

Applied
Microbiology
International

Improving Soil Health in the UK

EXECUTIVE SUMMARY



Overview

This report presents key recommendations and considerations for:

- Establishing a shared definition of healthy soil that can be applied consistently across the UK's four nations.
- Identifying and selecting appropriate biological indicators to measure soil health effectively.
- Promoting sustainable land use practices to replace those that are currently widespread but environmentally unsustainable.

Drawing on insights from a cross-disciplinary roundtable convened to advance dialogue on key themes from a previous [policy publication](#) on soil health in the UK, the discussions focused on three central topics: the need for and complexities around agreeing a definition of healthy soil; the identification of potential biological indicators of soil health; and the implementation of more sustainable land use practices.

The report outlines specific recommendations and considerations under each of these themes, alongside an overarching call for stronger, more effective communication between all soil stakeholders – academia, policymakers, industries, farmers and land managers, funders, and beyond – to build trust and align diverse needs across these communities, to nurture and protect soil health in the years to come.

This executive summary accompanies and supports AMI's full policy report on Improving Soil Health in the UK, which expands on the recommendations included here as well as background on how they were created, a full list of references, and other information.

Who we are

Applied Microbiology International (AMI) brings the microbiology community together across international borders and disciplines, as it believes global challenges need to be solved by global experts.

Executive Summary Glossary

eDNA – Genetic material left by organisms in the environment. This includes DNA from cells, tissues, fluids & excrement. Measuring it provides insight into the presence of organisms and overall biodiversity.

Metagenomic technologies – A method that allows the identification and characterization of organisms using DNA sequences from all kinds of samples, including soil.

Microorganisms – A living thing which on its own is too small to be seen without a microscope.

The references for these definitions can be found in the full report.

Key Message

The future of soil, and, by extension, the planet and all its inhabitants, will depend on a shift in communication and mindset, to co-create a soil health agenda that equitably addresses everyone's needs.

Recommendations for...

DETERMINING AN AGREED CROSS-DISCIPLINARY DEFINITION FOR HEALTHY SOIL

01 Adopt an existing definition of healthy soil

A definition such as those developed by the EU Mission or the FAO should be adopted and applied consistently by all soil stakeholders across the UK's four nations to prevent unnecessary duplication of effort and ensure alignment with established international frameworks.

02 Support the development of technical sub-definitions

Adopting an existing definition should not overlook the scientific community's need to develop recognised and standardised sub-definitions that capture the technical aspects of soil health needed for accurate assessment and management in specific contexts.

03 Ensure flexibility within the definition

The definition must allow for flexibility, recognising the dynamic nature of soils and the variation in ecosystem services and characteristics that determine what 'health' means to different stakeholders.

04 Make the definition measurable and actionable

The agreed definition should be measurable, verifiable, and actionable – and established without delay – to keep soil health a visible and ongoing priority for policymakers.

DETERMINING THE MOST PROMISING AND/OR SUITABLE BIOLOGICAL INDICATORS FOR SOIL HEALTH

01 Prioritise scalable, cost-effective and user-friendly methods

Any indicator must be scalable, simple to use, translatable to different soil types and contexts, and cost-effective for the user. Investing and supporting the advancement of technologies such as eDNA and metagenomic technologies will be vital for staying at the forefront of soil health science.

02 Adopt a dual approach

A holistic approach of considering both microbial diversity and function for determining soil health better considers the complexity of soil and soil-dwelling organisms, providing a more accurate representation of soil health and performance.

03 Ensure flexibility within the adopted approach

Though indicators should be standardised and harmonised where possible, the high variation in soil types and contexts will require some specification in indicators across settings.

DISCUSSION ON MICROBIAL SOLUTIONS TO UNSUSTAINABLE SOIL PRACTICES

01 Promote the adoption of sustainable alternatives to current land management practices by fostering collaboration

Supporting the transition to sustainable land management practices is essential to attain future food security and will require involving all soil stakeholders from the outset – including policymakers, farmers, land managers, advisors, agri-business and researchers – to ensure successful adoption.

02 Provide sustained policy, financial, and advisory support

To enable practical and profitable implementation, underpinned by continued investment in research and evidence generation.