

November 2004 SFI E-zine

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CONGRADULATIONS!!!!

Jimmy Mucha: Taylor, Texas SFI Corvallis winner of a total Foodweb testing for bringing in the 100,000th sample.

New Publication

The Overstory Book: Cultivating Connections with Trees
2nd Edition, Craig R. Elevation, Editor

Note to the Reader: Whether in a small backyard or a larger farm or forest, trees are vital to the web of life. Protecting and planting trees can restore wildlife habitat, heal degraded land, conserve soil, protect watersheds, diversify farm or garden products, beautify landscapes, and enhance the economic and ecological viability of land use systems. Careful planning and sound information is needed to reach these goals.

The Overstory Book, 2nd Edition distills essential information about working with trees into 127 concise, easy-to-read, single-subject chapters.

To order contact <http://www.agroforestry.net/overstory/ovbook.html> also available on CD.

Upcoming Events

2004 Acres U.S.A. Conference Details Now Available

This year's conference, "Food as Medicine, Farm as Healer," takes place Dec. 9-11, 2004 in Minneapolis, Minnesota. Pre-conference intensive study sessions will be held the prior days. Learn how to manage your farm for production of maximum crop/livestock nutrition, how to tap into growing consumer demand for truly healthy food and market to quality-conscious consumers, and find that missing profitability — and fun — in farming!

Acres U.S.A. Conference — Dec. 9-11, 2004 — Minneapolis, Minnesota

[ONLINE INFORMATION](#)

[Complete agenda](#)

[Conference registration information](#)

[Hotel reservations/flight discounts](#)

In-depth pre-conference schools —

[Improving Soil & Foliar Foodwebs](#), Arden Andersen/Elaine Ingham

[Traditional Foods Workshop](#), Sally Fallon

[Managing Subtle Energies on the Farm](#), Benson, Karbowski, Shepard, Tanio, Wheeler

December 3, 2004

Light Microscope Class-SFI Corvallis (only 6 spaces left)

This class will give you the ability to assess your own compost teas. Discover the difference between fungal hyphae and organic matter; recognize bacteria, protozoa and nematodes.

8-Noon- classroom instruction

1-5 pm- Practical application

Cost: \$200 per person (limit 10) all supplies will be provided in the class as part of the fee, as well as the new Microscope Manual, microscopes are an additional cost. Two scopes have been recommended by Dr. Ingham. Alexis J-model \$400.00 or Leica CME-\$1200.00 (includes case).

If you want to bring your own scope please contact us at the lab to discuss the specific requirements and be prepared to “upgrade” if necessary.

To register contact Twila or Matt at (541) 752-5066 or email info@soilfoodweb.com

December 15, 2004

Neighborhood Network presents

Sixth Annual Fall Organic Turf Trade Show

Smithtown Sheraton

Smithtown, NY

Contact: Beth Fiteni, Organics Program Director

516-541-4321 to be sent registration materials

1 TEXAS TEA-OFF RESULTS

We had a great time at the Texas Tea-Off, sponsored by the Texas Organic Farmers and Growers Association, and organized by Steve Bridges, President of TOFGA.

All the tea brewers gathered, and were given their compost. The compost used in all the brewers was the same. The recipe of food materials added was the normal additions for the machine, so that varied between machines.

Sabino Cortez's Compost Cyclone Extracter, the EPM 22 gal machine, the KIS 28 gal, two sizes of Bob-O-Lators, the Betsy Ross version of the Bob-O-Later and the Worm Gold machine were going by mid-day.

It was un-seasonably warm in Texas in mid-October this year. The temperatures remained over 90 F nearly all night, and started climbing again by mid-day of the second day. Samples for assessing using the Qualitative Assay developed by SFI were taken in the late morning, and Dr. Elaine Ingham did the assessments. Designated tea-takers brought samples to her in bottles marked only with a code, so there was no bias in the testing assessment.

The data were displayed as the assessments were done – low, good or excellent levels of bacteria? How many fields contained fungal hyphae, and were they wide or small diameter? Were protozoa seen, and were they flagellates, amoebae or ciliates?

