the toolkit was delivered through a wide consortium of academic and industry partners. Indicators of soil health for routine on farm monitoring were developed, to bring together physics, chemistry and biology in a holistic way to help farmers understand their own soils in their own fields and inform their soil management decisions. The scorecard is limited to topsoil sampling, and agricultural settings in lowland agriculture. It offers a traffic-light benchmark system for key indicators (e.g., SOM, P, pH, earthworms, structure). It is designed for farmer self-assessment and promotes regular monitoring, linking test results to management actions via guidance materials. Farmers can download the tool themselves, no data is collected by the AHDB.

The Soil Association Exchange:
The aim of the business is to help farmers in the UK measure their impact on the environment and access the advice and financial incentives that they need to make improvements. It looks at six impact areas, soils being one of them. Metrics include soil organic matter, bulk density, carbon,

nitrogen ratio, soil cover, pH, VESS, and earthworms. Data can be inputted via a digital dashboard, which is used by over 2,000 UK farms. Advisors will suggest practices a farmer can do for improvements and advise on how a farmer might get paid for these. Farmers owns their data and can choose who they share it with or don't share it with.

The SOil funDamentals (SOD) tool:
UK CEH has developed a series of benchmarks for four key soil health indicators for Great Britain, based on UK CEH's national scale monitoring since the late 1970s. The soil datasets allow for soil conditions to be split according to environmental context. Three key factors underpin the benchmarks: habitat/land use, soil type, and climate (driven primarily by rainfall). A total of 135 unique soil health benchmarks have been generated for combinations of the four soil health indicators used: organic matter, bulk density, pH, and a separate survey of earthworm abundances. This is available on a web-based benchmarking tool, which allows users to compare their own soil test results with national data derived from the Countryside Survey. It is anonymous, not prescriptive, and provides contextualised insights for soils under similar land use, soil type, and climate. There is also guidance available.

Stakeholder insights

Participants heard from WRAP, drawing lessons from their work on water stewardship. The UK Food and Drink team manages water stewardship projects across multiple countries, working with over 104 businesses to source 50% of fresh food from areas with sustainable water management. They operate through partnerships with local organizations like WWF and Rivers Trust, creating a vast network of stakeholders to drive systemic change in the food and drink industry. This collaborative approach has shown that a unified framework can improve understanding, simplify decision-making, and drive industry-wide action. The experience underlined the value of clear messaging, shared goals, and stakeholder buy-in when working across complex supply chains. Their projects have achieved significant environmental wins including biodiversity restoration, job creation, and infrastructure improvements.

Discussion

Participants shared the following insights and observations regarding on-farm soil health monitoring and assessing:

Farmer engagement

- Farmers are keen to understand their soils from a risk perspective – something that supply chains and banks are also interested in. They are looking to understand soil health in relation to the underlying agronomic performance of their farms e.g. if they can get their soils performing better, how will this effect yield and costs.
- Soil metrics can be more tangible to farmers than GHG emissions reductions, as these relate directly to agronomic performance.
- Collecting data will not necessarily result in a behavior change. It is important to help farmers interpret and implement changes based on soils tests, support them in understanding their farming context and what this means in terms of management change.
- Farmers are at different journeys when it comes to understanding their soils, so there is a need to offer different entry levels to soil testing and monitoring.
- Tools must be simple, relevant, and linked to benefits (e.g., profitability, resilience).

Growing interest in soils data

- There are different drivers resulting in a growing interest in soils data. This includes climate change and supply chain risk mitigation, corporate policies, international corporate

standards, and government policy. Data will be required to demonstrate impact, and value for money across these public and private schemes.

- There are a growing number of new entrants interested in soils data. What started off with the food and drink supply chain, now also includes insurance companies, local government, water companies. It is important to understand their perspectives and what type of data they will be looking for.
- There may be tension between a top-down appetite for soil data and a bottom up appetite for knowledge and information that will support behavior change. Is the data being collected going to deliver both? International reporting requirements may result in corporate funding for some of this data collection, but will this data resonate with farmers? Different stakeholders (e.g., retailers, regulators, farmers) want different outcomes from soil data—risk mitigation, compliance, improvement. The tension between top-down data requirements (e.g. supply chain or policy reporting) and bottom-up needs for practical, actionable knowledge for farmers.

Technological advancements

- New sensors and digital tools are being developed, whilst they are not yet at the level they need to be, they are improving. On-farm soil sampling remains the most reliable method for measurement, and the costs for tests are lowing. However, the time spent sampling will remain high.

Conclusion & Next Steps

The workshop contributed to the Soil TAG's ongoing work to define healthy soil systems and identify where leadership, coordination and policy support might accelerate progress. Th research report, workshop recording and presentations, are available on the LUNZ website.

LUNZ will be exploring whether there is an appetite for a harmonised approach to core metrics and guidance, sampling protocols and interpretation, or whether a plethora of approaches is prefered. Any centralised approach will need to be farmer-friendly, practical, and respectful of existing tools and knowledge. Continued cross-sector dialogue will be essential to maintain momentum and develop effective, trusted solutions. The aim will be to create a foundation for policymakers, who will need to consider where convergence on common systems for on farm schemes might be needed and how these will align with national monitoring.