

Compost Analysis

Sustainable Soil Management with the Mikhail Balance System

| | |
|---|--|
| FILE NO : 1708129360 | DATE ISSUED : 11/09/2017 |
| LANDTASIA ORGANIC FARMS P/L PO BOX 116 BUNGENDORE, NSW 2621 | DATE RECEIVED : 30/08/2017 |
| SAMPLE ID : 50008 | CLIENT ID : LAN055 |
| | PHONE : 02 6238 0565 |
| | REFERENCE : |
| | REFERENCE PHONE : |
| | ANALYSIS REQUIRED : Compost & Microbes |

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Total Analysis

| ITEM | unit | RESULT |
|------|------|--------|
|------|------|--------|

Basic Measures:

| | | |
|-----------------------------------|----------|-------|
| pH (1:5 Water) | | 8.68 |
| pH (1:5 0.01M CaCl ₂) | | 8.28 |
| Electrical Conductivity | EC μS/cm | 3240 |
| TOTAL SOLUBLE SALT | TSS ppm | 10692 |
| MOISTURE CONTENT | MC % | 14.8 |

Major Nutrients:

| | | | | (Major Nutrients in percentages) |
|------------------|---|------|------|----------------------------------|
| TOTAL NITROGEN | N | kg/t | 13.9 | 1.39 % |
| TOTAL PHOSPHORUS | P | kg/t | 5.7 | 0.566 % |
| TOTAL POTASSIUM | K | kg/t | 13.1 | 1.31 % |
| TOTAL SULPHUR | S | kg/t | 2.5 | 0.248 % |

Total Cations:

| | | | |
|-----------------|----|---|-------|
| TOTAL CALCIUM | Ca | % | 3.21 |
| TOTAL MAGNESIUM | Mg | % | 0.518 |
| TOTAL SODIUM | Na | % | 0.179 |

Trace Minerals:

| | | | |
|------------------|----|-----|------|
| TOTAL COPPER | Cu | ppm | 95.9 |
| TOTAL ZINC | Zn | ppm | 433 |
| TOTAL IRON | Fe | % | 1.35 |
| TOTAL MANGANESE | Mn | ppm | 575 |
| TOTAL COBALT | Co | ppm | 5.39 |
| TOTAL MOLYBDENUM | Mo | ppm | 3.51 |
| TOTAL BORON | B | ppm | 32.8 |

Carbon Content:

| | | |
|----------------------|---|------|
| TOTAL ORGANIC MATTER | % | 29.6 |
| TOTAL ORGANIC CARBON | % | 14.8 |

Microbial Analysis

| ITEM | unit | RESULT | % of Total Active Bacteria |
|------|------|--------|----------------------------|
|------|------|--------|----------------------------|

| | | | |
|--------------------------------|---------|-----------|---------|
| ACTIVE LACTIC ACID BACTERIA | | 1,000 | 0.08 % |
| Active Fungi | cells/g | 30,000 | |
| Cellulose Utilisers | cells/g | 320,000 | |
| TOTAL ACTIVE FUNGI | cells/g | 350,000 | 28.90 % |
| ACTIVE YEASTS | cells/g | 20,000 | 1.65 % |
| ACTIVE ACTINOMYCETES | cells/g | 840,000 | 69.36 % |
| ACTIVE PHOTOSYNTHETIC BACTERIA | cells/g | 100 | 0.01 % |
| Total Active Population: | cells/g | 1,211,100 | |

cells/g = cells per gram of material

Notes: See notes on Biology Management (page 5).

Plant Available Nutrients

| ITEM | | unit | RESULT |
|----------------------|----|------|--------|
| AVAILABLE CALCIUM | Ca | ppm | 6360 |
| AVAILABLE MAGNESIUM | Mg | ppm | 1944 |
| AVAILABLE SODIUM | Na | ppm | 1573.2 |
| | | | |
| AVAILABLE NITROGEN | N | ppm | 106 |
| AVAILABLE PHOSPHORUS | P | ppm | 686 |
| AVAILABLE POTASSIUM | K | ppm | 9555 |
| AVAILABLE SULPHUR | S | ppm | 547 |
| | | | |
| AVAILABLE COPPER | Cu | ppm | 13.8 |
| AVAILABLE ZINC | Zn | ppm | 171 |
| AVAILABLE IRON | Fe | ppm | 83 |
| AVAILABLE MANGANESE | Mn | ppm | 249 |
| AVAILABLE COBALT | Co | ppm | 1.31 |
| AVAILABLE MOLYBDENUM | Mo | ppm | 1.62 |
| AVAILABLE BORON | B | ppm | 6.45 |

Notes: These results represent the proportion of the Total nutrients (page 2) that will be immediately available for plant uptake.

