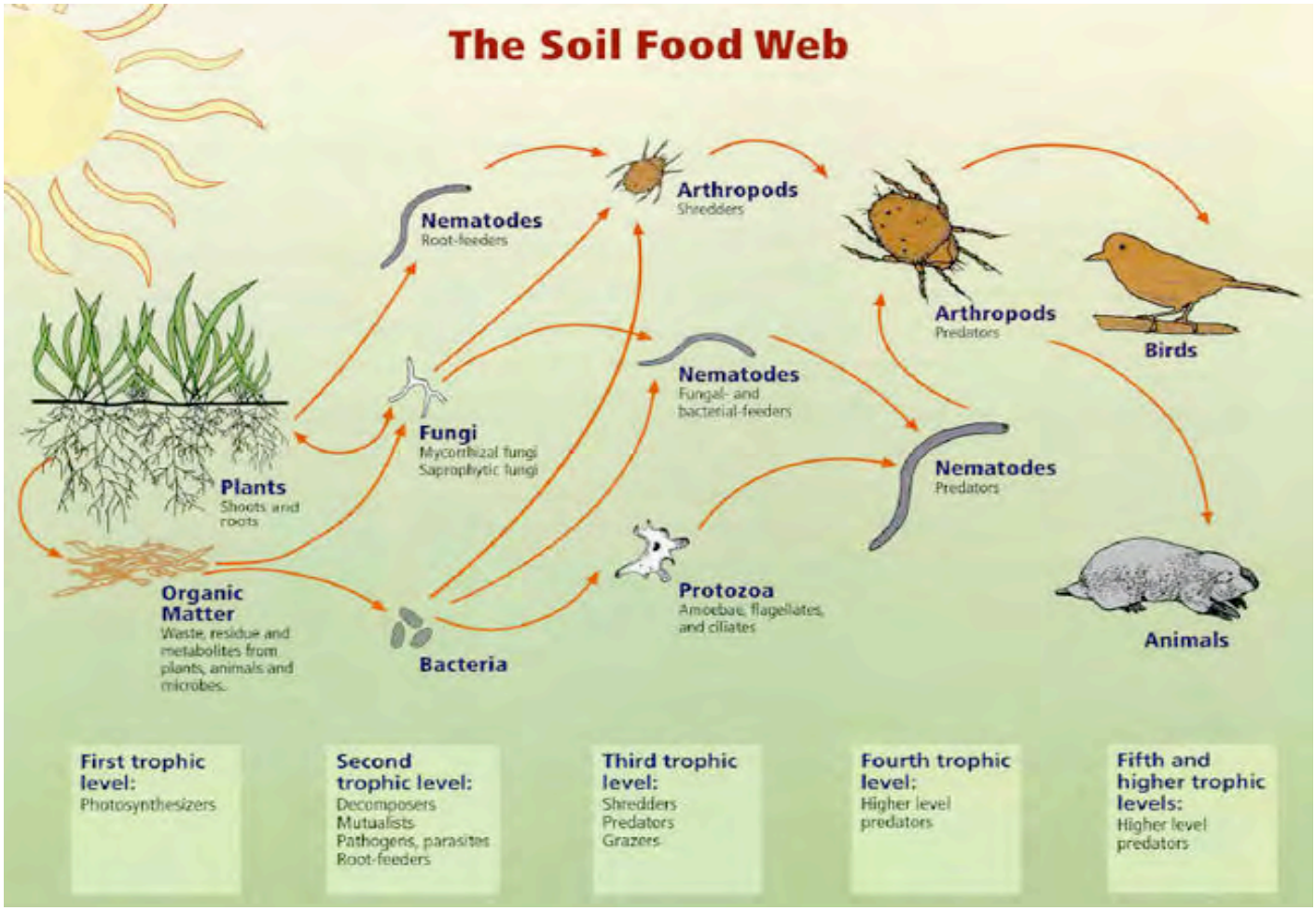
Organic Gardening with Easy Tea

Compost tea increases the biodiversity of the soil by providing fertilization along with beneficial bacteria, fungus and protozoa. As the Figure below demonstrates, the biology of the soil is dependent on the microbial populations. These microbes are dependant on organic matter and minerals just like plants. Compost tea also adds minerals and carbon sources. Regular applications of compost tea will increase soil fertility, improves soil structure, and stimulate plant health. It is safe to use on all types of plants and safe to use around pets and kids.



Compost tea increases compost activity, productivity and helps stretch it farther. By replacing chemical fertilizers with compost tea the garden becomes naturally balanced and safer for the environment.

The following is by means the only way to make good tea. This is not meant to be comprehensive yet a good primer and intro into making tea. If you really want to take tea making to the next level a good microscope (with 400x capabilities) and a dissolved oxygen (DO) meter are recommended. There are many resources around the internet, books and classes available that talk about different recipes (fungal dominant, bacterial dominant and "balanced") and different teas for different types of plants. If you maintain dissolved oxygen over 6 ppm, use good compost and some of the typical microbe stimulating/food ingredients you will make good tea.

Pre-Planning and Materials:

- 5-gallon bucket or trash can.
- Something to hold the compost (paint strainer bag or a filter bag larger than 400 micron)
- Pump (water pump rated for 50-200 gallons per hour AND/OR air pump rated for 20-150 gallon capacity) The bigger the better!
- 3 ft of airline and diffusers if using air pump (gang-valve optional) /tubing "hook" if water pump is used.
- Plan to make your tea 18-48 hours before you intend to apply the material.

