**Worm Tea, An Introduction**

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We have made slight changes in words or sentence organization and added footnotes; all to better clarify (in our judgment) the excellent points being made in this article. We take no credit from those who freely share the valuable and critical knowledge being gained by Universities, Governments, and “Thinkers” the world over concerning the understanding of the value of organics in our environment and in our life.

Search Words: “What is harmful to worm casting”

URL: <http://www.yelmworms.com/compost-tea/page3.htm>

Testimonials:

 **“We have found that compost teas controls weeds, disease and with added fish fertilizer provides all the nutrients needed by fescue turf grasses.  We have approximately 3 acres of turf.  This past summer we were able to skip water cycles for up to 4 consecutive days.  That’s with temperatures in July in excess of 110F with no signs of stress and full sun!!!  *Tom Jaszewski, Las Vegas, NV*  [Tom is perhaps the leading horticulturist in Las Vegas whom all leading casino horticulturists look to for advice.]**

**“The compost tea used in my vineyard has worked particularly well.  The plants are really healthy and so is the soil …  With the tea, the mildew shows up, hovers, and goes away.  It never builds up enough steam to take over a tea sprayed area.  In the sulfur-sprayed areas, if there’s one to two percent mold one day, there will be 10 percent the next and 40 percent the day after that.”  *Jeff Wilson, Owner, Territorial Vineyards & Wine Co., Veneta, OR***

**“We were looking for a way to suppress turf grass disease without using fungicides.  We’ve seen positive results from using the tea, and we haven’t used fungicides for a long time.”  *Troy Russell, Resort Superintendent, Brandon Dunes Golf Resort, Brandon, OR***

**What is worm tea?**

**We use the term ‘Castings Tea’ rather than ‘compost tea’ because we are a earthworm farm and are familiar with the differences of earthworm castings compared to other types of compost[[1]](#footnote-1).  We therefore brew with our earthworm castings, although “compost tea” or CT is probably a more commonly used phrase than specifying the type of compost as we do, when we mention Castings Tea[[2]](#footnote-2).**

**In both, microbiology is extracted from the microbial seed material with water so that the microbiology is in a liquid solution which can be sprayed – most often a far more convenient and feasible application method than bulk soil amending or dispersion.  The nature of Castings Tea vs. compost tea can be radically different with Castings Teas having more species diversity and worm created substances than compost teas and therefore offers more effective results.**

**There are two types of Castings Teas: extracted and aerobically brewed.**

1. **In the extraction method, water is run through the earthworm castings to simply extract the microbes from the castings into the water. The resulting liquid solution is then applied in various ways.  Many bottled teas you see on the shelf use this method - the largest brand name of which is Terracycle.**
2. **In the brewing method, compost/castings *(at this point of explaining methods, the discussion applies to any tea)* are placed into a container of circulated and aerated water (via an air bubbler or similar system) typically with other nutrients.  The circulated water extracts the microbiology and the microbes are in an abundance of both oxygen and nutrient to feed upon.  In this method, colonies of microbes are brewed in exponential numbers, a colony of bacteria for instance can double in population every 20 minutes.  Aerobic brewing takes longer than basic extraction with common brewing times of 12 to 24 hours.  Brewing time is very dependant on water temperature with warmer water creating faster brews.**
	1. **Aerobically brewed teas have much higher microbe population densities than extracted teas and for this reason are the tea method of choice.**
	2. **The sign of a good aerobically brewed tea is a good head of foam and scum on top signifying healthy microbe action!**

# How Casting Tea works

**Castings Tea (worm tea) is all about microbiology and is measured and evaluated under a microscope.  Compost, worm castings, EM, and other inoculants all work and are evaluated by this means also.  It is the wide diversity and numbers of microbiology that define a good tea: variety is important to healthy soil which, in turn, creates healthy and vibrant plant life.**

**Castings Teas suppress disease and pests on vegetation and will boost the crucial microbial activity known as the Soil Food Web (SFW) which is so crucial to organic soils.  Perhaps the most widely used and known use of teas is to suppress/eliminate black spot and powdery mildew on roses.  By spraying Castings Tea on the surface of leaves, you are doing several things.**

1. **First, you coat the leaf with millions if not billions of microbes all competing for a food source.  Some, for instance protozoa, eat bacteria which may be eating decaying plant material.  Others eat other microbes and their wastes.  In the end, there are not enough resources for the harmful molds and fungi to flourish.**
2. **In addition, you are also coating the leaf with a protective surface that protects the leaf cells from attack by foreign spores or airborne microbes.**
3. **Finally, by inoculating the soil with Castings Tea, microbes break down nutrients for uptake into plants thereby increasing plant health and the plant’s own disease resistance / suppression.**

**Aerobically brewed Castings Tea is superior to basic compost teas because of the higher number and diversity of microbes, the additional substances that worms create and the reduction or lack of harmful microorganisms.  Although a traditional compost pile is a great environmental aid, and its final compost is a great value to your garden, it typically does not have the microbe species diversity and numbers found in worm castings to be an exceptional aid.  (Remember, microbial species diversity and numbers are necessary for a more thorough breakdown of the organic matter in any compost.)  A compost tea, unlike a worm tea, can only have the species diversity of the starting medium.  The only way to circumvent low numbers and diversity when brewing compost tea from a basic compost is to inoculate the tea itself during or at the end of the brew with catalysts, i.e. microbe packages!**

