How to compost with worms

Compost in your house or apartment

Vermiculture, or worm composting, uses red wiggler worms (*Eisenia foetida*) to biologically decompose food waste.

These worms are very effective at decomposing kitchen food wastes. They reproduce quickly, are not difficult to maintain, and don't require the space of a backyard compost bin.

- A pound of worms can eat a half-pound of food waste in just a few days.
- Worms don't take up a lot of space, so they're perfect for everyone, even apartment dwellers.
- Worms can survive on a diet made up entirely of kitchen scraps.

How many worms do you need?

To determine the amount of worms you need, collect your food discards in a container for a week. Weigh the container of food. For every half-pound of food you collected, you need one pound of worms.

So, for an average week, if you discard two pounds of food, you will need four pounds of worms to decompose the amount of food waste generated in your household.

However, if buying four pounds of worms is too expensive, you can buy a smaller amount, and over a period of a few weeks, gradually increase the amount of food you put into the bin. The worms will increase in number to match the amount of food that is put into the bin.

Set up your bin

Container/bin: You can buy a bin specially designed for vermiculture, or you can make your own.

To make your own, purchase two nesting storage bins at any home and garden store or larger retail store. Drill holes in the bottom of the inside bin, using a 1/4 to 3/8 inch drill bit. This allows the liquids generated in the composting process to drip down into the bottom storage bin. (Periodically, you will need to drain the "worm juice," a great liquid fertilizer, into a container.) For air circulation, drill holes in the lid of the top container or along the sides of the inside container about one to two inches above the outside container.

Bin sizes will vary according to the amount of food generated by your household. However, a common bin size is one foot deep by two feet wide by two or three feet long.

Bedding: You can use peat moss, shredded paper or newspaper, or leaves. But don't use paper with colored inks—it can contain toxic metals. You can use more than one type of bedding, too; it actually provides a richer source of nutrition for the worms. Note, a handful of dirt or sand may be added to the bedding to help the worms digest better.

Water is not generally needed, as food has a lot of moisture. However, it may be needed in some situations; bewith *caution.*

Worms: The general rule of thumb is one pound of worms for every half pound of food.

Food scraps

Hand trowel

Worm bin from City Farmer with lid, bottom tray, and air vents.

Use shredded newspaper, peat moss, and/or dry leaves for bedding.

Then add a handful of sand and soil.

What do worms eat?

Acceptable materials

- uncooked fruit, grain, or vegetables
- egg shells
- coffee grounds & tea bags (not too much)

Materials to avoid

- meat, fish & other animal products
- dairy products
- greasy or fried foods
- pet waste

Start collecting food scraps about two weeks before you are ready to put your worms in the bin. This gives the food some time to start to decompose so the worms will be able to eat it quicker. Store scraps in a sealed container to avoid attracting flies or pests. Refrigerate if possible.

Place red wriggler worms on top; they'll crawl to the bottom.

Open a hole in the bedding in one corner and deposit food.

Finished compost can be expected in three to four months.

Step-by-step photos used with permission from City Farmer, Vancouver, BC www.cityfarmer.org.

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Care and feeding of your worms

Worms do not like extreme cold or hot temperatures. So once you have your bin ready to accept food, place it in an area where the temperature stays between 50 to 75 degrees F. This may be inside or outside the house. The critical factor is the temperature range of 50 to 75 degrees F.

Put worms on top of bedding. They'll crawl to the bottom. It is not necessary to care for your worm bin on a daily basis. Worms like to be undisturbed.

You should put food in the bin once or twice a week. When you put food in the bin, create a pocket by digging a hole, place the food in, and cover the food with one to three inches of bedding. Use a different pocket each time you feed the worms.

Add food scraps in small amounts, especially at first, or your bin may get smelly or heat up. Only add enough food for the worms to eat. Cutting up food waste will speed up the process.

While you are feeding the worms, fluff up the soil to make sure it doesn't get too compacted. Bedding should be light and fluffy for maximum air exchange.

Keep the bedding damp. You should be able to squeeze out no more than a drop or two of water. If the bedding is too dry, it can harbor pests. Add water a little bit at a time. If bedding becomes too wet, you may experience odor problems. Add dry paper as needed to soak up excess water.

Harvesting the worm compost

Worms work quickly. In about two to four months, you should notice a build-up of dark rich castings. In about six months, you will need to harvest the worm castings.

Harvest the castings by shifting everything in the bin over to one side. Place new bedding on the other side and bury food only in the new bedding. Continue to feed the worms only on this side.

In about two weeks, all of the worms will have migrated to the new side. Then you can collect the castings from the other side and add bedding to replace the old stuff. Continue harvesting one side at a time.

Enjoy using your new compost as a houseplant dressing or garden supplement. Remember worm castings are a potent source of nutrients for your plants—use them sparingly, about one handful of worm castings to ten handfuls of soil.

How to use worm juice.

After you have had your worm composting bin going for a while, you will begin to collect a silty kind of liquid in the bottom container. Using a piece of cheese cloth, you can strain the silty materials out of the liquid and reserve the liquid in a container. The silty materials can be top-dressed on indoor or outdoor plants.

The remaining liquid, or "worm juice" is a strong fertilizer that should be diluted about 20:1 prior to use. The liquid may be used to water your veggie garden, indoor or outdoor plants or flowers, shrubs or trees. Worm juice is also reported to have anti-fungal properties that when sprayed on plant foliage can prevent fungal diseases such as black spot.

Here are a few websites that sell composting red worms for your bin.

www.magicworms.com/

www.workingworms.com/

www.wormdigest.org/

Here are some more web sites on worm composting for beginners.

www.cityfarmer.org/wormcomp61.html

Mary Appelhof, author of *Worms Eat my Garbage,* offers a wide variety of products for sale: www.wormwoman.com

Texas Horticulture Program, Texas A&M University:http://aggie-horticulture.tamu.edu/extension/compostfacility/worm1.htm

YAKIMA COUNTY PUBLIC SERVICES
SOLID WASTE DIVISION
7151 ROZA HILL DRIVE • YAKIMA WA 98901
www.yakimarecycles.com

Minnesota Pollution Control Agency
800-877-6300 www.pca.state.mn.us

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