

June/July 2006 SFI E-Zine

Please excuse the lag in me getting these out! My time is getting taken by groups of people hiring me to help them with their specific projects. The up-coming year for me is nearly filled up, so if you want to have me come and work with you or your group to get programs started, you need to get your dibs on my time ASAP.

CONTENTS

1. **Meetings**
 - a. Sustainable Studies Workshops Nov 13-18 and Feb 4-9
 - b.
 2. **Notes from Elaine**
 - a. Threshold levels of fungi and bacteria
 - b. Water quality and tea
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1.a. Sustainable Studies Workshops on the Soil Foodweb

November 13-18: Core Workshops and Microscope Class in Corvallis, Oregon

The November workshops are starting to fill up, so get your registration form from:
http://soilfoodweb.com/04_news/calendar.htm

February 4-9: Core Workshops and Microscope Class in Corvallis, Oregon

If November's dates won't fit your schedule, we hope these dates in February will serve. Registration forms for this set of workshops will be made available as soon as possible.

1.b. There is no 1.b.

2. Notes from Elaine

It has been very busy for me. New discoveries left and right! I'm going to try to just briefly outline the new things we've been finding all over the world. I have to incorporate these into the upcoming Compost Book, and update the Compost Tea Brewing Manual too!

I know there will be people who will criticize me for making changes in anything I have written, but let's get real. Life is not a static condition, and I don't ever plan on "standing on my laurels". That seems a boring place to stand.

Be warned: There will be an update to any book I write. I will never stop learning new things.

Topic 1. Threshold levels of F:B are 300:300

Again and again as I went around the world this year, I have seen that it is critical to reach 300 micrograms of total fungal biomass, and 300 micrograms to total bacterial biomass in order to be able to expect that the disease suppression and weed control aspects of a healthy food web begin to occur. In order that nutrient cycling can begin to function normally again, the food for the cyclers has to be present at an adequate level as well. If you are below 300 µg Total Fungal biomass and 300 µg Total Bacterial biomass, that next step just can't be achieved, apparently.

Bart Davidson from Australia is showing some very interesting data on how critical that threshold level is in getting organic matter increases, in getting nitrogen availability to be sustained at the needed levels for plants. Thus, Bart is showing that needed levels in soils in Australia are similar to what we see in the US.

This is the kind of data that is needed around the world to establish what these minimum desired levels are. The SFI reports typically show an expected range, based on a healthy food web. Sometimes these total values may be lower in the real world as adequate numbers of protozoa, nematodes and microarthropods are established, because as the bacteria and fungi are eaten by their predators, their biomass levels will be reduced.

But, as a threshold as the soil begins to recover, these threshold values are being observed, again and again, as a critical level that must FIRST be reached. Now, get to work on the protozoa! Then the nematodes, and the microarthropods!

Topic 2. Water Quality and tea

Water quality continues to prove to be a very difficult issue. If you just can't seem to make good tea, please consider that the water you are getting could be just terrible.

Check EC, or electrical conductivity. 200 to 300 microSiemens per cm squared is a good range for water. Anything higher is getting too salty. Please look out for units on that value. milliSiemens is different from microSiemens, by a factor of 1000 times higher when dealing with milli- as compared to micro-

Recently someone on the list serve suggested using their BRITA filter for exiting the bad things in tap or well water. A bit spendy, but, well, isn't your health worth it?

However, the same person then proceeded to add manure to their "compost tea", which immediately converts that liquid into a MANURE tea, not a compost tea.

You can get some nitrogen, some P, some S and other nutrients from manure, but consider the form of those nutrients. On many occasions, if the manure is anaerobic, those forms may be toxic to your plants. Or in extremely high concentrations (salt problem!!!!). And often you will get pathogens, weed seed and other unpleasant critters from manure.

To make certain the negatives of manure are dealt with, you make compost, which is BY DEFINITION, an aerobic process.

Compost DOES NOT STINK. Manure can stink. Doesn't have to stink, but if it does, it has gone anaerobic, and the potential for disease, weed seed and other problems exists.