At noon, the “winner” was announced. ALL the tea brewers had made decent tea! The Worm Gold Tea maker had produced tea with excellent bacterial numbers, wide diversity fungal biomass in every field, and high numbers of flagellates in each field. The KIS brewer came in second, with excellent numbers of bacteria, fungal hyphae of good diameter in every other field of view, and good numbers of flagellates and a few ciliates observed in nearly every field, the EPM machine, the Bob-O-Lators, and Sabino Cortez's machine had good numbers of bacteria, good diameter fungi present in every 5 fields observed, but protozoa were low in number.

Sabino Cortez ran his machine again to do just extraction, instead of brewing overnight (and in that heat, the extract sitting overnight with no aeration may not be a good idea), but his compost probably has been harmed by the high heat while sitting in the back of his truck, so the extract had only bacteria, no fungi or protozoa. Still, the cyclone pulls out of the compost the organisms that are there. Compost quality is critical when using these machines.

The heat was a real factor in this Tea Off. The tea in the EPM machine heated to above 100 F, and the KIS machine got pretty hot too. The Worm Gold machine is very well insulated, and that was likely an important factor in this machine giving the high biomass levels of excellent diameter fungi.

But still, every tea brewer that participated should get a pat on the back – all the machines made good tea. All the machines had biology that if sprayed out on leaf surfaces would have been able to give protection of the leaf surfaces.

There was only one thing that produced a note of discord at this Tea Off. The rules were that only the compost supplied by the organizer could be used, but one of the participants added pond water to their brewer, and “extra” compost to another person’s tea brewer. To make the “contest” fair, the same amount of pond water, containing flagellates and bacteria, should have been added to all the tea brewers. And as Steve Bridges, the meeting organizer and President of TOFGA, pointed out, the point of this Tea-Off was not a “contest” to prove who makes better tea, but a comparison of the tea makers – which one does a better job of making tea, given all conditions the same.

In future “Tea-Offs”, this needs to be made clear to participants. The only biology that can be added is that in the compost, which the organizer supplies. The amount of compost needed by the brewer will be supplied, but no other living organisms or inoculum, can be added without adding them to all the machines. Whatever food resources the tea brewer usually requires can be used, at the start of the brewing period, but then no further access to the machines can be allowed.

Official tea-collectors took tea uniformly from each machine. The teas need to be brought in coded containers to the assessor running the microscope, and that person needs to assess the teas without knowing which machine made which tea. Results should be recorded for everyone to see, and then the code revealed, and the results posted.

In this case, all the brewers were winners. Steve Bridges still hasn’t revealed what each brewer that got an “Excellent” rating will receive, but most likely a free-SFI test. So stay tuned to find out what the prize will be!!!!

2 ICTC Meeting in New York

Just back from the ICTC meeting sponsored by ICTC (Nov 7, 2004), and put on by James Sottilo and Treewise in New York. The program was out-standing, as revealed by the comments made by those who filled out their evaluations. Out of just over 100 attendees, perhaps 30 evaluations were turned in, and 28 indicated that the meeting rated 5 out of a total scale of 5. One person rated the meeting a 4.5, because there wasn’t organic food, and another person wanted less “preaching” by the speakers.

I may have been to blame – I told the participants that they needed to get out and spread the word to everyone about the benefits possible when the full food web gets re-established in the soil, and that compost tea is a really easy way to get those organisms back.

Nearly everyone else commented on the great diversity of speakers, from the scientific to the practical. One person wanted more science, but several participants said their heads were spinning from all the scientific data presented. Most participants also said that they wanted to have two days, instead of just one, and some practical hands-on demos would have been nice. So, possibly a Tea – Off next spring?

The meeting was held at the Planting Fields Arboretum on Long Island, and a better facility would be hard to find. The reception the evening before the meeting was in Coe Manor, a magnificent Elizabethan-style house built by the Coe family and donated to the State for the Arboretum. The Horticulture Center, also at the Arboretum, was perfect size for this meeting of about 100 participants.

