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FACT SHEET | AUGUST 2026

Know your soil biology series
Part 3: Interpreting soil biology results

Part 3 of our *Know Your Soil Biology* series focuses on what your soil biology test results mean, and how to use them to better understand your soil and inform management decisions.

KEY POINTS

- Compare results with lab benchmarks or reference ranges
- Consider soil type, conditions, crop performance and disease history
- Look for trends by testing over time
- Low microbial activity or diversity may indicate limited organic inputs or soil disturbance
- Fungal and nematode results can highlight potential soil health issues
- Most microbial tests cannot prescribe actions on their own. Stronger insights come from combining microbial data with other indicators like pH, organic matter and nutrient status.

Interpretation of results

Soil biology tests provide an indication of biological activity and function within the sampled soil. Because laboratory analyses are conducted on a small soil sample, results should be viewed as an indicator of overall soil condition rather than an exact representation of an entire paddock or field.

Things to keep in mind:

- Compare results against lab benchmarks or reference ranges
- Consider soil chemical, physical properties, and environmental conditions (organic matter %, active carbon, pH, salinity, compaction, nutrient, temperature, moisture) which may influence biological activity
- Consider disease incidence and crop performance
- Use repeat testing over time to identify trends and assess the impact of management practices

Hort Innovation

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Broad interpretation guide

The following provides a general guide to interpreting different soil biology measurements and management practices that may help move soil biology towards more favourable conditions. Results should be considered alongside your soil type, growing environment, crop system and management goals.

Low microbial biomass

May indicate:

- Low organic matter inputs
- Excessive cultivation
- Poor soil cover
- Compaction or waterlogging
- Limited carbon available for microbes

Possible management actions:

- Add compost or organic amendments
- Retain crop residues where practical
- Use cover crops between vegetable crops
- Reduce unnecessary tillage
- Improve drainage if waterlogging is occurring

Low microbial diversity

May indicate:

- Repeated monoculture
- Heavy disturbance
- Limited range of organic inputs

Possible management actions:

- Increase crop rotation diversity
- Include cover crop mixes rather than single species covers
- Incorporate different organic amendments
- Avoid long periods of bare soil

Very low fungal abundance

May indicate:

- Intensive cultivation disrupting fungal networks
- Low levels of stable organic matter

Possible management actions:

- Reduce cultivation intensity where feasible
- Add composts with more complex carbon sources
- Use cover crops that produce substantial root biomass

Very high fungi:bacteria ratio

- A balanced ratio of around 1:1 is typical and best for mixed cropping systems, including vegetable farms. If it is very high for vegetable farms, it may mean slower nutrient cycling or high amounts of woody or recalcitrant organic matter.

Possible management actions:

- If crop growth is poor, consider amendments that stimulate bacterial activity, such as fresh residues or nitrogen-containing organic inputs.
- Check plant-available nutrients before making changes.

High harmful nematodes

- Harmful nematode types are root-feeders (cause plant damage). Meanwhile, beneficial types are bacterial-feeders and fungal feeders (good for nutrient cycling).

Possible management actions:

- Use biological controls or crop rotation if root-feeders dominate.

Low mycorrhizal colonisation

- Not all vegetable crops are host crops for mycorrhizae such as brassicas. However, other crops such as onion, carrot, sweet corn, capsicum, and melons do host and benefit from mycorrhizal associations.

Possible management actions:

- Reduce practices that heavily disturb soil
- Maintain living roots through cover cropping
- Avoid excess phosphorus application
- Inoculate with mycorrhizal fungi
- Plant host species

Further reading

Factsheet:
What you need to know about soil biology

Factsheet:
Part 1 of this series: Soil biology testing

Factsheet:
Part 2 of this series: Soil biology sampling

References

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