

Briteland BioBin

Vermiculture Composting System

Owner's Manual

Proudly Manufactured for Briteland Agricultural Services & Supplies by:

The Mentally Handicapped, on site at Briteland.

Briteland can be contacted for further information on the Biobin or on all of their other unique and exciting products by:

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Troubleshooting

Odours

If an offensive odour is noted, it indicates that too much organic waste has been added to the Biobin, and it is starting to decompose before the worms can get to it. One of the main reasons would be the placement of wastes on top of the bedding, rather than burying it into the bedding. A top dressing of shredded paper 5cm (2") thick gives a good mat to bury waste under. Ensure that the wastes are buried. If odours still occur, stop the feeding and mix a bit of garden lime and/or crushed eggshells into the bedding. Stirring the wastes up with a trowel helps aerates the compost, and allows easier worm movement through it. Do not add any more waste until the odour has disappeared. Odours also can be caused from an overabundance of smelly foods like garlic and onions and cabbage. Follow the procedure above.

If the tea has a sulphur smell, is likely too acidic. Add lime. Test both the bottom bin bedding and tea with pH strips. A pH of 7 or neutral is desired.

Temperature

Try to maintain a temperature in the 15 – 25 C (60-80F) range.

Vibrations

Worms are quite sensitive to vibrations, and if placed by vibrating equipment they won't be happy.

Citrus Peels

The citric acid in the peels is hard on the worms. When you put these in, add some garden lime to neutralize the pH of the acid in the peels.

Little White Worms!

These are entomochytrids, which indicate acidic conditions. Just add lime. Sometimes an influx of maggots may develop. These are likely soldier fly or vinegar fly larvae. These are actually beneficial to waste breakdown. Liberally apply lime.

Fungous Gnats

These are little black flies, that live in the upper bedding layer. Add more bedding. Then mix Diatomaceous Earth organic bug killer into the bedding. This will control the flies & not harm the worms.

Worms on the inside of the lid

The worms are reacting to changes in air pressure as they sense a rain-storm coming. Just leave the lid off for a while and they will settle back down into the bedding.

Heating of the Compost

This can occur from the heat of decomposition. Too much organic matter has been added too quickly. Remove the offending mass and stop feeding for a while. You might cool things down by adding a water drench. Remember to harvest the tea, as it accumulates in the lower bin.

What is the Briteland Biobin?

The Briteland Biobin consists of four high quality plastic bins, each 12" x 12" square based, and 14" in height. The bins are tapered slightly to nest into each other. Three of the bins have a grid of holes in their bottom to allow moisture and worm transfer between the bins to occur.



The bottom bin or base, has a solid bottom, and a support rack/strainer unit. This keeps the upper bins out of the tea that drips through the strainer and accumulates in this bin. The tea is easily accessed via a drain spigot. The support rack has been designed to be durable to take the weight of the bins, and easy to service should access below, or a change of the straining fabric be required. The lid has a handle and an escape proof air vent.

Included is a bag of ground limestone, and this operating

Assembly

Un-package the BioBin, and assemble it in the following fashion:

The Bottom Bin is the Tea Accumulation Basin, and is the base for the upper three composting bins. This bin has no holes on the bottom of it and it contains a support rack and the tea drain spigot. It needs to have the drainage spigot installed, in the hole provided.



Assembly Continued:

- a) Pull the bin support rack out, using the central white cable tie, allowing access to tighten the spigot washer on the inside of the hole. Then, replace the bin support rack in the bin.
- b) Place the lid on the fourth or upper most bin.
- c) Put bin 2 of the composting bins on top of the support rack in the bottom bin. Pour in at least 5 L (5 qt) of bedding into each of the three composting bins. Bedding can be from a number of sources, but we recommend sterilized potting soil, or sterilized composted steer manure. Some moistened shredded paper or shredded leaves or dry grass clippings are nice top dressing.
- d) Put in 454 – 908 grams (1 to 2 lbs) of Red Wiggler Composting Worms into bin 2, the lowest composting bin.
- e) Allow the worms to settle in for a couple of days before starting the feeding program, as the worms are very sensitive to starting out in their new home. Keep the bin still as the worms are quite sensitive to vibrations and bin movements at this time. The worms will be quite happy to stay and propagate in their new home, which is warm, moist, dark with regular fillings of compost.
- g) Put on the third, then the fourth, or top bin on, to complete the stacking system.