The speakers stayed in another estate manor house near the conference site. Jeff Frank of the Lyceum started the conference, after opening welcome by James Sottilo, the organizer of the meeting. Elaine Ingham spoke about compost tea, then Hendrikus Schraven spoke about large scale installation projects, and then Charlie Clarke, a golf course superintendent, talked about the great results he has gotten over the last 5 years. He always tests his materials; understand the importance of doing that testing, in order to know that the biology is getting out on the plants. Even dollar spot is decently under control in his golf course.

But the most fascinating talk was given by T. Fleisher, from Battery Park City Parks Conservancy. He showed the devastation from the destruction of the World Trade Center on the 92 acres of Battery Park City immediately west and south of the where the towers stood. Recovery in the park has been through use of compost and compost tea. T also showed many new projects near completion in the Park and how they too benefited by the use of aerated compost tea and compost. The Irish Hunger Memorial and Tear-Drop Park were examples that this riveting speaker discussed.

Brad Bush, from Helena Chemical Company, spoke about how biological approaches are joining chemical approaches because of price of the materials as well as environmental damages that are accruing. He gave some very interesting statistics about the economic reality of the chemical versus biological approach.

Quite a number of private companies had booths at this meeting – from Pogo Organics in Maryland, to Organic Gem, Turf-Pro, Soil Foodweb Inc., New York, Plant Health Care, Orner Compost, AT sales, Rootwise, the Neighborhood Network and others...

Most attendees asked that the ICTC meeting occur twice a year, so hopefully, if the ICTC will support the meeting, this will hopefully happen again!

One of the extremely enjoyable parts of the weekend was being able to take a few deep breaths, relax and have a ton of fun with the many people who attended and spoke at the conference.

But we all need to give full credit to James Sottilo for putting this meeting together. Without him, this would never have happened, so please, everyone give credit where credit is due on this effort! Thank you, James!

3 SOILACE in Spain

Matt Slaughter, Vice President of Soil Foodweb Inc, attended the SOILACE, First International Conference on Soil and Compost Eco-Biology, sponsored by BioMasse Peninsular and the University of Leon, Sept 15 to 17, 2004, in Leon, Spain.

There were many verbal presentations and posters during the conference, with people from all over Europe. Jaques Fuchs, with the Research Institute of Organic Agriculture, a Bio-dynamic, Bio-organic and conventional group, talked about their 21-year old trials using compost as the main amendment of the trials. They have been phenomenally successful growing crops that conventional wisdom would say is impossible.

Godert Van Lynden with the International Soil Reference Information Center in the Netherlands showed results from mapping soils all over the planet. He became excited about the potential of compost for helping with chemical problems in soils, and how the biology functions to bring improvement about. He saw the need for understanding the biology in soil, and that we need to add biological information into the mapping program.

The meeting concentrated on regulatory issues with compost, from heavy metals to pathogens and the book due out will have many references summarizing these problems.

Dr. Steve Scheuerell gave a talk on use and application of compost tea which generated a great deal of interest. Dr. Janice Thies spoke about DNA methods for identification of organisms. Clearly there is a great deal more than needs to be done to make these approaches commercially practical, but advances are also clearly occurring.

Matt Slaughter gave his talk on the second day, and because of the brilliant lead-in by Steve Scheuerell, could concentrate on results about compost and compost tea applications. Unfortunately, changes in dates of this meeting meant a conflict for Elaine, who was already scheduled to give a course at Southern Cross University in Australia at this same time. Matt's talk combined marketing and benefits of compost and compost tea use with the science of making good compost. Again, Elaine's paper will appear in the book from the meeting.

SFI will carry copies of the book for sale as soon as the book is published. We'll take pre-orders once we know the price.

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4 Review of golf experiences from the New York lab

Soil Foodweb NY is currently working with about 12 golf courses in the northeastern United States and a few in the mid-atlantic region. Typically, we are seeing very good improvements in soil biology within the first few months, and a noticeable difference in turf health within the first couple of tea applications.

Some of the definitive results that the courses have seen are reduced root-feeding nematodes and increased beneficial nematodes. Increases in the resident population of mycorrhizal fungi in some cases have been as high as 400% within the same season. Reduced usage of fungicides, herbicides, insecticides and fertilizer have been observed in all courses that have followed soil foodweb programs.

