

Field Soil Health Testing: Methods, Benefits & Tools | PES Technologies

Healthy soil is the foundation of productive, sustainable agriculture. Without balanced soil conditions, crop yields suffer, input costs rise, and long-term viability of farmland is at risk. **Field soil health testing** — the process of assessing soil conditions directly on-site — offers a powerful way to monitor and manage this vital resource. Unlike lab-based approaches, **on-site soil assessment** provides immediate, actionable insights tailored to the specific conditions of your land. This article explores the key methods used in **testing soil health in the field**, outlines the major **benefits of field testing**, and introduces the latest **tools for in situ soil analysis** that are transforming how growers and agronomists approach soil health monitoring.

Methods of Field Soil Health Testing

1. Visual Soil Assessment (VSA)

Quick and cost-effective, VSA involves evaluating soil structure, colour, root development, and biological activity directly in the field. It's a good starting point for understanding basic soil conditions but is often subjective.

2. In Situ Soil Sensors

Advanced sensors now allow for real-time measurement of moisture, temperature, electrical conductivity (EC), and nitrogen. These devices offer precise readings with constant data but are often permanently placed in one location, limiting your understanding of your land.

3. Portable Soil Test Kits

These kits provide on-the-spot results for key indicators like microbial biomass, pH, nitrate, potassium, and phosphorus. They are fast, affordable, and effective for routine checks, and can build up a mosaic of soil health values due to their portability.

Benefits of Field Soil Health Testing

✓ Real-Time Results

Unlike lab analysis, field testing offers immediate feedback, enabling rapid decision-making on irrigation, fertilisation, or tillage practices.

✓ Site-Specific Data

Soil conditions can vary widely across a single field. On-site testing pinpoints problem areas and helps apply solutions precisely where needed — saving time and resources.

✓ Cost and Time Efficiency

Avoid delays and costs associated with preparing and posting multiple samples. Field testing cuts turnaround time from days or weeks to minutes.

✓ Supports Sustainable Practices

Regular **soil health monitoring** in the field promotes practices like cover cropping, minimal tillage, and optimised input use, all of which enhance long-term soil fertility and biodiversity.

Tools for In Situ Soil Analysis

PES Technologies' Portable Soil Tester

Designed for field use, this cutting-edge device delivers lab-quality results on-site. It measures multiple parameters including microbial activity, organic matter, and pH — all in minutes, with no need for complex sampling or lab delays.

Other Useful Tools

- Hand augers and soil probes
- Digital EC and pH meters
- Real-time nutrient scanners

Conclusion

Field soil health testing delivers fast, reliable, site-specific insights. With the ability to monitor moisture, nutrients, structure, and biology in real time, farmers and agronomists can make smarter, more sustainable decisions — on the spot. Whether you're troubleshooting problem areas or planning for long-term soil health, in situ testing is a game changer.

PES Technologies' portable soil health device offers a user-friendly, comprehensive solution for modern soil management.

Improve your soil management with on-the-spot data. Learn more about the PES Technologies device or request a consultation.