



## What is the SMI-TEST™?

The SMI-TEST™ is a soil monitoring tool that describes aspects of microbial life in the root zone, allowing for

- Tracking of microbial population changes through the season
- Evaluation of biological factors that limit soil health and crop production

## Why monitor soil microbial levels?

Soil microbes are highly important for the management, cycling and plant availability of nutrients in the soil. High levels of beneficial microbes counteract pathogens. Microbes improve soil structure.

By managing microbial populations and their ratios the general resilience of soils and crops can be influenced, thereby increasing yield, quality and profitability.

Adequate soil microbe management may lead to:

- Enhanced nutrient cycling within the soil/root environment
- Increased crop vigour
- Increased tolerance to pests and diseases
- Less weed pressure
- Less leaching of nutrients from the root zone
- Decreasing levels of soil compaction
- Better water holding capacity
- Less water logging or run-off of top soil
- Better product flavour

## Which indicators are measured and reported?

Results are reported in an easy to understand format, and include target levels

- Total microorganisms
- Total bacteria
- Total Fungi
- Prokaryotes
- Pseudomonas
- Actinomycetes
- Anaerobic bacteria
- Gram positive bacteria
- Gram negative bacteria
- Eukaryotes
- Protozoa
- Mycorrhizal fungi

Two useful ratios are also included:

- Fungi: Bacteria
- Total Bacteria: Anaerobic bacteria

The report also includes a Microbial Diversity Indicator

## Amount of nutrients held in the biomass

- Nitrogen, Phosphorus, Potassium Sulphur, Calcium, Magnesium, Carbon (in kg/Ha)

*For further information please contact*

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## Sending the samples by post

Soil samples should be kept cold (frozen if possible) and wrapped in newspaper just prior to posting to AgVita Analytical. Do not overfill individual bags, as they may burst.

*Send the samples via overnight express to:*

### AgVita Analytical

PO Box 188

Devonport, TAS 7310

Ph: (03) 64 209 600

Fax: (03) 64 270 230

email: [info@agvita.com.au](mailto:info@agvita.com.au)

For more information and to obtain a sample information sheet (label) visit: [www.agvita.com.au](http://www.agvita.com.au)



Member of ASPAC, Australasian  
Soil and Plant Analysis Council



## When to sample?

The microbial status should be assessed in spring or autumn when soils are not overly cold, hot, dry or wet. Assess soil microbes:

- As part of a soil/plant monitoring programme
- To investigate the effect of biological stimulants, composts and manures and bio-fumigants
- To identify the reasons for poor crop growth
- To highlight the effectiveness of soil management practises such as reduced tillage & stubble retention.

Considering the abundance and dynamic nature of soil microbes, we recommend monitoring of trends over time or testing to compare different paddocks or treatments. A single test out of context may not provide sufficient information.

## Sampling procedure

1. Select a 1-2 ha area representing uniform soil conditions. Within the area, follow a W or S pattern or use a transect when collecting samples.
2. Avoid irrigation and spray runs, headlands and compacted or other non-typical areas. They may have to be sampled separately, if significant.
3. Remove the first 5cm of topsoil to eliminate any surface applied fertiliser contamination.
4. Take 10-20 sub samples with an auger to a depth of 10-15cm. Record the depth on the sample information sheet (label).
5. Empty the contents of each sub-sample into a clean bucket, mix and transfer into a plastic zip lock bag. If more than 250g have been collected, take a well mixed 250g sub-sample.
6. Chill the sample immediately after sampling by placing it into an esky with a frozen ice pack or car fridge. Freeze samples if not posting or delivering on the same day.
7. We recommend you collect and submit a control sample (e.g. along fence lines or other untreated areas) to allow greater comparison and interpretation of results.
8. Complete a sample label giving complete details for each sample.

**expressSoil® and SMI TEST™ may be conducted from the same site. When this is required please provide a duplicate sample of up to 500g.**

**When sampling in hot, cold, wet or dry conditions or immediately after pesticide or fertilizer applications, test results have to be interpreted considering environmental conditions.**

The SMI TEST™ is conducted by Microbiology Laboratories Australia