Fungicide and fertilizer applications are typically reduced at least 25% in the first season, but some courses have seen reductions above 50%. Courses that are in the second season (or beyond) on the program have all seen continued reductions of fertilizers and pesticides. One of the major benefits most superintendents have shared with us is that they have much more time to respond after the onset of disease or other problems since the turf is in better health. That feeling of being one dead green away from losing your job isn't such a large concern. Please call if you have any questions.

Best wishes,
Paul Wagner
soilfoodwebny@aol.com

5 Soil Chemistry Testing through SFI

Soil Foodweb New York is now offering REAMS (soluble nutrients) and CEC (exchangeable nutrients) soil chemistry testing. The testing includes typical analysis of macro and micro-nutrients, plus percent organic matter (by combustion), moisture content, electrical conductivity, pH and buffer pH. Recommendations are provided for organic soil management. For more details, please talk to Paul Wagner at the SFI – New York lab.

Submission forms will be available on the website in the next week or so.

SFI labs in the United States will hopefully add the ability to do total extractable nutrient testing of soil, compost or compost tea in the near future as well.

Information on exactly which tests are used, plus information on how other chemistry lab testing methods compare to the methods chosen by SFI will be available. The recent work with Graham Lancaster at Southern Cross University in Lismore, NSW, Australia points to how important it is to understand the form of nutrients in the soil, as well as knowing whether you have the biology present to do the nutrients.

6 Grower Experiences

A. Using mineral amendments in compost

From: David Cox

I appreciated the efficiency of the tea assay you provided & the follow-up consultation was informative. However, as is to be expected, I have more questions. I'm going to submit two vermicompost samples for comparison of total fungi in about a week, but I'm looking toward starting a tea application business to complement my composting operation. What about the use of ground oyster shell for my worms; or

wheat bran; or granite dust (or how about Mt. St. Helens ash)? When could these be added -- to either the compost or the tea -- & in what ratios? I'm planning to purchase a 100 gal. EPM brewer, but I'm also looking for help in marketing the tea to growers, turf managers, etc. Can you help with that? The "Orchards & Vineyards" CD was very informative, but disappointing as a "sales tool." Thanks ever so much!

David Cox, Soil Builders, Inc.

Dear Mr. Cox:

Wheat bran should be no problem. It is a good nutritious food for the worms, and may assist fungal growth in the brewer when added to the tea.

The mineral products could potentially harm the worms, due to their abrasiveness and/ or their hydrophilic properties which may dehydrate the worms. Such products should only be combined with the other worm foods at around 0.01%. More could be used if they were incorporated into the starting materials of thermal compost, which is fed to the worms after reaching maturity. Small amounts may be added to the tea (they won't dissolve very well) but the best application would be to use them as a ground dressing (preferably combined with finished worm castings) and water them in with the tea. This will probably give the best slow, continuous release of plant-available nutrients.

As for marketing, we offer the "great results" and "quality assurance" programs where, if your product tests well, we post the data on our website and you are welcome to cite it in your advertising. Mostly it's a matter of identifying your target market, and promoting the benefits of your tea and compost to those growers.

Yours truly,
Brian Pearson

B. Which brewer is best? And local compost...

From: Jeroen Havelaar

Hello!

I am the Arboriculture Supervisor in Prospect Park (Brooklyn, NYC) and I am looking into starting a soil food web program for our trees. I am writing hoping to get some un-biased professional input. I have been looking into several brewers, but a lot of them are really too much for my designated budget. I did find two products that caught my attention.

1. Alaskagiant: I actually talked to John Evans, who runs Alaskagiant and I was most impressed with his site and brewer.

2. The Bobolator this seems to be a more expensive but yet, still, affordable brewer. My main concern is the quality of the tea. Is there any difference between these "built it yourself" brewers and the more industrial (overpriced) brewers other companies offer? Which brewer from the above would you recommend?

In addition our soil Expert Richard Kruzansky came up with an interesting question. Does the origin of the compost being used matter? Is it better to use local compost since the organisms will be more adapted to the local climate or does the origin of the compost not matter? Is it more about quality? Also we will have some room for research within the park. If you have anything you would like researched, we might be able to help out. Please let me know.

