



*Experience the Power of Healthy Soil*

# **SoilSoup Brewer Manual**

## **25 Gallon Work Horse Batch Brewing System**

A few important points before you proceed  
with the first batch of SoilSoup

- \* Make sure the tub is clean before you fill it with water
- \* After filling up the tub with water, always run the aeration pump for a minimum of 2 hour without any nutrient or compost mixed in. During this first step of the brewing process you “deplete” the added chlorine in the municipal water supply.
- \* Remember to remove the filter bag with worm compost after 24 hours. Keep brewing.
- \* After each batch it is recommended that you rinse out the tub with clean water. If the brewer is not going to be used right away after a batch, we recommend that you fill the tub with approx. 4-5 gallons of clean water and run the pump for a few minutes to clean the pump and the aeration valve.
- \* Store the nutrient solution and compost in a cool shaded place. Do not expose the nutrient container and the compost bag to direct sunlight, especially during the summer months.

# The Work Horse Brewer



## The 25 Gallon Work Horse Brewing kit:

- One 1/10 HP magnetic drive aeration pump
- One aeration valve
- One 25 Gallon container with lid and dispensing valve
- Heater with thermostat
- Nutrient Solution
- Worm Compost
- One re-usable filter bag
- Brewer Manual

# Brewing Instructions

Find a location that is close to a water outlet, an electrical outlet (gfcı outlet if possible) and a durable, easy to clean floor. Please note that the "bioslime foam" can spill over the side of the container during the brew cycle. The bioslime foam is proof that you are brewing a potent and energetic batch of SoilSoup.

If you are using a heater, make sure the water level is high enough to cover the heating elements. Set the thermostat to 82 - 84 degrees F.

Fill up the 25 Gallon tub with clean water within approx. 2 inches from the top.

Turn the Aeration Pump on by plugging the power cord into a 110 volt outlet or extension cord.

## **LET THE AERATION PUMP RUN FOR A MINIMUM OF 2 HOUR TO FULLY DE-CHLORINATE THE WATER**

After 2 hour of aeration, keep the pump running. Fill the filter bag with 3-4 cups of worm compost and drop the bag into the center hole in between the 2 vent stacks. Push it all the way down until the top ring fits snugly in the hole. Make sure the outside of the bag is clean from any compost or debris. It is important to keep the "soup" clean from any debris or particles that could clog the venturi valve.

Add 3 cups (24 oz.) of nutrient solution.

Now we wait 24 - 48 hours, depending on the temperature. Normal brewing time at 75 degrees F is 24 - 36 hours. If the temperature is below 70 degrees F, it will take longer than 36 hours to brew a batch of SoilSoup.

**After 24 hours, remove the filter bag with worm compost from the soup. Keep brewing!**

Fully brewed SoilSoup will have a faint "earthy" smell to it, with a brownish foam on top. Prior to being fully brewed, it will have a slight sweet smell from the nutrient solution not yet being fully consumed by the growing microbial population.

The brewing process starts when the worm compost and the nutrient solution are added to the water. During the first 12 hour period the microbes start waking up and begin to feed on the nutrient solution.

During the next 12 –36 hours the microbial population start multiplying at a very high rate. By the end of the brewing cycle, you will have a very high concentration of metabolically active microorganisms that are ready to start digesting organic matter in your soil. Fully brewed SoilSoup will have a very pleasant "earthy" smell that is concentrated with as many as one billion microbes per teaspoon.

In addition, the population of beneficial microbes in SoilSoup become metabolically active during the brew cycle, which means that they are "awake". They are not in a dormant state like in any shelf or bag product. They are awake and will start their life in the soil food web as soon as they are dispensed onto your soil.

# Brewing Cycle

The normal brewing cycle is 24 - 36 hours if the ambient temperature is around 75 degrees F. For every 10 degree drop in ambient temperature, the brewing cycle normally increases by approx. 12 hours. It normally does not take more than 48 hours to brew a batch of SoilSoup.

The batch of SoilSoup is ready to use when there is a ring of “bio-slime” on the inside of the tub / there is a brownish foam on top of the soup / there is an “earthy” aroma from the soup

If there still is a slight sweet smell from the soup after 36-48 hours you can keep the aeration pump running until the sweet smell is gone. (Usually 3 - 6 hours) However, it is still OK to use fully brewed SoilSoup with a slight sweet smell. The sweet smell comes from the nutrient solution that is still not fully consumed by the microbes and will only act as additional food for the microbes in the soil.

