



Digital Soil Health

Abaco Group UK

European leaders in the development of software solutions for the management and control of land resources, Abaco Group UK is part of Diagram Group, a technology hub serving agri-businesses.

The company mission is to promote sustainability and innovation in agriculture and to build a more digital and sustainable future for agriculture and the environment, the sectors most affected by the impact of climate change.

Trusted partner of the leading industry and government players that today face the challenges of innovation, sustainable development, traceability and productivity, Abaco Group UK, through deployment of technology, uses data for decision support to:

- Drive behaviour
- Create efficiencies
- Increase productivity, through precision interventions and sustainability
- Reduce cost
- Improve outputs
- Manage food security



Introduction

Soil is a vital natural resource, providing numerous essential services. Soil biodiversity and the various biological processes and functions it supports are believed to be under threat. There is a lack of sufficient data regarding the health of our soils, investment in soil monitoring is necessary.




from
heatwaves


and regulates
flooding


and stores
carbon


filters and
transforms
nutrients,
contaminants
and water


one quarter
of all the
world's
biodiversity


95% of our
food globally

Challenges

As highlighted by the research and analysis stated in the report **Summary of the state of the environment: soil****

- Over 2 million hectares of soil are at risk of erosion
- Intensive farming has caused arable soils to lose between 40 to 60% of their organic carbon

The Government's 25 Year Environment Plan outlines the following:

- England's soils must be managed sustainably by 2030
- Steps must be taken to restore the UK's soils

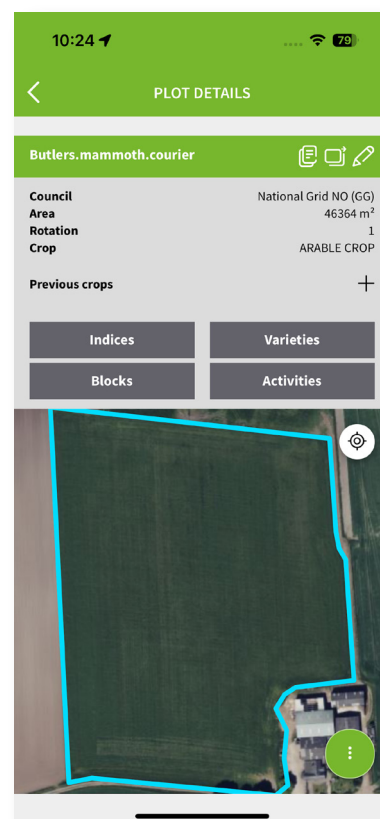
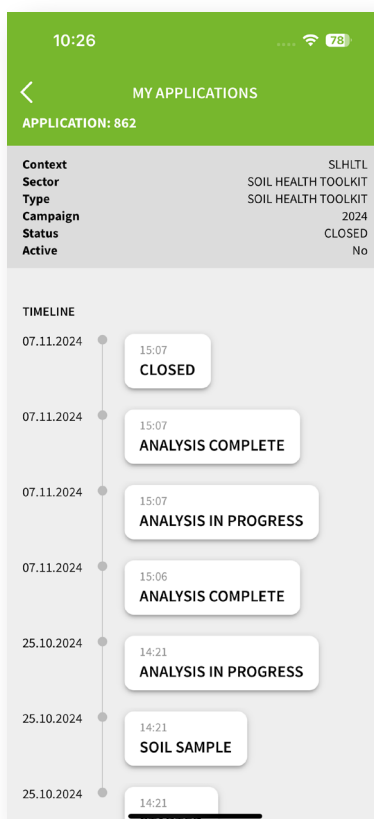
* of the Environment Agency of UK Government, in England and Wales

How Our Solution Addresses Industry's Needs

Industry's aim matches Government's ambition: "all England's soils should be managed sustainably by 2030", with DEFRA focusing on Sustainable Farming Initiative standards on soil management.

