



# linnaeus

## MICROBE WISE FOR SOIL

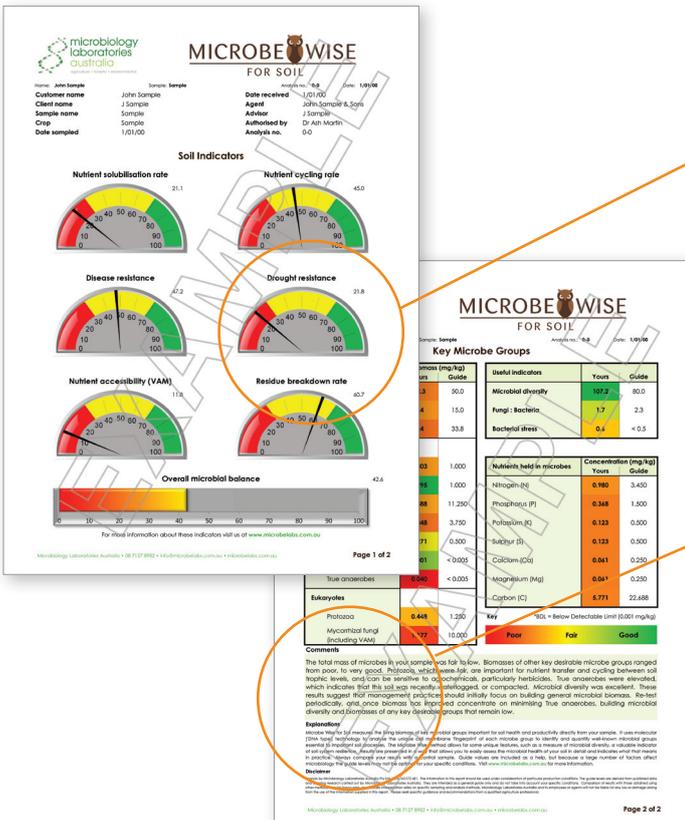
Microbe Wise for Soil measures the living biomass of key microbial groups important for soil health and productivity directly from your sample. It uses molecular ('DNA type') technology to analyse the unique cell membrane 'fingerprint' of each microbe group to identify and quantify well-known microbial groups essential to important soil processes, such as nutrient release, disease suppression and residue breakdown. The Microbe Wise method allows for some unique features, such as a measure of microbial diversity, a valuable indicator of soil system resilience. Results are presented in a way that allows you to easily assess the microbial health of your soil in detail and indicates what that means in practice.

### Key features

- Good value
- Practical indicators
- Makes high grade info easy

### Ideal for:

- Good overview of soil microbial health
- Benchmarking soil microbial status



### COLOUR CODED RESULTS FOR EASY UNDERSTANDING

All results are colour coded based on guide values for easy recognition.

#### Key



### COMMENTS AND EXPLANATIONS

Each report comes with comments and explanations designed to help you understand your results.

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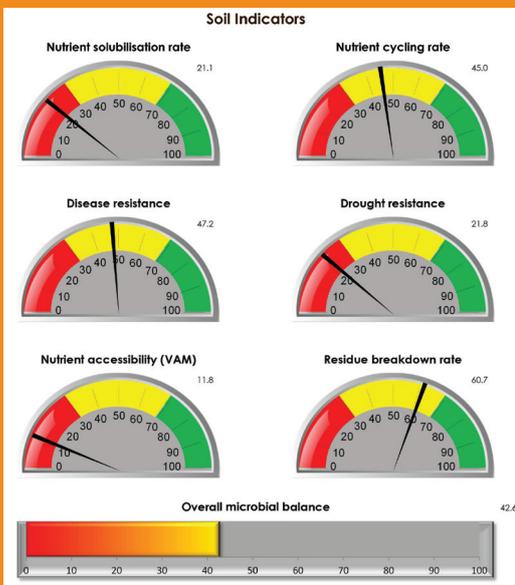
4 Banks Street, Gisborne 4010

## SOIL INDICATORS

Soil indicators make it easier to interpret your report. They are practical indicators derived from the biomasses of the key microbial groups measured in Microbe Wise for Soil. These key microbial groups are some of the most well-researched soil organisms in terms of their roles in important soil processes, like nutrient release, disease suppression and residue breakdown. Since soil processes depend on many other factors, such as soil type, moisture and other edaphic factors, it's important to note that the indicators are only a useful aid to interpretation. However, extensive experience over more than a decade has shown that results are reliably indicative of what is occurring in the field, are sensitive to changes in soil management practices, and can be somewhat predictive of future outcomes.

### For the technically-minded

The Soil Indicators are unit-less values on a 0 to 100 scale, relative to biomasses of microbial groups related to soil functions, where 0 represents no biomass in the representative groups and 80 represents a typical value that could be obtained in a naturally highly productive soil. This typical value has been estimated from results published in scientific journals and Microbe Labs' own extensive experience over more than a decade. For further technical information on the role of soil microorganisms in soil processes see: Paul (Ed.) (2014), Soil Microbiology, Ecology and Biochemistry (4th ed.).



## KEY MICROBE GROUPS IMPORTANT FOR SOIL HEALTH

Microbe Wise for Soil reports on some of the most important and well-researched microbial groups important for good soil health.

**Pseudomonas** - nutrient solubilisation & disease suppression

**Actinomycetes** - residue breakdown & disease suppression

**Gram positive bacteria** - drought resistance & bacterial balance

**Gram negative bacteria** - diverse and important functions

**Protozoa** - nutrient cycling

**Mycorrhizal fungi** - nutrient accessibility and drought & disease resistance.

## OTHER INDICATIVE MICROBE GROUPS

**True anaerobes** - indicative of anaerobic soil conditions

**Methane oxidisers & sulphur reducers** - indicates types of anaerobic conditions.

### For the technically-minded

Microbe Wise for Soil calculates microbial biomasses from the concentrations of signature microbial cell membrane fatty acid biomarkers extracted from soil using a multi-step process. This method is one of the most widely used in scientific research on soil microbial ecology. Aside from quantification, the patterns of fatty acids are statistically analysed to provide insight into microbial community diversity, environmental stress, and other useful indicators. For further technical information see: Marschner (2007), Soil Biology 11:181-200; Paul (Ed.) (2014), Soil Microbiology, Ecology and Biochemistry (4th ed.).

Group	Biomass (mg/kg)	
	Yours	Guide
<b>Total microorganisms</b>	<b>12.3</b>	50.0
<b>Total bacteria</b>	<b>4.4</b>	15.0
<b>Total fungi</b>	<b>7.4</b>	33.8
<b>Bacteria</b>		
Pseudomonas	<b>0.303</b>	1.000
Actinomycetes	<b>0.995</b>	1.000
Gram positive	<b>3.588</b>	11.250
Gram negative	<b>0.848</b>	3.750
Methane oxidisers	<b>0.271</b>	0.500
Sulphur reducers	<b>0.001</b>	< 0.005
True anaerobes	<b>0.040</b>	< 0.005
<b>Eukaryotes</b>		
Protozoa	<b>0.448</b>	1.250
Mycorrhizal fungi (including VAM)	<b>1.177</b>	10.000



**Microbe Wise** technology is developed by Microbiology Laboratories Australia to help farmers, agronomists, natural resource managers, forest managers, fertiliser manufacturers and government, make informed decisions about the use and management of microbiology in soil, water, compost, fertilisers and other media.

**Need help?** Contact us for information on expert advisors available to help you understand and interpret your report, and provide advice and recommendations.

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