Fully brewed SoilSoup contains billions of beneficial microorganisms in just a teaspoon. After being brewed in an oxygen rich environment, they are awake and metabolically active.

**Please note: After you stop running the aeration pump, you must use the fully brewed Soup within 12 hours for best results. If possible, use it fresh!**

If the brew sits too long without oxygen, the microbial population will start to decrease. You can keep the brew “fresh” for a few days after the initial brew period by running the aeration pump continuously and adding a few ounces of nutrient solution to the soup every day.

## Application

**The most important rule is: USE IT FRESH!**

There is no danger of applying too much SoilSoup on a single plant, unless you “over water” the plant in the process. However, a thin coat of SoilSoup twice a week is much better than a heavy drench every 2 months! Apply SoilSoup either as a soil drench or spray it directly onto the foliage. For more application details, see the application guide.

**Apply to soil that is damp or wet.**

Since the microbes are brewed in a liquid environment they will benefit from being applied to a similar environment. Apply after watering or when the soil is naturally wet from rain or dew. Apply in the morning or late afternoon when the UV light is low.

**Always use a clean applicator.**

Make sure your watering can or sprayer is clean from any pesticides or herbicides. Even a small amount of a chemical product may damage or destroy the microbial population in SoilSoup.

### **Application frequency and benefits.**

If you recently switched over to organic soil amendments instead of chemical fertilizers, or you have infertile soil or soil heavy in clays, apply SoilSoup at least every two weeks until you will see a noticeable improvement. As the soil structure improves, it will become looser and more granular in texture. The soil color will become darker and the water retention will increase.

If you use a hose-end sprayer for treating your lawn, the solution will be quite diluted. If so, apply at least once a week until you begin to notice improved vigor and color in the grass. You will also notice a reduction in thatch and an increase in water retention.

After a season of SoilSoup, approx. 1/3 less water will be needed to keep the lawn green and healthy.

### **SoilSoup as a Foliar Spray.**

When spraying SoilSoup directly onto foliage it is important to begin such treatment early in the growing season before any pathogens have established themselves. For maximum benefit, spray once a week directly onto the foliage with full strength SoilSoup. Make sure to cover the foliage on both sides. If the disease pressure is high, increase the frequency to twice a week.

The preferred sprayer to use can spray in any direction, including upwards. As mentioned above, it is important to cover the leaves on both sides with fresh SoilSoup.

### **Flower beds.**

The easiest and quickest way to treat your flower beds is with a watering can. It is not recommended to saturate the soil with SoilSoup. Instead, just apply a thin coat to cover the soil surface. One gallon of SoilSoup will cover up to 100 - 200 square feet. If you use a "pressure sprayer" that puts out a fine mist, you may cover as much as 500 square feet with a single gallon of SoilSoup.

### **Lawns.**

For smaller lawns, use a watering can or pressure sprayer. For larger lawns, use a hose end applicator that mixes SoilSoup with the water and sprays the mix from the nozzle.

### **Plant rescue.**

If your mission is to save or help a seriously ailing plant, bush or tree, SoilSoup is probably your best chance for success. In this case a heavy dose of SoilSoup is recommended. 3- 4 gallons of undiluted SoilSoup might be necessary. Prepare the soil so the SoilSoup treatment will reach as far deep as possible towards the root system. You do not want to "turn" the soil. Instead, somehow "drill" holes 12-24" deep around the ailing plant so the beneficial microbes will reach deep down in the soil towards the root system of the ailing plant. Depending on the seriousness of the situation, more than one treatment might be necessary.

We have received numerous positive testimonials from gardeners that were ready to give up on sick plants or trees. In almost all cases, the sick plant or tree was saved with a few gallons of SoilSoup!

### **If you are a weekend gardener:**

Start brewing SoilSoup on Thursday evening. By Saturday morning you normally have fully brewed SoilSoup. If you are unable to use the soup on Saturday, keep the aeration pump running and add a few ounces of nutrient solution on Saturday evening.

## **Care & Maintenance**

### **IMPORTANT!**

#### **CLEAN THE FILTER BAG AND CONTAINER AFTER EACH USE!**

1. Clean all SoilSoup brewing equipment after each use. The bio-slime will easily wash off after each use while it's still moist. It is much harder and time consuming to clean up the bioslime if allowed to dry!
2. Empty the contents of the filter bag into your garden or compost bin. Rinse and dry the filter bag. The filter bag must be kept free from debris and mildew for future batches of SoilSoup.
3. If the brewer is not being re-started right away after cleaning the tub with clean water, fill the the tub with approx. 4-5 gallons of clean water and run the aeration pump for a few minutes.

