Compost Tea
A Discussion on Composting Methods

What Is Compost Tea?
Compost tea is a biologically-active liquid fertilizer and biological inoculant made by steeping finished compost from a source (i.e. a static pile, Johnson Su reactor or vermicompost bin) in aerated water. The original compost may or may not include composted animal manure. This can be a valuable tool to increase the biology directly on the plant and in the nearby soil, provide nutrients and increase plant resistance to pathogens and disease.

Enhancing Compost Tea
Compost tea is often further biologically enhanced by:

- Adding microbe feeding foods such as “unsulphured” molasses and/or
- Kelp and/or
- Fish hydrolysate

The addition of these extra ingredients is often done to enhance certain desirable microbial populations within the tea.

A Systems-Thinking Approach
The decision as to which microbes should be enhanced is determined by the end use for the tea and the needs of the system in question. It is believed that molasses will feed bacteria while more structurally complex products like kelp and fish hydrolysate will promote growth of fungi. This liquid can then be used to treat the plant directly to coat the seed, drench the soil near the roots or through foliar application.

Applying Compost Tea: Seed Treatment
Seed treating can be accomplished by spraying the compost tea directly onto the seeds as they are augured into a seeder or grain truck. It is important to take special care not to over-apply tea as plug-ups are a very real problem that can occur. Compost teas can also be applied by dripping into furrows during planting. Both methods may require extra equipment adaptations and planning.

Applying Compost Tea: Foliar Sprays
Foliar sprays can be accomplished by mixing compost tea with unchlorinated water at a rate of ten parts water to 1 part tea, then following up by applying to crops with a sprayer. If you only have access to chlorinated water, the chlorine can be removed by:

- Letting the water sit in open containers for 24 hours.

- Aerating the water for an hour.
- Adding humic acid (binds with chlorine and chloramine) prior to mixing with tea.

The Difference Between Compost Extract and Compost Tea

While the terms compost extract and compost tea are often used interchangeably, compost extracts are made from compost and water exclusively (no added ingredients) and are most often applied as a soil drench. Compost tea is further enhanced (as described previously) to promote the growth of microbes and is generally applied directly to the plant or the soil immediately surrounding it.

Compost Tea

- Primary Benefits: Focus on the biology.
- Brew Time and Aeration: Typically aerated and brewed from 1-3 days.
- Application Method: Can be applied by foliar or soil drench.
- Timeframe for Optimal Usage: Finished product needs to be used within a few days.

Compost Extract

- Primary Benefits: Nutrient focused with some biology.
- Brew Time and Aeration: Compost soaked in water and little to no aeration for 1-24 hours.
- Application Method: Typically used as a soil drench.
- Timeframe for Optimal Usage: Finished product can potentially sit for a few weeks before using.

The Benefits of Compost Tea

Compost teas have many benefits that can be carried forward to real world applications in the field. They have readily-available nutrients for plants and microbes that can be applied via foliar spray or soil drenching. This process increases plant health, disease resistance, pathogen resistance and augments soil biology. In the case of applying with a foliar spray, you can verify its effectiveness by taking a Brix reading before spraying and taking a second Brix reading a few hours after application.

The Risks of Compost Tea

Because of the fast-acting nature of foliar sprays, there is an inherent risk of over application of the tea. Applying too much tea can potentially create a nutrient imbalance, such as excess nitrogen that can create too much leafy material at the expense of yields, or rapid growth that can create lodging. While this is not likely in a single application, multiple applications are not recommended within a single week. It is highly recommended to apply the foliar spray on a test area to verify safety. There is also the danger of improperly made tea that may cause more harm than good. Improper aeration can create anaerobic conditions where pathogenic microbes may multiply and thrive instead of beneficial ones. Using an improperly made tea can result in the spread of pathogens, root damage and poor growth.

How To Make an Effective Compost Tea

The most important factor for having a safe and effective tea is to start with good, biologically active compost with no signs of anaerobic digestion happening (i.e. not stinky). Other factors to consider are:

- Quality Ingredients → ensure that the compost itself was made from quality ingredients (not at the municipal landfill)
- Proper Temperature → ensure compost was created at the correct temperatures for the correct amount of time (or for vermicast, ensuring that all compost has come in contact with the worms)
- Maintain Aerobic Conditions → ensure that the entire brewing process remains aerobic to avoid killing off microorganisms.
- Maintain Pressure → keep pressure in the applicator lower than 80-100 psi.
- Use Tea Soon After Applying → be sure not to let the tea sit for long, and discard it if it becomes smelly.
- Maintain Equipment → Keep all equipment clean to prevent the establishments of biofilms and disease-causing organisms.

Tips and Tricks for Further Consideration

- Perform a smell test: putrid smell = pathogens; earthy smell = good microbes.
- Keep the tea out of the sun as much as possible as UV light kills microbes.
- Vegetative state is a critical stage for microbial activity.
- When foliar spraying, try to spray either early or late in the day.
- Check with your certifier about regulations on timing of application.
- Typical dilution of tea: 1 part tea to 10 parts water.

Conclusion

Plant health, vitality and pathogen resistance can be achieved through the application of compost tea. In the case of foliar sprays, crops can gain immediate benefits while seed treating can give seeds an initial boost to germination and seedling growth. It is highly encouraged to speak with other producers to determine quality products to purchase (or better still, to make on farm) and for possibilities for group projects for large composting scenarios.

For More Information

- Compost tea: Preparation, utilization mechanisms, and agricultural applications potential – A comprehensive review (Journal Article)
- Farm Scale Compost Extract (Video)
- Compost Extract Air Drill Application (Video)
- Don’t Make This Mistake When Treating Seed With Compost Extract (Video)
- How to Make Compost Tea Like a Pro (Video)
- An Overview of the Benefits of Compost tea on Plant and Soil Structure (Journal Article)
- Mastering Compost Tea: A Step-by-Step Guide (Article)
- Aerated Compost Tea: A Field Guide to Production Methods, Formulas and Application Protocols (Manual)