



Soil Foodweb Institute NZ Limited

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PRELIMINARY REPORT

Soil Foodweb Analysis

Fruited Supplies Hastings

PO Box 322
 Hastings, Hawkes Bay 0

Plants: Grapes
 Sample Received: 27/01/2001 Report Sent:
 Invoice Number: 795

Organism Ratios

Sample #	Unique ID	Total Fungal To Total Bacterial Biomass	Active to Total Fungal Biomass	Active to Total Bacterial Biomass	Active Fungal to Active Bacterial Biomass	Plant Available N Supply from Predators (KG/HA)	Root-Feeding Nematode Presence
777	ProspectCF/3305	NR	NR	NR	NR	NR	NR
778	Prospect R 34/50	0.31	0.388	0.27	0.444	50-75	NR
779	Prospect R 60/72	0.13	0.066	0.12	0.074	<25	NR

Too bacterial dominated for Grapes. Will lack disease suppression, nutrient retention ability to build soil structure. Need to improve beneficial fungi to balance bacterial biomass.

Both active and total are low. Diversity is Lacking. Need inoculum of beneficial fungi, and foods to stimulate their growth.

Good ratio, maintain this level while improving

Soil will become more bacterial with time which is not desirable for grapes. balance soil with fungal foods

Low nutrient cycling and availability. Need more protozoa and beneficial nematodes to cycle nutrients. lutrients cycled more by nematodes than protozoa in a perennial system. Add Nematodes.

Desired Range	*(1)	*(2)	*(2)	*(3)	*(4)	*(5)
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- (1) Brassica: 0.2-0.5; Row crops: 0.6 to 1.2; Early successional grass: 0.5-0.75; Late successional grass: 0.8 to 1.5; Berries, shrubs, vines: 2-5;
- (2) Deciduous Trees: 5-10; Conifer: 10-100.
- (2) Warm spring, early summer: 0.25 to 0.95; Early spring, late winter & mid-summer: 0.10 to 0.15; Fall rain: 0.15 to 0.20; Drought/frozen soil/heavy metal/many pesticides: 0.05 or lower. Values greater than indicated mean the organisms are recovering from a negative impact. Values lower mean organisms are not recovering and help is needed, typically addition of their food resource is required.
- (3) Generally 1:1 results in good soil aggregate structure in crop soil; 2 to 5 for deciduous trees; 5 for conifers. Values above 1:1 mean soil pH may be decreasing, values less than 1:1 means pH increasing. Anaerobic conditions generally will result in extremely low soil pH.
- (4) Based on release of N from protozoan and nematode consumption of bacteria and fungi (see Ingham et al. 1985). Often protozoa and nematodes compete for food resources. When one is high, the other may be low. Also, if predator numbers are high, the prey may have low numbers.
- (5) Identification to genus.

Organism Biomass Data

Sample #	Unique ID	Dry Weight of 1 gram Fresh Material	Active Bacterial Biomass (µg/g)	Total Bacterial Biomass (µg/g)	Active Fungal Biomass (µg/g)	Total Fungal Biomass (µg/g)	Hyphal Diameter (µm)	Protozoa Numbers/g	Amoebae	Ciliates	Nematode Numbers	Percent Mycorrhizal Colonization
777	ProspectCF/3305	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	48%
778	Prospect R 34/50	0.89	38.9	142	17.29	44.6	2.5	514	5,150	51	NR	NR
779	Prospect R 60/72	0.92	27.6	230	2.035	30.9	2.5	152	1,514	31	NR	NR

Bold Dry. Excellent. In R 34/50; Low biomass OK Protozoa too low to In good
Means Low Add organic matter to improve soil biology which will build soil structure and increase water holding capacity. desired range. In desired range* Need to build fungal diversity. Row 60/72 Low activity Need to add woody mulch, or 12 to 25 tons/HA or more fungal compost, or 185L/HA fungal compost tea to inoculate the desired beneficial organisms.

(A) Hyphal diameter of 2.0 indicates mostly actinobacteria hyphae. 2.5 indicates community is mainly ascomycete, typical soil fungi for grasslands, diameters of 3.0 or higher indicate community is dominated by highly beneficial fungi, a Basidiomycete community.

Season, moisture, soil and organic matter must be considered in determining optimal foodweb structure.

If sample information, such as pesticide, fertilizer, tillage, irrigation are not included on the submission form, sender's locale is used.

One report is sent to the mailing address on the submission form.

All submissions receive free 15 minute consultation, call 07 823 7520

CF/3309 VAM only.

R 34/50, Soil Type: Loam, low organic matter, 6.2, Irrigated: yes, Plant: Grapes, Trial

R 60/70, Soil Type: Loam, low organic matter, 6.2, Irrigated: yes, Plant: Grapes, Trial

* Active fungi in R 34/50 mostly actino bacteria - not true fungi and may inhibit VAM.