If you put manure on a healthy soil, the pathogens don't survive for long. If you put manure on a poor soil, the pathogens may grow and increase.

I asked the person if their soil is healthy, and their response was that they had good critters in their soil, but then proceeded to tell me that they had just recently had to de-thatch their soil.

So, here's my response to that:

I am trying my best not to make it sound like I blame anyone for the condition their soils are in. It isn't your fault, you have been following the best advice you knew. So, please, don't feel like I'm being fault-finding, or that I'm lecturing you about "you should have known better". None of us knew better. I have put out inorganic fertilizers and pesticides. And then was appalled at how much more disease and weeds and pests I got.

Then I started to figure out what was really going on. I share that information with people, but I don't ever mean to be blaming or negative. We need to move forward, and not worry too much about the things we've done in the past, which we thought were the right thing to do at that time.

We are all growing, mentally, physically, and just getting better.

So, please, don't get defensive when I try to point out, in an interesting way, what I think you need to learn. I learn things from you too, so we are working on this together, not "Me teacher, you student".

The thatch build-up says you lack the proper fungal biomass in the soil to decompose the dead grass crowns and stems. So, your soil does not have a good set of organisms.

Nature is trying to send you a message. Your lawn can't speak to you in words, so "nature" conveys the information by altering the system, and bringing pests, disease and weeds to remove the plants being stressed by the conditions that are developing in your lawn.

As much as you might consider that you have a good set of critters in your soil, things are not right in your lawn if thatch is building up. You need to get the organism diversity, of which the fungal biomass is a PART, back into your soil.

If you have "left-over" inorganic fertilizers in your garage, use them up slowly. Use less than a handful of those chemical fertilizers over your lawn with each application of water. Don't care if the water is your sprinkler or it is rainfall, you have to let one application of salts move into the soil solution before you apply the next increment of salt.

Yes, all inorganic fertilizers are salts. You are killing beneficial organisms if you use more than 100 pounds of inorganic fertilizer PER ACRE. That means, a handful on a typical suburban lawn, per application, and with at least one good water soaking between applications.

In the future, add nitrogen by getting vetch, clover, or other legumes growing in your lawn. Does that mean getting away from the pure ryegrass or bent lawn? Yes. We need to change people's "commercially- induced" concept of a pretty lawn. There is no decent meadow in the world that has only one species of plant in it. When did we get that concept that our lawns need to be a pure stand of one grass?

Maybe you need to add nitrogen NOW, so add an ORGANIC form of N such as fish hydrolysate.

Let's talk fish for a minute then. Fish fertilizers should NOT stink. If you open the bottle and it stinks, well, next time think about how that fish was stored before you got it. If the bottle gets hot in shipping, or gets hot while in the warehouse, it basically "cooks", and the oils start to separate from the proteins. This means the oils and proteins are no longer in the form needed to feed the fungi.

But, that fish still has nitrogen in it, and you can get an N response from using it. But the smell may drive you crazy until the bacteria in your soil get to work on those denatured proteins. May take some time. Using the fish in a compost tea is one way to hurry along the process of removing the stink, but even that depends on how bad the fish got.

Manure can contain a lot of N, but please pay attention to the smell. If you smell stink, the manure is losing its nitrogen as a gas. If a lot of the N has been lost, then you aren't adding adequate N with the manure and the biology you may be adding in could be really bad.

Compost that is fully aerobic is the best way to add N, P, S, Ca, Fe, and all the rest back into your soil, along with the biology that will do the nutrient cycling to make those nutrients available back to the plants ASAP. If spreading a solid seems a lot of work, turn it into a liquid form, by making compost tea.

Usually, about 5 applications of compost tea at two 20 gal/ac applications and three 5 gal/ac applications, usually equals one application of compost at 1 ton/ac. That equality is based on some standard conditions in the pile and in tea production, so that is a huge generality, but at least gives you some understanding of what can be replaced by other things.

Well, enough for now! Hope I didn't confuse everyone too much!