**Here is the Briteland Biobin,
ready to be used!
Let the composting begin!**



Helpful Hints & Information

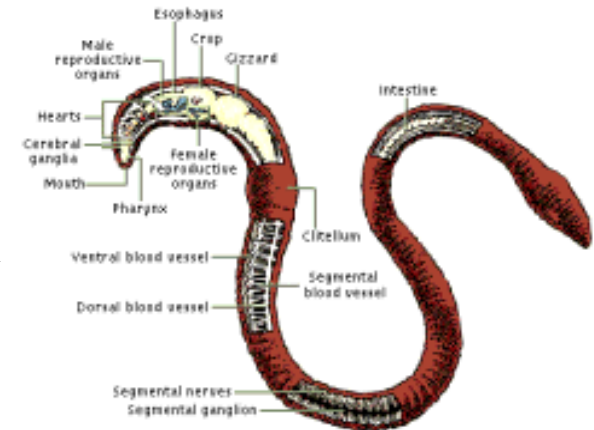
Type of Worms

Use the proper type of worms. Tigers or Red Wigglers are preferred, starting with a minimum of 1000 worms (about .5kg or 1 lb). Earthworms, such as those found in the garden, prefer a different environment and won't do well in the Biobin.

Consumption of Organic Matter

1 lb of worms (various ages) eats approximately 227 grams (1/2lb) of food scraps per day.

Don't expect miracles overnight. The worms must get established before they start to reproduce, and the baby worms take about three months to mature. As the worms multiply, they will turn more and more waste into castings and tea. Therefore, feed steadily by putting in a little bit each day, building up the system gradually.



Worm assistance is a tremendous advantage for a composting system. Each healthy adult composting worm will convert its own body weight of waste into the highest quality compost every day! Don't overfeed. The worms will process the waste more efficiently if it is chopped, mashed, blended, or frozen and thawed, then buried or mixed into their bedding.

Their speed of work allows kitchen waste to be recycled before it can start to smell, as it would in a garbage can. Therefore, the process is essentially odorless, as the worms prevent unpleasant rotting smells. In fact the only smell from a healthy bin is a faint, earthy smell from the compost.

Should you go away for a while, the worms will continue to carry on for several weeks in your absence, and you can resume feeding when you return. Red Wigglers congregate where the food concentration is greatest and regulate their numbers to match the supply of waste. You couldn't wish for a better tool for the job

Where to Put the Biobin

Red Wiggler worms prefer cool, damp and dark environments. Temperatures from 15-15 C (60 – 80 F) are excellent. The Briteland Biobin has been developed to take up a small footprint *indoors* in your kitchen area, laundry room, bi-fold door closet, garage, porch or other area convenient enough for you to access readily. Worms are odorless and free from disease. They have the ability to aerate, sanitize and deodorize food wastes as they process it into castings.

Moisture

Composting worms require moisture to be effective. Generally the food wastes will keep the bedding sufficiently moist. However, if composting materials such as newspaper or cardboard are added, they should first be soaked in water before adding to the bedding. If the bedding is still too dry, some water should be poured over it.

Reproduction

Red worms are hermaphroditic, producing an egg capsule every 14-21 days, with each capsule containing a potential of up to 20 baby worms.

Migration & Separation

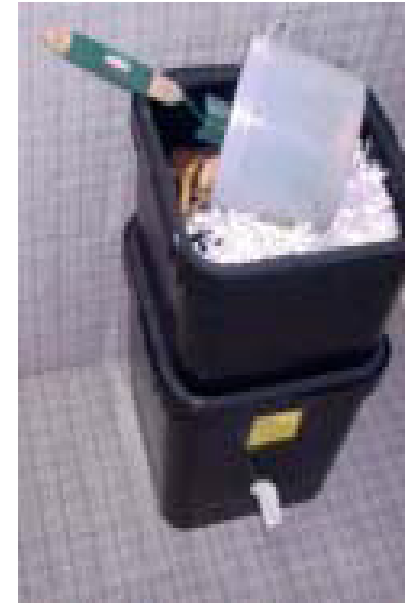
You will start feeding the 2nd bin and fill it up until it reaches the 16litre line about 10cm (4 inches) down from the top. Then start filling the third bin until reaching the same line, then the fourth bin. The worms will migrate upward to the fresh food, as this is a natural instinct for them, leaving their castings in the lower bins, ready for harvest.

