



Composting with Worms – the Basics

Vermicomposting is the process of converting organic waste into nutrient-rich humus called vermicast or worm castings. These materials have been shown to contain reduced levels of contaminants and a higher saturation of nutrients than do organic materials before vermicomposting. Compared to ordinary soil, worm castings may contain five times more nitrogen, seven times more phosphorus, and 11 times more potassium. They are rich in humic acid and improve the structure of the soil.

Materials Needed: *Container* *bedding* *worms* *food scraps*



Containers: Worm containers can be purchased or made. They are normally plastic or wood and come in a variety of sizes. An inexpensive plastic storage container would make a good first worm bin. Whatever container is used, it should have holes drilled in the top, sides, and bottom for ventilation and drainage.

Bedding: Worms need not only food, but a place to live within the container. Bedding materials provide both. The bedding must be able to retain both moisture and air while providing a place for the worms to live. Some suitable sources of bedding are:

- Shredded paper
- Shredded cardboard
- Coconut coir
- Peat Moss
- Leaves

Worms: The worms most often used in vermicomposting are called red wigglers (*Eisenia foetida*) and can be ordered online or purchased from local sources. For a small bin, it is not unusual to begin with 500-1000 worms. A pound (about 1000) of red wigglers can consume a half pound of kitchen waste per day.

Food: The kitchen waste fed to worms can come from a variety of sources, including all vegetable and fruit waste, coffee grounds (with filter) and tea bags. Like chickens, worms have a gizzard so fine grit should be added to help the worms digest food. Cornmeal, coffee grounds, garden soil, and finely crushed egg shells are commonly used for this purpose.

Initial Set-Up: The first step is to add bedding to the chosen container. The amount of bedding depends on the size of the container. The bin should be 2/3 filled with "fluffed" prepared bedding. To prepare the bedding, place the dry, shredded bedding in a large container and add water until it covers the bedding. Allow the bedding to absorb as much water as possible before putting it in the worm bin. The overall moisture level of the bedding placed in the bin should be like a "wrung-out sponge". Next, add the worms. The general recommendation is 1 pound per square foot. Add the food waste and cover the worms and food with bedding.

Harvesting the Compost: After six weeks, the bedding will be noticeably darker with worm castings. After two and a half months have passed, there will still be some of the original bedding visible in the bin plus brown and earthy-looking worm castings. Although food waste is being added regularly, the bedding volume will gradually decrease and should be replenished. There are several methods used to harvest the compost. One of the simpler ones involves moving the finished compost over to one side of the bin, placing new bedding in the space created, and placing food waste in the new bedding. The worms will gradually move over to the fresh bedding and food waste, and the finished compost can be harvested.

Using the Compost: For potted plants, add a thin layer to the top of the potting soil. The compost can be added directly into your soil mix when repotting. In the garden, simply work it into the ground around the base of each plant. The compost is very mild so there is no worry about accidental burning or over fertilizing.

References

1. *Worms Eat My Garbage*, Mary Appelhof. Flower Press, Kalamazoo, Michigan. 1997.
2. *The Worm Book: The Complete Guide to Gardening and Composting with Worms*, Loren Nancarrow and Janet Hogan Taylor. Ten Speed Press, Berkeley. 1998.
3. *The Worm Book For Beginners: A Vermiculture Starter or How To Be A Backyard Worm Farmer And Make The Best Natural Compost From Worms*, Frank Randall. Backyard Farm Books. 2012.
4. <http://aggie-horticulture.tamu.edu>
5. <http://www.RedwormComposting.com>
6. www.youtube.com (search for worm composting)



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