**Worms also create substances that act as growth hormones, cell length regulators, anti-aging compounds, and more goodies that just are not available in common compost.  Though different in quality either the brewing or extracting method will add these important aspects to teas, and this is the probable explanation of good results obtained by non-aerobic bottled tea that does not have high species diversity and numbers.**

**Finally, compost can also contain *E.coli* and other human pathogens if not composted properly; this is not an issue in worm tea which naturally deals with pathogens.  In aerobic brewing and with adequate aeration maintenance,  *E.coli* will not survive in the tea, because “there are many other organisms, which in aerobic conditions, grab food away from the *E. coli*, take up the space *E. coli* needs to grow, and consume *E. coli*.”  (2003, Dr. Elaine Ingram)   (An important note here:  “If you apply a source of questionable material into the compost or the compost tea[[3]](#footnote-3) anytime 120 days before you are going to eat those vegetables without washing them, there’s a possibility that *E.coli* could still be present, especially if your crop production system does not have adequate aerobic organisms to out-compete the coliforms.”  (2003, Dr. Elaine Ingram).**

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# How to use Castings Tea

**Spray your plants liberally on the leaves, stems and surrounding soil.  Use it on turf.  Use casting tea on clay soil to begin its transformation to humus.  Use it on your flowers indoors and out and on your other house plants. Use it on your compost pile to introduce the microbial activity and hasten the compost pile’s beneficial breaking down process.  Inoculate the ground surrounding your fruit trees.  *Use it on manure piles that stink and marvel at how fast the stink and flies go away!*  Use casting tea on the small bucket of kitchen scraps you may have outside of your house.  Castings Tea everything!**

**Foliar Spray/Wash:**

**It’s best to spray all surfaces of your plants in the early morning or late afternoon when the suns angle is low and has less strength.  When possible do your foliar spraying on a foggy, cloudy or clear days since rain may wash away some of the effectiveness.**

**Soil Inoculants - Drenching:**

**Always apply teas out of direct sunlight.  Use them pure or dilute them (10:1 is a suggested maximum dilution rate).  Dilution ratios vary due to the manor or the characteristics of your application technique or equipment.  An ideal time is during light rains, mists, or fog.  Alternatively, irrigate a little before your treatment and after the application to insure the microbes will survive and travel more quickly and safely to their new job locations. Whenever possible use non-chlorinated water.**

**If a tea stinks[[4]](#footnote-4), do not use it on your vegetables as it is demonstrating anaerobic properties and may contain pathogens.  Dr. Ingram suggests you use it on an undesirable weed bed!**

**A properly brewed Castings Tea is child, pet, and wildlife friendly.**

**When we brew, there is a window of optimal application time when microbe populations and diversity are at their highest.  *Best results occur when the Castings Tea is applied during its prime and is applied within 3 hours of being removed from the oxygen source.***

**On warm summer days, you can begin a brew in the evening, and the tea will be ready for application the next morning.  We find brewing is complete in as little as 12 hours if the brew is kept warm.  Hence, brew times are heavily dependent on the water temperature.  With every 10 degree F drop in temperature, brew times increase by 12 hours**

**When you are finished, use the left over castings for your soil amendment needs.  Do not discard them!  These castings should have higher population densities than what you started with, because**

1. See the footnote below for a critical point of understanding the author. [↑](#footnote-ref-1)
2. Tea is a common name assigned to the liquid obtained from soaking in water a specific organic material that contains microbes. However, different organic materials produce different microbes and thus produced different teas. All teas are not the same tea and all teas do not deliver the same results; this is critical to understand. You must take care in reading any article to understand which tea is being discussed. To help in understanding the terms, “Worm tea”, also called “Casting tea”, “earthworm castings” and/or “Vermiculture Tea” is different in the variety of the microbes provided to the tea than the common term applied to “compost tea”. Compost tea is simply tea made from any organic composting and is clearly less diversified and effective when compared to “Worm tea”. That is not to say that “compost tea” is bad or ineffective – it does provide beneficial results. However, worm tea is a clear winner from the stand point of providing the best overall result in a wider variety of beneficial areas of concern to the plant – a point the author will go on to make. In fact, worm tea can be effectively used to enhance the completeness of composting any organic compost pile. Articles that interchange the names in discussing the effectiveness of teas will be misleading in your overall understanding. [↑](#footnote-ref-2)
3. Note that this issue is non-existent in worm tea which kills pathogens. [↑](#footnote-ref-3)
4. **This important good sense rule also applies to worm tea**. If you make a wonderful batch of worm tea with full aeration and ample food, but let it sit without oxygen for too many hours, it will stink; do not use it! That tea will harm to the plants as it has become an anaerobic (functioning without oxygen) tea whose chemistry is now harmful. Anything can be misused. Please become familiar with the few simple rules in this document on handling worm tea and enjoy a benefit not offered by any other product. [↑](#footnote-ref-4)