Microstart Liquid Microbe Agriculture Mix

Typical Analysis

ITEM		RESULT
Basic Measures:		
Electrical Conductivity	EC	1140 µS/cm
Major Nutrients:		
TOTAL NITROGEN	N	742 ppm
TOTAL PHOSPHORUS	P	545 ppm
TOTAL POTASSIUM	K	7020 ppm
TOTAL SULPHUR	S	305 ppm
Total Cations:		
TOTAL CALCIUM	Ca	390 ppm
TOTAL MAGNESIUM	Mg	151 ppm
TOTAL SODIUM	Na	574 ppm
Trace Minerals:		
TOTAL COPPER	Cu	1.6 ppm
TOTAL ZINC	Zn	3.44 ppm
TOTAL IRON	Fe	24.9 ppm
TOTAL MANGANESE	Mn	1.47 ppm
TOTAL COBALT	Co	0.0465 ppm
TOTAL MOLYBDENUM	Mo	< DL
TOTAL BORON	B	1.86
Carbon Content:		
TOTAL ORGANIC MATTER		3.5%
TOTAL ORGANIC CARBON		1.73%
CARBON/NITROGEN RATIO	C/N	23.32
Detection Limit (DL) = 0.0005 ppm		
ppm = parts per million		

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Microbial Analysis

Typical Analysis

ITEM	RESULT (cfu/ml)	% of Total Active Bacteria
ACTIVE LACTIC ACID BACTERIA	41,000,000	99.25%
TOTAL ACTIVE FUNGI	270,000	0.65%
Active Fungi	140,000	
Cellulose Utilisers	270,000	
ACTIVE YEASTS	40,000	0.10%
ACTIVE ACTINOMYCETES	1,000	0.00%
ACTIVE PHOTOSYNTHETIC BACTERIA	100	0.00%
Total Active Population	41,311,100	
cfu/ml = colony forming unit per millilitre of material		

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Notes on Biology Management

(from SWEP Laboratories)

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 *Rhodopseudomonas 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, Torulopis 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.

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