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Vermicomposting

What is the importance of vermicomposting to our environment?

Vermicomposting turns "waste" organic materials, such as food residuals and yard debris, into a valuable product (vermicompost) that enhances soil by increasing its porosity, water-holding capacity, texture, and reduces erosion. Vermicompost also helps plants grow bigger, increases crop yields, and decreases plant diseases and pest attacks.

In 2007, the U.S. Environmental Protection Agency (EPA) estimated that over 64% of the waste generated in the United States is organic. Paper and paperboard products account for 34% of the total, food scraps and yard trimmings make up 25%, and wood waste is .06% (by weight). Instead of disposing of these materials in landfills, *they can be recycled, composted, or vermicomposted.*

Throwing away organic waste causes global warming. Landfills are the largest human-related source of methane (a greenhouse gas) in the U.S. (34% of all methane emissions). Food residuals (uneaten food and food preparation scraps) are the second biggest source of methane in landfills.

What type of earthworm should I use for vermicomposting?

Of the 4,000+ species of earthworms, only half a dozen of them are suitable for vermicomposting. The most commonly used species is *Eisenia fetida (Red wigglers)*.

Where do I obtain *Eisenia fetida* earthworms for vermicomposting?

Do not buy worms for vermicomposting from a bait shop. You need at least 1,000 worms, and bait shops only sell about a dozen worms per cup. Instead, buy them by the pound (roughly 1,000 earthworms) from a worm grower. Worm growers can be found on the *Directory of Vermiculture Resources by State in the U.S. and by Country: Worms, Supplies, and Information* at http://www.bae.ncsu.edu/topic/vermicomposting/vermiculture/directory-by-state.html. Most worm growers will ship worms, so you don't have to live near them. You can also ask your county Cooperative Extension office if they are aware of local worm growers.

What conditions are ideal for raising *Eisenia fetida*?

Proper temperatures, moisture, oxygen levels, and pH should be maintained. Temperature limits are between 39 and 95 degrees Fahrenheit, with 59 to 77 degrees F being ideal. As temperatures go farther below or above these limits, the worms will decrease the amount they eat and breed. Moisture limits are 60 to 90 percent, with 80 percent being optimum. Oxygen is necessary, so make sure your worm bin has holes to allow air to flow through. Try to maintain a pH of 7.0 in the bin. Only foods that are low in salt or ammonia content should be fed to the worms.

How often do I feed the worms?

Feedstock throughput in vermiculture is based roughly on how many worms you have. *Eisenia fetida* will consume 50% to 100% of their body weight per day. For planning purposes, assume the worms will eat half of their body weight daily. The number of worms you have is measured in pounds; there are approximately 1,000 *Eisenia fetida* per pound (if they are all adults, there may be 500 worms; if they are all juveniles, there could be 2,000 worms). So, one pound of worms can consume half a pound of food per day in the proper conditions.

How do I set up and maintain a worm bin for my home or office?

Go to my website at http://www.bae.ncsu.edu/people/faculty/sherman and click on *Worms Can Recycle Your Garbage* for guidance. To find worm growers, click on *Directory of Vermiculture Resources by State in the U.S. and by Country: Worms, Supplies and Information.* Many worm growers will ship worms to you.

Where can I find information about vermicomposting on a larger scale?

There are several resources on my website. Go to http://www.bae.ncsu.edu/people/faculty/sherman and click on "Vermicomposting." Read *Raising Earthworms Successfully* and then click on the other publications related to commercial or farm-scale vermicomposting. Check out who else is in the business at *Directory of Vermiculture Resources by State in the U.S. and by Country: Worms, Supplies and Information*. Send me an email asking to be added to my notification list for upcoming workshops. I offer the only conference on large-scale vermicomposting in the U.S.; read about the one held in June 2009 at http://www.bae.ncsu.edu/workshops/worms09/index.htm

Prepared by Rhonda Sherman, Extension Solid Waste Specialist, Biological & Agricultural Engineering Department, NC State University, Raleigh, NC 27695

Website: http://www.bae.ncsu.edu/people/faculty/sherman

Email: rhonda_sherman@ncsu.edu ~ Phone 919.515.6770 ~ July 2009