

Harvesting & Changing Bedding

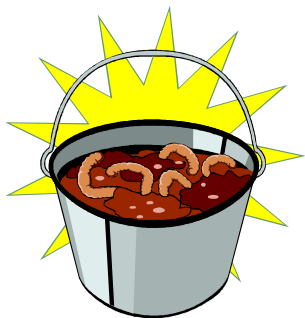
As worm castings in the bin increase, your worms' living quality decreases. Thus, for worms to stay alive, bed changing is necessary. For high maintenance bins, change every 2-3 months. Below are some different techniques to choose from.

Dump & Sort Lay a large plastic sheet on the ground, dump out the bin, and sort the mixture into several cone-shaped piles. Shine a bright light over the piles. The worms will travel to the bottom to avoid the light. Remove tops and sides, and repeat as necessary. Lift plastic sheet with worms and dump them back in the bin with new bedding. Save any vermicompost for the garden or houseplants.

Let the Worms do the Walking Move the bedding, food waste and worms to one side of the bin. Add fresh moistened bedding to the vacant side. Bury the food waste in the new bedding for the next 2-3 months. The worms will migrate to the new bedding and the old vermicompost can then be removed.

Divide & Dump Take out all but 1/3 of the worms and vermicompost, then add new bedding. Take vermicompost from the box to the garden... worms and

Using Vermicompost: Many happy returns!



The finished product, vermicompost, is a mix of worm castings and other organic materials, such as nutrients, humic acid, and other soil amendments. This natural fertilizer can provide for vigorous plant growth, tastier vegetables, and healthier soil.

To use as mulch or soil amendment, apply an inch layer to the soil around plants or bushes, or, spread over the garden soil before planting.

For houseplants, sprinkle vermicompost around the base of plants to fertilize. Nutrients will seep with watering.

Troubleshooting:

Symptoms	Problems	Solutions
Worms dying	Not enough food Too acidic Too dry Too wet Too hot	Feed more Remove acidic food Add water Add bedding Put bin in the shade
Bin smells	No air circulation (i.e. too wet) Non-compostables present Food exposed	Add dry bedding Remove meat / bones Bury food
Cat thinks bin is a litter box	No lid on bin	Remove cat feces, keep lid on bin

“Wrigglie’s” Believe It or Not



* When an earthworm is cut in two, both halves do not live. Depending on where the worm is cut, the half with its head might live and grow a new tail end. The severed tail end dies.

* Several hundred million years old, earthworms are among the earth's most ancient inhabitants.

* There are thousands of species of earthworms in the world. The nightcrawler is the largest type of North American earthworm and, therefore, prized by anglers. Common garden or field worms look somewhat like nightcrawlers but are smaller. Earthworms come in many other colors from pink, tan, and brown to blue, green, and purple.

* A very healthy 16X16 inch section of backyard contains about 100 earthworms.

* Some worms live 60 years, but most live less than a year.

*Each day, a worm excretes the equivalent of its own weight in castings.

*An earthworm has five pairs of hearts and is both male and female. Earthworms mate by attaching their saddles (the thick band) to each other; each then lays a cocoon usually containing four or five eggs.

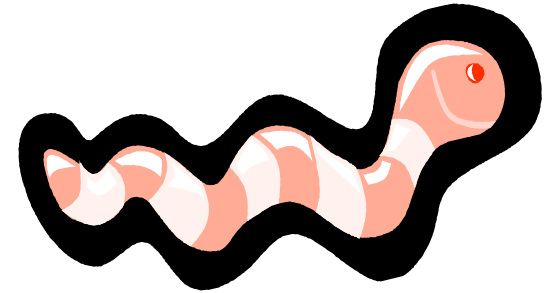
*Most earthworms species aren't native to the United States, but introduced from Europe, their cocoons probably packed into soil under the shoes of colonists' horses.

An additional brochure on bin construction entitled “Worm Composting Bins Made Easy” is available from the City of Lawrence. Call 832-3030. This brochure was adapted from “Worms Eat My Garbage” by Mary Applehof, Flower Press.