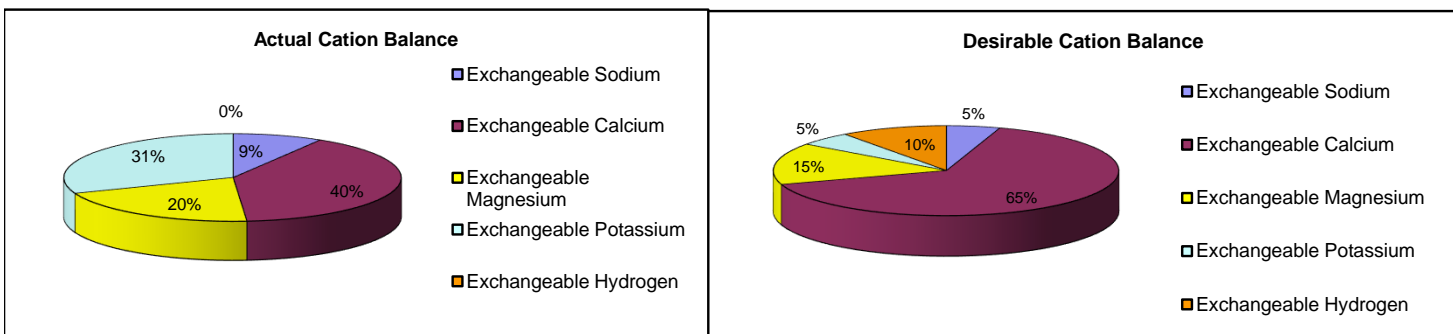
ppm (parts per million) = mg/L (milligram per litre) = mg/kg (milligram per kilogram)
1 % = 10,000 ppm

Exchangeable Cations

| EXCHANGEABLE CATIONS | | RESULTS |
|----------------------------|----------------------------|---------|
| CALCIUM | Ca meq/100g of sample | 17.52 |
| MAGNESIUM | Mg meq/100g of sample | 8.92 |
| SODIUM | Na meq/100g of sample | 3.77 |
| POTASSIUM | K meq/100g of sample | 13.50 |
| HYDROGEN | H meq/100g of sample | 0.01 |
| ADJ. EXCH. HYDROGEN | H meq/100g of sample | 0 |
| CATION EXCHANGE CAPACITY | CEC meq/100g of sample | 43.72 |
| ADJUSTED CEC | Adj.CEC meq/100g of sample | 43.71 |
| SATURATION BASE PERCENTAGE | BSP | |

meq = milliequivalent

| EXCHANGEABLE CATION BALANCE | % OF ADJUSTED CEC | DESIRABLE |
|-----------------------------|-------------------|-----------|
| CALCIUM PERCENTAGE | 40.08 | 65-70% |
| MAGNESIUM PERCENTAGE | 20.41 | 12-15% |
| SODIUM PERCENTAGE | 8.63 | 0.5-5% |
| POTASSIUM PERCENTAGE | 30.89 | 3-5% |
| ADJ. HYDROGEN PERCENTAGE | 0 | <20% |
| CALCIUM / MAGNESIUM RATIO | Ca/Mg | 2 - 4 |



CATION BALANCE AMENDMENTS (For optimum effectiveness on application)

| | | | | |
|----------------------|-----------------------|----|-----------------|-----------------------|
| GYPSUM REQUIREMENT | 6.3 kg/m ³ | | | |
| LIME REQUIREMENT | 0.0 kg/m ³ | | | |
| DOLOMITE REQUIREMENT | 0.0 kg/m ³ | | | |
| MAGNESIUM SULPHATE | 0.0 kg/m ³ | OR | MAGNESIUM OXIDE | 0.0 kg/m ³ |

NB. The effectiveness of the compost may be improved by mixing in the suggested materials (above) prior to application.

Notes on Biology Management

The first thing to remember is that SWEP results are for ACTIVE micro-organisms only. This means only those that will immediately grow under ideal conditions (generally about 7-10% of total soil biomass). This allows us to analyse samples year round, since the microbes that are active in spring will still be present in summer or winter, but at very reduced levels of activity. Given the ideal conditions in our cultures, they will spring back to life and grow much more quickly than others.

Active Indicator Organisms

Photosynthetic bacteria like *Rhodospseudomonas spp* and *Bradyrhizobium spp* require only sunlight, carbon dioxide and mineral nutrients to survive. They are important in recycling organic matter, particularly compounds that are difficult to break down - such as pesticide and petrochemical residues. They are also important for synthesis of bio-active compounds that are known to stimulate plant growth.

Yeasts such as *Saccaromyces spp*, *Debaryomyces spp*, *Torulopsis spp* and *Rhodotrula spp* synthesise plant growth substances from amino acids and sugars that are produced by photosynthetic bacteria. These substances also promote the growth of Lactic acid bacteria and Actinomycetes.

Lactic acid bacteria such as *Lactobaccillus spp*, *Leuconostoc spp*, *Lactococcus spp* and *Pediococcus spp* produce Lactic Acid from sugars and carbohydrates. Lactic acid is a strong bio-suppressive compound that helps control harmful micro-organisms. This effect, together with other trace nutrients produced by members of this group, is particularly beneficial to the growth of Photosynthetic bacteria and Yeasts.

Actinomycetes such as *Actinomyces spp* and *Streptomyces spp* produce antibiotic compounds that are effective suppressants of pathogenic organisms. They have also been shown to produce plant hormones - especially when treated with kelp extracts.

Fungi such as *Aspergillus spp*, *Penecillium spp*, *Mucor spp* and *Rhizopus spp* have many beneficial effects on plant growth. These include the production of enzymes, antibiotics and various growth regulators. They are also important in the conversion of organic matter to humic substances. Some of the less complex compounds produced from this process are also important food sources for some bacteria.

Cellulose Utilisers like *Trichoderma spp* require only minerals and cellulose for growth. These fungi break down plant remains into organic materials that are beneficial to other micro-organisms such as Protozoa.

AQIS Approved Quarantine Site.

Victorian DPI accreditation to receive samples from PIZ and PCN infested zones.

Disclaimer: All results and/or recommendations in this report are made in good faith and are based on past and ongoing research by SWEP Pty Ltd. However, limitations such as the vagaries of climatic conditions mean that we cannot guarantee production of any crop by the use of this test and associated recommendations, and cannot be held responsible for any results obtained.