## **Frequently Asked Questions**

### **What is the difference between Compost and SoilSoup?**

Compost is solid bulk material from: Leaves, grass clipping's, manure, food waste, etc. that has been broken down by micro-organisms. The result is a material that looks like "rich healthy soil" full of beneficial microbes and nutrients. In general, incorporating compost into soil is the most important step when improving soil structure. Soil with adequate compost mixed in will have better water absorption, retention and drainage, improved soil structure, a steady supply of plant nutrients and a more balanced soil pH.

SoilSoup is made from certified organic worm castings and compost. The main difference between SoilSoup and solid compost is twofold:

1. The total quantity of aerobic bacteria. During the brewing process of SoilSoup we increase the total number of microorganisms by approx. 25,000 times compared to our inoculant. "A huge increase in microbial population".
2. The microbes in SoilSoup become metabolically active during the brewing process. The microbes go from a dormant state to a metabolically active state, ready to start digesting organic nutrients.

The benefit from SoilSoup is similar to using compost, but with considerably more rapid and substantial results. SoilSoup is also in a liquid form which makes it very easy to use. To cover your garden with SoilSoup will take 10-15 minutes compared to many hours it would take to spreading and raking out a 2” thick layer of compost covering your entire garden.

### **What is the NPK rating for SoilSoup?**

It is not possible to rate SoilSoup in terms of NPK. The traditional NPK rating system describes the concentration and solubility of a synthetic chemical fertilizer. Synthetic nutrients are readily available to the plant roots for absorption. However, they do not retain in the soil very long. The demand for nutrients varies throughout a plant’s growing cycle. Sunlight, heat, water and oxygen will affect a plants immediate need for nutrients. When soil microbes are present in the soil, they seek out the organic nutrients and convert them for the plants. However, organic nutrients retain in the soil, readily available for the plants when needed. So, the more soil microbes present in the soil, the more available nutrients for the plants!

### **How long do the Microbes live in the soil?**

They can live for hours, days and months. It depends on the particular microbe in question. Some microbes are food for other microbes, while others compete for food and space with pathogens. The key is the wide diversity of microbes in SoilSoup. With a wide diversity of microbes, some will adhere to foliage and some will penetrate deep down towards the root zone. All providing their specific function in the “soil web”. In a handful of healthy soil there could be over 50,000 different species of microorganisms.

### **When do I use SoilSoup?**

If your soil is showing signs of nutrient deficiency due to years of chemical fertilizers and pesticides, your plants will welcome SoilSoup with open arms. The microbes in SoilSoup will not only treat a specific nutrient deficiency, they will make sure a full spectrum of nutrients become available to the plants. It is impressive to read all the testimonials we have received from gardeners being successful in “resurrecting” or “saving” a sick plant or tree by using SoilSoup.

Foliar disease. Some of the foliar diseases that SoilSoup has proven to be effective against are: black spot, white powdery mildew and camellia blight. To treat or prevent a foliar disease SoilSoup needs to be sprayed directly onto the foliage, covering both the top and bottom of the leaf. After applying SoilSoup to an affected leaf, the beneficial microbes start to compete with the pathogen for nutrients and space. They consume the nutrients on the leaf surface, taking away the food source for the pathogen. However, they will not hurt the plant!

Compacted soil and water retention. After treating the soil with SoilSoup, the beneficial microbes will penetrate as deep as oxygen is available in the soil. In compacted or clay soil, they will initially not survive far from the surface. However, as SoilSoup is being absorbed into the soil, the microbes start to “create” space around themselves. After each treatment, the microbes continue to “break up” the compacted soil and penetrate deeper and deeper. After a season of using SoilSoup, you will be amazed how far you will be able to push your garden shovel into the soil with ease.

The microbes produce a mucus like substance called glomalin. Glomalin, a fungal protein, binds soil particles together which allows the soil to retain more moisture rather than letting it run off into the ground water. Some studies suggest that "tillage" tends to lower glomalin levels. It's been found that soil from no-till corn plots had more glomalin and higher aggregate stability than soil from tilled plots.