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Vermicomposting:

Composting with Worms



City of Lawrence
PUBLIC WORKS

More information at:
www.LawrenceRecycles.org
or 832-3030

Find us at:
www.facebook.com/LawrenceRecycles

Why compost your food waste with worms

On average, over 5% of household waste generated and disposed of is food waste. Because modern landfills are designed to be virtually air-tight, even organic materials do not biodegrade when they are thrown out with the trash. Vermicomposting reduces the food waste your household generates.

What's more, Vermicomposting is an enjoyable, easy way to reduce your garbage or unnecessary sewerage of organic kitchen wastes by recycling them into a nutrient-concentrated amendment for your garden or houseplants. Your worms will quietly and almost odorlessly convert your garbage into a product that provides for vigorous plant growth, tastier vegetables and healthier soil— all for your benefit.

How to start Vermicomposting

Supplies you'll need to get started:

- Worm Bin
- Soil
- Bedding
- Food Waste
- Water
- Worms



Type of Worm to Use

Red worms (*Eisenia foetida*) or red wigglers (*Lumbricus rubellus*) are best to use for vermicomposting. These worms not only thrive in confinement, but they reproduce quickly and can eat more than their own weight in food every day! DO NOT use nightcrawlers (*L. terrestris*) as they need cool soil and feed differently than red worms.

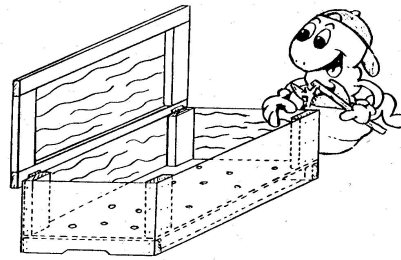
Red worms can be purchased in many stores or online. Please note that one pound of redworms is a good amount with which to start a home vermicomposting bin. Worms can eat their own weight in food per day, but in the bin you must also account for the bedding. (e.g. 1 lb. would be adequate for 3-5 lbs. of food waste per week, which is the average for a two person household).

Container

Your bin should have approximately 1 square foot of surface area per pound of food per week. For example, a 2' x 2' box would work for a two person household with about 4 pounds of food per week. Save your food waste for a week or two to see what size container will fit your needs. It should be shallow, 8" to 12" in depth, as worms are surface feeders.

Suitable materials for your bin include wooden boxes, galvanized metal washtubs and plastic utility tubs.

Drill or punch several 1/2" holes in the bottom of the container. This provides aeration to ventilate the worms and allows for drainage.



Setting Up the Worm Bin

- 1. Bedding** There should be enough to completely fill the bin.
- 2. Water** Mix water and bedding in a large container until the bedding is the consistency of a damp sponge, then add to the bin.
- 3. Soil** Scatter a couple of handfuls of soil throughout the bedding for the worms to use for grit.
- 4. Food Waste** Divide the bin into 9-12 areas. Start with one location and add food waste by burying it under the bedding. Change the location of where food is added each time, this encourages worms to munch through their bedding, maximizing vermicompost production.
- 5. Worms** Scatter worms over the top of the bedding. The worms will migrate towards the food waste. Any worms left on top after an hour might be dead and should be removed.

Type of Bedding

Type	Advantage	Disadvantage
Newsprint	Clean, odorless No cost, no dust	Must shred Dries out easily May mat down in layers
Leaves, Straw, or Hay	Low or no cost Natural habitat Retains moisture	Unwanted organisms May mat down in layers May mold

What to feed your worms

Do feed

Vegetable scraps
Fruit peelings
Bread
Grains
Coffee and Tea filters
Non-Greasy Leftovers

Don't feed

Meat and bones
Dairy products
Greasy foods
Rubber bands
Twigs and Branches
Dog and Cat feces

Eggshells can be added to the worm bin, but need to be dried and crushed up first into a powder.

Basic Worm Care

In addition to feeding your worms, there are three essentials to ensure worm happiness:

Temperature Between 55°F and 77°F is ideal; above 84°F could harm the worms.

Moisture Moist bedding (i.e. damp sponge consistency) allows for air exchange to take place. Be careful not to over-water, as flooding the bin can drown your worms.

Ventilation Air needs to circulate through the bin for worm respiration.