Types of Products to Compost

A quick rule of thumb is that if it was once living, worms will eat it. EG: Most types of green vegetable trimmings, shredded paper, fruit cores and skins, coffee grounds and the filters, melon rinds, tea bags, vacuum cleaner dust and hair... Pre-wetted torn up newspapers, cardboard egg and pizza cartons make good bedding. Worms don't have teeth, so large hard vegetable stalks and potatoes take them time to work on. Break these hard items down into small bits first. Freezing, then thawing them works well. Adding water from time to time is good as the worms like a moist environment, and watering simulates natural rainfall. The Biobin has been developed for indoor composting of soft organic wastes. Outdoor compost products can be used like shredded leaves, lawn clippings & garden wastes. The Biobin likely won't have the capacity to handle the volumes of slow composting garden wastes generated from a garden landscape, and wasn't designed for that purpose.

Using the Biobin Composting System

- 1) Start feeding the worms using bin 2, (the one with the potting soil in it, immediately above the bottom tea bin base) with only up to 2 cups of soft or green composting products per day. Then work up to 2 liters per day after 4 weeks or so, as the worm numbers start to increase. When putting the compost in the bins, ensure that it is covered with 2" of bedding. **Moistened** shredded paper, or peat moss, or potting soil work great. This reduces any fruit fly problems. Use a trowel to dig a hole and cover up the compost.



- 2) As this system uses a vertical stacking bin concept, you fill the lower bins first, then put some bedding in the next bin up, and start putting compost in there. As the bottom of a higher composting bin contacts the top of the compost in a lower bin, the worms will migrate through the holes in the bottom of the higher bin to access the fresh food in the higher bin. The bins have tapered sides, ensuring easy lifting off the bin below. The whole idea is for the top bin to contain all the worms, as they have moved up into it, and the bottom compost bin is left with just worm castings, with very few worms. This helps greatly with harvesting the castings. The weight of the 2 bins above help to compress the castings nicely.
- 3) Once the castings are ready, (have a look for nice crumbly moist compost), simply lift off the upper two bins, and empty the bottom compost bin of the castings. Put the other two bins containing compost and worms back onto the bin base, remove the lid, and put the empty bin now on the top. Put in some bedding, and start feeding it compost.
- 4) Continue the process and repeat the cycle.
- 5) Harvest the tea and use indoors with potted plants, or outdoors in the garden, flower, vegetable and ornamental. You can use the tea at up to 100% without burning, but we suggest mixing 1 part tea to 25 parts water with every watering.

How do I Use the Castings?

Simply top-dress the castings over all soil surfaces, indoor or out. Where possible, the castings can be incorporated in to the top 6".

What is in the Tea?

Our analysis of the tea produced here showed the following nutrients in parts per million:

- Nitrogen 0.05
- Phosphorus > 0.4
- Boron 0.70
- Copper 0.60
- Iron 8.40
- Magnesium 249.00
- Manganese 1.90
- Molybdenum 0.20
- Zinc 64.30
- Aluminum 2.30
- Calcium 134.00
- Sodium 321.00
- Sulfate 235.00

How do I use the Tea ?

Tea can be used at up to 100% strength every so often without burning, but watering at 1 part tea to 25 parts water each watering, we've found is an excellent procedure.



Types of Products not to Compost

Meat scraps can be composted in small amounts, but are troublesome if you have a pet in the house, as they may go after those wonderful meat smells. Refined or concentrated products such as oils, salad dressings & dairy products are difficult for the worms to eat, so it is best not to compost them.

Pet feces and horse manures are not suitable for worm composting as the de-worming treatments for the animals carry through and will kill the worms in the bin.

Harvesting

The bin that you will harvest the castings from will be bin 2. Most of the worms will have moved into the upper bins following the smell of new food waste. Some worms may remain in bin 2, but not to worry! Worms just do not like the light. You can simply put the bin into a bright room and scoop off a 2.5cm (1") layer at a time, keeping an eye out for worms. The worms will move downwards to escape the light, and concentrate in the castings that remain.

Then put the almost empty bin 2 back onto the Biobin as the new top bin. The remaining compost with remaining worms in it becomes the bedding for carrying on the process.

What is in the Castings?

Worms have a simple digestive process, initiated and stimulated by other organisms. When worms expel their manure/castings they are encapsulated by a thin mucus membrane, which hardens when exposed to the air. When the castings are mixed with or top dressed on garden or houseplant soils, there is a slow "time release" of nutrients, enzymes and humic acid to feed the plants, and condition the soil.

Castings are pH neutral. A typical analysis in parts per million is:

- Nitrate 150
- Phosphorus 69
- Potassium 161
- Calcium 1805
- Magnesium 458
- Ammonium 3.0
- Boron 2.5
- Molybdenum 0.1
- Zinc 7.1
- Copper >0.1
- Iron 5.3
- Manganese 0.3