I understand you have a brewing manual for sale. I would like to make that purchase, so could you please send it to the address provided below with your invoice.

I am looking forward to your reply.

Kind Regards,
Jeroen Havelaar
Arboriculture Supervisor
Prospect Park Alliance

Dear Mr. Havelaar:

We have seen excellent teas from both of these brewers. Another option which may be available locally is the Sotillo/ Clarke machine. I don't have up-to-date contact info on this one, but Paul Wagner at our New York lab should know where to get them, what they cost, etc. They used to come in 5, 35, and 85 gallon sizes.

Mr. Kruzansky is absolutely right about wanting local microbial strains in the compost. Chances are these will self-inoculate because airborne fungal and bacterial spores are everywhere, but to be sure it is good to add a few shovelfuls of HEALTHY local soil (not chemically treated, and where the desired plants are thriving) to the starting materials. We have previously worked with the landscape dept. at Battery Park in Manhattan, helping them establish compost and tea based management program. Perhaps you may wish to contact them for some pointers.

And please do get in touch with Paul at our NY lab. He is very knowledgeable and should be able to help you establish a management and testing regimen. He may also have some research projects he could work with you on.

Yours truly,
Brian Pearson

C. Control of Mildew and Botrytis in Grape

I just got off the phone to a friend who used compost tea produced by ourselves in 2003 on his grape vines.

He has had the wine made into preservative free wine using native yeasts and says the quality has been outstanding and is very excited about the future for his wine production. I will be able to taste the wine soon.

This was from grapes where compost tea only, was used to reduce Powdery and Botrytis. It has been a very successful venture for him even though it did not seem to be all that promising at harvest due to split fruit from hail resulting in some Botrytis. This has been a resounding win for compost tea!! Thanks to you all and Doc Elaine particularly.

Regards Mike Harvey
<http://www.newlivesoils.com/>

D. Adding info about mildew

I just wanted to add my \$.02 in on the powdery mildew conversation.

For about 7 years now we have had the largest grower of hops in Yakima, WA using our fish hydrolysate, Organic Gem, to control powdery mildew. He does three applications a year at 3 gallons of Gem per acre. He puts this out foliar with the Gem diluted at 30:1 with water. He has about 3,000 acres of hops.

Four years ago he convinced the manager of the 1,7000 acre Budweiser factory hop farm to do the same thing. That manager told me that the first year he used Gem gave him the greenest crop he had seen in his 20 years of running the farm. Since the first year, they have slowly backed off of doing their regular spraying for Powdery mildew. They are down to once a year. The Yakima grower will only do a chemical spray if he sees a need for it. The Budweiser grower feels that that may be too late, and corporate makes him do at least one spray.

Until we met Elaine, we didn't know why this was working. The oil in the Gem works as not only a sticker for the leaf surface, but also as a fungal feed. They are getting explosive fungal growth on the leaf surface from the fish, thus out-competing the powdery mildew. Thankfully, there was enough fungal diversity there to work with in the first place.

I don't have the data, only their testimonials and the fact that they buy a combined 9 truckloads a year of Gem.

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E. More on mildew

Hi Folks,

I'm sorry for the delay but as promised following are the results of the attempt to stop and shrink a powdery mildew (pm) infection with foliar applications of aerated compost tea. This was not a scientifically run trial and observations are anecdotal. The results were not as profound as previously observed on occasion. There are several potential variables, one being the age of the worm castings used. The castings were harvested about 5 months ago. The pm was, however, put into 90% remission through daily applications over a period of 7 days. The tea (2 batches) was brewed for 48 hours with a water pump, venturi and bag extractor. The temperature ranged from 65 to 88 degrees. The ingredients; 100 liters of spring (well) water, 1 liter of black strap molasses, 65 ml of fish hydrolysate; IN BAG > 5 liters worm castings, 250 ml of Norwegian kelp meal, 65 ml of rock phosphate granules, 65 ml of pyrophillite clay powder.

Cheers, Titel

F. Daylilies

I was asked about how my daylilies were responding to compost tea. I think I mentioned a couple of years ago that 50 gallons of undiluted CT was able to suppress the development rust spores on a majority of the 250 different varieties I grew in an acre trial plot . This plot of intensively grown plants was sprayed at full moon over an 11 month period.

