Soil Foodweb Inc.
1128 NE 2nd St. Ste 120
Corvallis, OR 97330
Phone: 541-752-5066
FAX 541-752-5142
E-Mail: info@soilfoodweb.com

Soil and Compost Foodweb Analysis

Client: Hendrikus Schraven
Soil Dynamics / EssentialSoil
14461 Tiger Mtn Rd SE
Issaquah, WA 98027

Sample Received: 11/18/99
Plant: grass — Mid-bacterial-dominated plants
Invoice # 1688 — EssentialSoil

Organism Biomass Data

Sample #	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 Flagellates	Protozoa Numbers /g Amoebae	Protozoa Numbers /g Ciliates	Total Nematode Numbers (#/g)	Percent Mycorrhizal Colonization of Root
81618l EssentialSoil Blown Topsoil	0.68 OK	26.6 Excellent!	282 Excellent!	10.6 Good	11 In the past, something was done that killed the fungi. However, good recovery is occurring	2.5 OK	67,286 Excellent numbers of protozoa, good nutrient cycling is occurring which means the grass will manage quite well this winter, and be ready to green up quite nicely next spring when temperatures warm.	84,050	250	9.3 Good numbers, but only bacterial-feeders. Diversity is too low to fully protect roots	35 OK - given total fungal results, VAM were likely negatively affected and just now recovering
Desired Range	Field Capacity	1.0 - 5.0	75 - 100	1.0 - 5.0	50 - 75	(A)	5,000+	5,000+	50 - 100	10 - 20	40%- 80%

(A) Hyphal diameter of 2.0 indicates mostly actinomycete 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, soil moisture, soil type and organic matter level must be considered in determining optimal foodweb structure. If sample information, such as pesticide use, fertilizer use, tillage, irrigation, etc., are not included on the submission form, we assume local conditions based on client's address. One report is sent to the mailing address on the submission form.

Organism Ratios

Sample #	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 (lbs/ac)	Root-Feeding Nematode Presence	Leaf Organism Assay	
							Percent Leaf Surface Covered by:	
							Bacteria	Fungi
81618 Nelson Blown Topsoil	0.04 Very bacterial, because total fungi are killed previously, and just now recovering	0.98 Fungi are recovering, so almost all the fungi present are growing very rapidly	0.09 OK	0.40 Bacteria are growing better than fungi, but this is the desired situation for grass	350 - 400 Excellent nutrient cycling	None detected But diversity is too low to protect roots if root-feeders "come calling" Need beneficial nematode inoculum	NR	NR
Desired Range	(1)	(2)	(2)	(3)	(4)	(5)	(6)	(6)

(1) Brassica: 0.2-0.5; Row crops, Grass:0.5-1.5; Berries, Shrubs, grape: 2-5; Deciduous Trees: 5-10; Conifer: 10-100.

(2) Warm spring, early summer: 0.25 +; Early spring, late winter & mid-summer: 0.10 to 0.15; Fall rain: 0.15 to 0.20; Drought/Frozen: 0.05 or lower. Values greater than appropriate for season means recovery from disturbance. Value lower means disturbance killed organisms and recovery is not occurring.

(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.

(4) Based on release of N from protozoan and nematode consumption of bacteria and fungi. 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. For species identification of root-feeders, send samples to local parasitic nematology lab.

(6) While this assay is still being developed, we have found 70 to 80% coverage (sum of both bacterial and fungal coverage) reduces disease significantly.