Lawn and turf. Many lawns are laid on top of sand, with little or no organic matter under them. After a few years, these lawns fall into decline, unless they are boosted regularly with a chemical fertilizer. Instead of using chemicals every 4-6 weeks, consider SoilSoup 4-6 times a year. SoilSoup will start decomposing the thatch in the lawn, breaking it down into plant nutrients. The soil microbes will "aerate" the lawn naturally, increasing the water retention and keeping the water bill down.

### **Is it possible to use too much SoilSoup?**

No! The inoculant we use to "brew" SoilSoup is 100% Organic Worm Castings and Compost. In other words, the best, most refined compost material available. In the brewing process we stimulate the aerobic bacteria from the worm castings and multiply them. However, we do recommend that you apply a relatively thin layer of SoilSoup. It is not necessary to "soak" a plant in SoilSoup.

### **Is it recommended to use full strength, or can you dilute it?**

The recommended dilution ratio is normally anywhere from "full strength" to 33% SoilSoup. (Dilute with water and use right away) The main question is: Are you re-building soil structure from using chemical fertilizers, or are you maintaining an organically grown garden. If you are re-building, use a higher concentration more frequently. Probably twice a month, with 50% to 100% concentration. If you are "maintaining" your garden, you can dilute up to: 4-5 parts water - 1 part SoilSoup, and still see good results. Remember, the healthier the soil, the healthier the plants will be!

### **How long does it take to "brew" SoilSoup?**

The standard "brew time" for aerobic compost teas is normally 24-36 hours. The brew time is temperature sensitive. The cooler the liquid, the longer it will take to reach a fully brewed solution. We believe that a slightly longer brew time will enhance the final microbial concentration. So, 36 - 48 hours might be closer to the optimum brew time.

## **The Bottom Line**

SoilSoup will out perform chemical fertilizers, increasing both plant size and yield. This is due to the interaction of the microbes in SoilSoup with the soil microbes and protozoa, soil particles and the roots of the plant itself.

SoilSoup used as an inoculant for potting soil will suppress airborne pathogenic fungi that can readily infect sterile potting medium. The organisms in SoilSoup also produce hormones, vitamins, nutrients, enzymes, amino acids and minerals needed by seedling cuttings and young plants. Inoculation should be done two weeks prior to planting.

Plants grown in soil treated with SoilSoup are healthier due to the symbiotic relationship between the plant and the microbes in the root zone. Plants feed the microbes and the microbes produce or make available all of the food and medicine the plant needs to thrive.

Plants grown in soil treated with SoilSoup are more nutritious than plants grown in soil treated with chemical fertilizer. The food value of these plants is increased due to the availability of minerals, vitamins, enzymes and amino acids.

SoilSoup can remediate soil that has been damaged by agricultural chemicals. With repeated application, the microbes will adapt to the soil as well as convert and metabolize organic and inorganic chemicals. They will also sequester heavy metals not required by plants.

SoilSoup can treat lawns affected with thatch, which is a condition caused by sterility in the underlying soil. Chemicals usually cause sterility. SoilSoup will repopulate the soil with microbes, enrich the roots and break down the thatch turning it into food for the grass.

SoilSoup applied to the soil greatly improves water retention. Many of the microbes manufacture a protective mucus (glomalin) that acts as a glue to agglomerate soil particles. Microbial colonies also make a bio-slime that is mostly water and is retained to protect the colony. The water retentive property of healthy soil can be 3-4 times greater than unhealthy soil.

SoilSoup applied along with insoluble granulated or powdered minerals such as granite, limestone, rock phosphate, etc will supply 95% of everything the soil needs. The other 5% is organic material applied as mulch or litter on the surface of the soil or as dead root material under the soil surface.

The microbes in SoilSoup turn organic matter into humus, storing energy for later use. This is the basic unit of soil fertility.

The microbes in SoilSoup feed other organisms in the soil food chain. Protozoa and nematodes feed on bacteria and fungi directly while worms ingest bacteria laden soil particles. All life in the soil depends on microbes, directly or indirectly.

SoilSoup applied as a foliar spray will act as a fertilizer. Plants will produce more foliage and larger stems. This is a good treatment for plants that are stressed or lacking enough sun.

SoilSoup applied to a compost pile will accelerate the breakdown of plant material reducing the amount of time to make compost. It can also be used to re-inoculate the pile after it has gone through its hot phase, which inactivates or kills many of the beneficial microbes. Re-inoculation increases the population of beneficial microbes, which continue to breakdown organic matter and form humus.

~::~~