The other 6 acres were given 150 gallons through the irrigation system (in approx 5000 gallons of water). The trial ceased at the end of 2002 and now the trial plot is treated the same as the rest of the farm and rust has returned.

This rust (*Hemerocallis puccinia*) is a particularly nasty one and can make quite a mess of the leaves on some varieties that have very little resistance. Most of the varieties that become badly affected in spring are tetraploids whereas the diploid varieties are much more resistant. On my farm daylily rust doesn't appear to affect the growth of plants although when the disease arrived in Nov.2001, 3 varieties lost all their foliage for 3 to 4 months. This doesn't happen now.

Since the beginning of 2003, 7 acres were fertigated monthly with 200 gallons of CT (plus nutrients added just prior to dispersal - kelp, fish, humic acid, micronised lime) via overhead sprinklers and these foliar applications are the sole source of nutrition for these plants. It's now 4 years since I side-dressed the daylilies in the stockbeds with the specially blended organic fertilizer I used to use.

CT has enabled me to make big savings each year - possibly in the vicinity of \$2000 counting wages.

I have to admit that after all these years I'm still in awe of the amazing affects of CT - particularly now because I'm DOING IT ALL WRONG and have been doing it like this since early this year. To enable me to quickly apply 200 gallons of CT in 5000 gallons of water to 6 acres (down from 7) I've designed a system for the tea to be sucked into the irrigation system BEFORE the inlet of the huge pump (puts out 4000 gallons an hour). For three years prior to that, I had a venturi system 2 meters from the outlet but that was far too slow (and inconvenient) for me when circumstances changed.

According to the experts, fertigating the new way would mean that huge numbers of fungi and other poor microbes would be annihilated/shredded/killed wouldn't they? BUT some of them must be surviving this treatment and continuing to provide nutrients and benefits to the plants. We certainly haven't had perfect weather - we've had the driest 6 months on record and yet plant growth hasn't been affected.

If I had the time and \$\$\$'s and if Elaine's Lab. was just down the road, I'd take samples from the sprinklers and find out what survived. In the meantime I'll continue what I'm doing until

Scott Alexander Guys:

G.Peterson on Compost Tea And Turf

I submitted a report for the City of San Luis Obispo and if you want a copy, email me and I will send one again. I have proven that using compost tea to increase root depth and mass by revitalizing the soil structure through the work of aerobic bacteria and fungi, water savings up to 25% can be realized. In addition, yearly or semiyearly applications of chemical fertilizer can be eliminated with no detrimental effect to the turf. A water management plan is important and most cities use some form of irrigation program that uses temperature variants and evapotranspiration to determine water usage.

Most traditional turf management program effectively manage turf to a depth of 4 inches. These programs are very good but limited by the turf management paradigm being used. When you use compost tea with or without VAM, turf root zones increase and more of the root is available for feeding. A simple thought experiment will show you what this means:

The top approximately 1/3 of the root feeds the rest also feeds but lower root is mostly involved with water acquisition. If your root is 4 inches deep, it means that the top 1.5 inches of the root is available for feeding. If you can get the root down to between 8 and 12 inches, you expand the root feeding zone to 2 to 4 inches and have more root extracting water from deeper in the soil. There is a limit here though because under about 18 inches, there is very little O₂ in the soil so the bacteria you need for feeding don't live there. However, root depth can successfully go into the zone below 18 inches because the plant can access water down there.

So what you need to do with a water maintenance program is get the water deeper without applying so much that the water is lost through surface pooling evaporation and run off. Actually run off can be successfully used in your water management program so that water that would be applied to areas that receive run off can be significantly reduced.

I developed a computer model of two projects I have done like this. The report covers the first park. The computer model was developed using that data and tested on the second park with complete success. The outside time it takes to convert a large turf area to a completely chemical free environment is about three years. (By the way, most parks are used by families with young children. When these people find out that the park is chemical free, park usage increases dramatically. It's great PR for any park maintenance staff.)

Ted Peterson
EW/SOE