Large supply chains, cooperatives, large-scale estates, supermarkets, wholesalers, food processors, multinational food-related businesses are all focused on ensuring the resilience of their supply and improving long-term sustainability. In a context where public perception plays a crucial role, our solution provides tangible tools to help strengthen brand images while also delivering a positive impact on profits.

Experts working in these sectors are looking for solutions that not only improve soil health and agricultural sustainability but also help reduce risks and optimize operations across the entire supply chain. By implementing our tool, it is possible to demonstrate a measurable commitment to improving supply resilience, reducing risks tied to external factors, increasing market competitiveness.



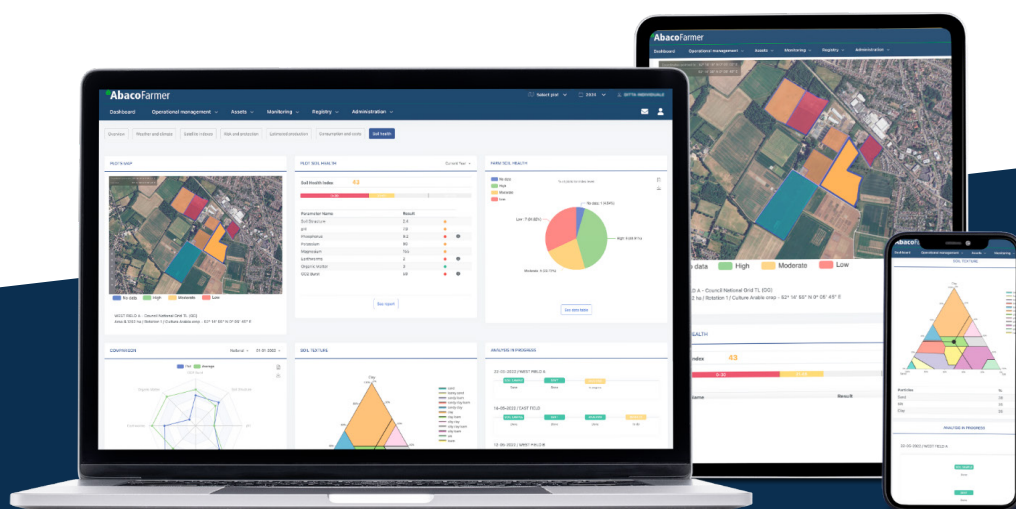
Digital Soil Health

Digital Soil Health Solution is an openly accessible, data-driven solution, supporting data collection and benchmarking for Soil Health to underpin site-specific soil management on-farm.

Soil Health digital solution guides appropriate activity to minimise intervention, maximise outputs, protect water sources, improve biodiversity.

- Developed in collaboration with NIAB, bringing together information on chemical, physical and biological properties of soil, gained from laboratory analysis of soil samples
- It establishes a common baseline to measure and interpret Soil Health for each individual field or soil zone
- It allows farmers to develop site-specific management plans to achieve healthier soil and support profitable and sustainable farming systems
- 'Traffic light' coding identifies properties where further investigation/intervention is needed
- It provides management options to minimise potential risks to crop productivity
- Scorecard AI analytics can transform farmers approach to soil health management

