

How the Worm Turns (Waste Into Compost!)

Background

Redworms (*Eisenia foetida* or *Lumbricus rubellus*), also known as red wigglers or manure worms, can process kitchen waste into high quality garden compost. Properly constructed and maintained bins produce no odor and provide several benefits:

- Save garbage disposal costs
- Produce an excellent soil amendment
- Provide worms for fishing
- Demonstrate the natural process of biodegradation

Materials and Procedure

Sizing a worm bin is simple: one square foot of surface area is needed for each pound of food waste added each week. A large plastic, metal, or wooden box, no deeper than 1 ft. (to avoid anaerobic conditions), can be used (2'x2'x1' or 10-18 gal. is good). Heavy-duty black plastic works fine for the cover if the box doesn't have one. For each sq. ft. of bin, you will need:

- 1.5 lbs. bedding (B&W newspaper or 1/2 leaves and 1/2 newspaper)
- 4.5 lbs. water (approximately 1/2 gallon)
- 1 handful soil
- 1-2 eggshells
- 4.5 ounces redworms
- 1 lb. food waste per week

Order redworms (NOT nightcrawlers) for \$24/lb from:

Flowerfield Enterprises
10332 Shaver Road
Kalamazoo, MI 49024
616-327-0108 or nancy@wormwoman.com
www.wormwoman.com

(Farms with cattle or horses may also be a source of manure worms.)

Newspaper and leaves are inexpensive bedding. Shred the newspaper by opening it and repeatedly tearing down the middle until the strips are about 2 in. wide. Put the shredded paper in the box and fluff it. Smaller pieces are fine, too.

Slowly pour in the water, fluffing the newspaper occasionally. Sprinkle in the soil (for grit and decay organisms) and eggshells (to aid worm reproduction). Gently put the worms in the box, leaving the top off until the worms burrow down. Close the lid, or cover with a black plastic sheet, but *don't cover tightly*. Bury some food waste in the box.

Maintenance

Worm bins need little routine maintenance. In fact, they do best if they aren't disturbed except for feeding. Just add some food waste each week, rotating the burial location. The bin can be left in a basement for 3-4 weeks as long as fresh bedding, food, and moisture have been provided. Redworms

have three needs: temperature of 50-84°F (55-77°F preferred), adequate moisture, and ventilation. If the food waste is moist, it may not be necessary to add water. Too much water can drown the worms. That's why earthworms come to the surface after a rain. If the bin does not have air holes, never put the lid on tightly! If you do, the worms will be right under the lid, ready to crawl out as soon as it's opened because they need air. If the lid is on too long, the worms may suffocate because decomposition uses oxygen. Occasionally a worm might escape, but it won't get far before drying out. As long as the worms' basic needs are met in the bin, they stay put.

Bedding should be changed every three to six months. After three months, you will find that the number of redworms is high. In four months, there will still be a lot of redworms, plus fairly good compost. After six months, many of the redworms will have died, but the quality of the compost (mostly worm castings) will be very good.

To change the worm bedding, either dump the contents of the bin under a bright light and brush the layers of compost away (the worms will move away from the light to gather at the bottom of the pile), or pull the compost, plus worms, to one side of the bin and add new bedding (and food!) to the vacant side a couple of weeks before you want to "harvest" the compost.

Most fruit or vegetable scraps work well in the worm bin. Examples are: apples, apple peels, baked beans, banana peels, biscuits, cabbage, cake, cantaloupe (a worm favorite), casserole, celery, cereal, cheese, coffee grounds, coffee filters, cornbread, cottage cheese, cream cheese, cucumbers, deviled eggs, eggshells, grapefruit peels, grits, lemon, lettuce, molasses, oatmeal, onion peel, pancakes, pears, pineapple, pineapple rind, pizza crust, potatoes, potato salad, tea bags, watermelon (another favorite). Avoid meat, bones, and non-biodegradable materials, as well as plastic, bottle caps, rubber bands, sponges, aluminum foil, or glass. Don't allow the bin to be used as a cat's litter box.

Burying food waste completely and not adding too much fruit at one time will discourage fruit flies. If they become a problem, stop adding food until the scraps already in the bin are mostly decomposed. Then add only vegetables, eggshells, and coffee grounds until the flies are gone.

Reference: Applehof, Mary. 1982. *Worms Eat My Garbage*. Kalamazoo, MI: Flower Press. 100 pp. www.wormwoman.com

To see a worm bin, contact:

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Houghton, MI 49931-1295
Tel: 906-487-3341 Website: <http://emmap.mtu.edu/gem>