Above: Using air pump for 2 hours

Below: Using water pump (pond pump) with splash back for 2 hours

Note: the major difference in activity (froth bubbles) between the air pump and splash back from the water pump in the two pictures. ****The pump will increase the temperature of the tea so keep this in mind regarding dissolved oxygen content. May be possible to locate the pump outside of the tea with the right plumbing.

Bare bones compost tea (Old Style):

Per 5 gallons of water add the following:

- One gallon of well-rotted compost stuffed into filter bag and tied off. It's important to get true compost, and not use what is often sold as "compost" which often is actually mulch. Compost will be broken down all the way (no leaves, sticks or twigs remain) and does not smell. If it smells like manure, it is manure not compost. If it smells like rotting it is rotting, not compost. Trust your nose!
- 2 Tablespoons of un-sulphured organic molasses (molasses is a simple sugar and creates lazy microbes, it works but there are better ingredients).
- BioAg's TM-7 OR Ful-Humix if you already have penty of micronutrients in your soil or fertilizer. Follow application recommendations.

Super-charged tea (New Style):

Matches microbes to the soil environment

Per 5 gallons of water add the following:

- One pint-2 quarts of vermicompost (worm compost) stuffed into filter bag (sock, nylon etc.) and tied off.

- BioAg's TM-7 OR Ful-Humix if you already have penty of micronutrients in your soil or fertilizer. Follow application recommendations.
- Rock dust, pyrophllytic clay, azomite, or similar (pick one & follow directions)
- Fish (hydrolysates not emulsions)
- OPTIONAL:
  Other possible inputs include; yucca, amino acids, 2-3 tsp of garden lime, ½ tsp Epsom salts, paramagnetic soil, 1/8-1/4 cup of organic 5-5-5 dry fertilizer and more... ****** The more ingredients you add the harder it is to maintain the 6+ ppm of dissolved oxygen you need.

- **BLENDING & BREWING:** Fill bucket to the 5-gallon mark with unchlorinated water (rain catchment water works). Add your materials, stir lightly and then add either the air stone pumps or the water pump, or both. It should be well aerated! Maintain 6+ ppm of dissolved oxygen. Brew for 16-48 hours before applying. You may occasionally stir the brew with any appropriate implement for good measure.

  Super Tip: Make the tea outside so that the microbes that grow are the same ones needed in the garden. Cool weather will require organisms that thrive in cool weather and you can repeat the tea making when the weather warms up to produce organisms for warmer weather. ****** The warmer the liquid temp is the harder it is to maintain the 6+ppm of dissolved oxygen you need. The colder water is the more potential it has to hold dissolved oxygen. However don't brew at colder than ~50 F and higher than ~80 F (may need to stay even lower if using a lot of ingredients).

  Don'ts:
  - Never let your tea go anaerobic (no oxygen) and sufficiently aerate with the pump at all times. If it does go anaerobic do not use it on plants and instead dump it on your compost pile.
  - Don't use tea that smells like alcohol, as it went anaerobic.
  - Do not use chlorinated or water containing chloramines. These chemicals can harm or kill the microbes.

Spreading/Application.

As soon as the brewing process is complete, remove the pumps and pour mixture through strainer into spreading device or secondary bucket. You just want to remove any debris that may clog a sprayer, if spreading on the ground this is unnecessary.

-For spreading/spraying dilute the mixture to half to fourth original strength with nonchlorinated water. Use a watering can, a regular pump sprayer or backpack sprayer to apply. *Do NOT use a sprayer that has been used for chemical sprays. It will kill the microbes. Even if you rinse it out, there is generally a residue left that makes it no good for organic spraying. It is possible to apply undiluted to the soil.

-Spray or pour compost tea everywhere. You should get it doused on plant leaves, on vegetable gardens and lawns; wherever it lands, the organisms that will survive in those conditions will find food and begin to do their job. If you spray the leaves we recommend adding Fu-Power at 20 mL per gallon to improve the spray.

- Apply often. Weekly may be enough to supply a large portion of your garden's nutrient needs, but you will still need to lime (acidic soils) or apply sulfur (alkaline soils) your soil as normal.
- Best time to apply is early morning. Don't foliar apply during the heat of the day or in the evening.

Resources:

Worm compost, fish hydrolysates, glacial rock dust or clays and the 5-5-5 organic fertilizers can be found at most gardening stores. Just ask the employees.

Air pump:
http://www.hydroponics.net/i/132950
You can shop around on the net or get something similar locally and they should also be able to supply the air hose, splitter/gang valve, and diffusers

Water pumps:
http://www.petco.com/product/111429/Aqueon-Submersible-Aquarium-Pump.aspx?CoreCat=OnSiteSearch
Just one of many possibilities

TM-7, Ful-Humix, CytoPlus, Ful-Power:
http://www.ec-securehost.com/FaustBioAgriculturalServicesinc./Bio_Humic_for_Crops.html

Compost "bags":
-Paint straining bags
http://oem.sherwin-williams.com/us/eng/products/paint_straining_bags/

For more info and examples see:
http://attra.ncat.org/attra-pub/compost-tea-notes.html
http://www.soilfoodweb.com/sfi_approach3.html
http://www.humate.net/evans-fall01.html