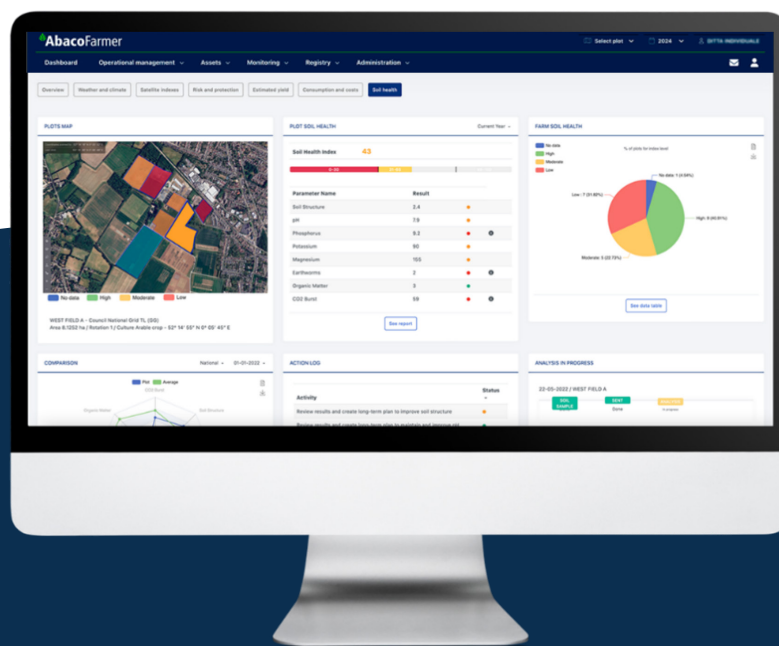
Collaboration among different players using the scorecard, is a significant step toward sustainable and innovative farming practices.



The solution

ABACO's Soil Health scorecard provides the tools to measure the success of specific soil management practices over time, with tailored advice to farmers on how to improve their soil health. It will:

- Establish a common baseline to measure and interpret Soil Health for each individual field or soil zone
- Provides a comprehensive approach to monitoring and improving soil conditions through a combination of physical, chemical, biological assessments
- Topsoil sampling conducted at GPS-located sites, are sent for laboratory analysis for pH, extractable nutrients (including P, K, Mg), organic matter and microbial activity (CO₂-burst)
- Additionally, Visual Evaluation of Soil Structure (VESS) and earthworm counts are performed to assess soil structure and biodiversity
- Laboratory results automatically upload into the SHSC and combine with field data, generating a detailed report
- Scorecard outputs provide a decision support framework for soil and crop management decisions
- Visual traffic light system categorises parameters while offering actionable insights into improving specific areas of soil health, tracking progress over time



Key soil health parameters spread across a wide range of measures which include:

- **Chemical:** pH, phosphorous, potassium, magnesium
- **Physical:** Soil structure (VESS assessment)
- **Biological:** Earthworm counts, organic matter, CO2 burst (microbial activity via Solvita test)

Farmers and agronomists digitally track results and tailored recommendations are based on local conditions.

- Provides a robust, science-based evaluation of soil health
- Supports agricultural practices of supply chains agreed with suppliers/growers
- Customisable Soil Health Index, based on prioritised parameters for different crops
- Provides a clear, immediate overview of soil status, enabling informed decisions to enhance soil fertility and resilience

The solution allows farmers and agronomists to digitally track results, access near-time data, receive tailored recommendations based on local conditions. With the inclusion of remote monitoring and historical data, it ensures a robust, science-based evaluation of soil health, helping supply chains optimised agricultural practices for improved productivity and sustainability.

A customisable Soil Health Index, based on prioritised parameters for each supply chain, provides a clear, immediate overview of soil status, enabling informed decisions to enhance soil fertility and resilience.



Benefits

The front-end solution and app (which acts as a more operational tool) allows farmers and growers to efficiently identify where soil sampling needs to be done. The app provides a user-friendly interface to collect data in the field, including packing soil samples and sending them to the lab with full traceability. The samples are analysed using standard UK parameters, while additional subjective assessments can also be made by the operator. The system offers:

- A streamlined process for organising soil sampling
- Full traceability from the field to the lab
- Automation of lab results entering our system
- A scoring system for evaluating each soil sample
- The ability for an agronomist to step in and add further values or insights as needed
- Leverage data to improve sustainability (including through historical data) and communicate their efforts to final consumers who are increasingly aware of the commitment related to sustainable practices

This approach ensures accurate and comprehensive soil analysis while integrating both objective and subjective evaluations.

The background features a central photograph of a wheat field at sunset, framed by large, overlapping geometric shapes in shades of green and blue.

HOW TO CONTACT US

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