SOIL FOOD WEB ASSESSMENT

ONLY·GOOD·SOIL

Biological Soil Health Services

Client : Steven M.
Sample Name : Raised Garden Bed
Sample Type : Soil
Plant Desired : **Vegetables, Early Successional Grasses**

Sample Collected : 1 Nov 2023
Sample Received : 2 Nov 2023
Observation Date : 2 Nov 2023
Observed By : Jarotsawan L.

Fungi-bacteria biomass ratio (F:B)

0.01
(Very low)

Beneficial Microorganisms :

Beneficial Fungi & Bacteria	Recommended Range	Sample Results	Notes
Fungi (ug/g)	**68 - 225**	**26**	Low: Improvement recommended.
St. Dev. (% of mean)		**34 (131%)**	
Bacteria (ug/g)	**135 - 450**	**2,805**	Good: High bacterial count. Populations appear healthy, active, relatively diverse.
St. Dev. (% of mean)		**756 (27%)**	
Actinobacteria (ug/g)	**10 - 16**	**0.2**	Good: Limited presence.
St. Dev. (% of mean)		**0.1 (50%)**	
F:B Ratio	**0.4:1 0.6:1**	**0.01**	The F:B ratio is low. Increase fungal biomass.

Protozoa	Minimum Value	Sample Results	Notes
Protozoa (Total)	**>10,000**	**55,806**	Good: The number of beneficial protozoa is above the minimum requirement.
St. Dev. (% of mean)		**23,824 (42%)**	
Flagellate (#/g)	**(See Total)**	**35,513**	Strong numbers, but still limited (see high St. Dev. value). Diversity high.
St. Dev. (% of mean)		**29,928 (84%)**	
Amoeba (#/g)	**(See Total)**	**20,293**	Good : Strong numbers
St. Dev. (% of mean)		**15,719 (77%)**	

Nematode	Minimum Value	Sample Results	
Bacterial-feeding (#/g)	**200**	**100**	Low: Observed individuals exhibited same morphology, therefore limited diversity
Fungal-feeding (#/g)	**0**	**0**	Increase recommended
Predatory (#/g)	**0**	**0**	Increase recommended

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Detrimental Microorganisms :

Disease-Causing Fungi	Maximum Value	Sample Results	Notes
Oomycetes (ug/g)	0	2.3	Good: Low numbers.
St. Dev. (% of mean)		4 (174%)	

Anaerobic Protozoa	Maximum Value	Sample Results	Notes
Ciliate (#/g)	0	5,073	Improvement recommended; however, limited presence suggests underlying problems are not significant.
St. Dev. (% of mean)		12,427 (245%)	

Nematodes	Maximum Value	Sample Results	Notes
Root-Feeding Nematode	0	0	Great : None detected.

Additional Comments :

Overall, the fungi to bacteria (F:B) ratio is too low for the succession of plants to be grown. Bacterial predators are sufficiently present and the fungal biomass is at the lower end of the range. Therefore, an increase in fungal biomass is recommended.

The ciliate population is very low compared to the number of beneficial protozoa, indicating mostly aerobic (good) conditions in the soil.

Nutrient cycling is indicated by presence of beneficial nematodes and diverse protozoa. Very few nematodes observed, suggesting populations are still limited.

ONLY-GOOD-SOIL
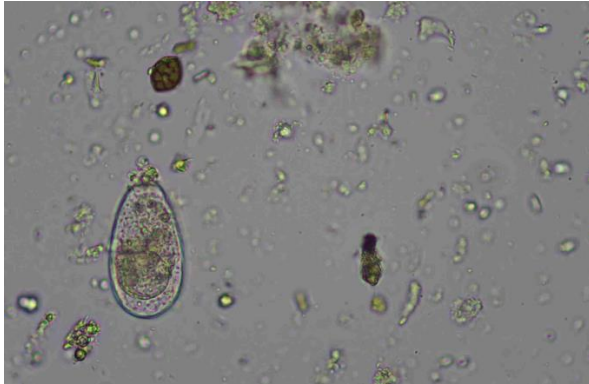
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Testate Amoeba (Beneficial)

Bacterial Feeding Nematode (Beneficial)

Beneficial Fungi

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General Guidelines

Grasses grow best with at least:

- 200 μg beneficial fungi/gram soil

- 300 μg bacteria/gram soil

Grasses grow best in soil containing a fungal-to-bacterial (F:B) biomass ratio of 0.2-1.0. Shorter grasses thrive at lower F:B values; taller grasses thrive at higher values.

Vegetables grow best with at least:

- 200 μg beneficial fungi/gram soil

- 300 μg bacteria/gram soil

Vegetables grow best in soil containing a fungal-to-bacterial (F:B) biomass ratio of 0.3-0.8.

Trees grow best with at least:

- 1,000 μg fungi/gram soil

- 200 μg bacteria/gram soil

Trees grow best in soil containing a F:B ratio of at least 5. Deciduous trees grow well in a wide range of F:B ratios, between 5 and 100.

Protozoa numbers should always be at a minimum of 100,000 active individuals/gram soil.

Beneficial nematodes should total at least 100 active individuals/per gram soil.

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If a Standard Deviation value equals or exceeds its associated population count, that count could be much lower (or much higher) than the value we observed. We employ reasonable methods to reduce the standard deviation, thereby increasing accuracy. However, a high SD value generally reflects low organisms numbers – because, as a population shrinks, its members show up in statistical surveys with decreasing consistency.