

Vermicomposting (Composting With Worms)



Information on Using Earthworms to Produce Compost

Millions of tons of food waste are buried or burned each year at considerable financial and environmental cost. Instead of discarding your food scraps, you can recycle them with the help of worms. Vermicomposting (worm composting) turns many types of kitchen waste into a nutritious soil for plants. When worm compost is added to soil, it boosts the nutrients available to plants and enhances soil structure and drainage.

Vermicomposting food waste offers several advantages:

- It reduces household garbage disposal costs;
- It produces less odor & attracts fewer pests than putting food in a garbage container;
- It saves the water and electricity that kitchen sink garbage disposal units consume;
- It produces a free, high-quality soil amendment (compost);
- It requires little space, labor, or maintenance;
- It spawns free worms for fishing.

Equipment and Supplies

The materials needed to start a vermicomposting system are simple and inexpensive. All you will need are a worm bin, bedding, water, worms and your food scraps.

• **Worm Bin.** A suitable bin can be constructed of untreated, non-aromatic wood, or a plastic container can be purchased. A wooden box is better if you will keep the worms outdoors, because it will keep the worms cooler in the summer and warmer in the winter. An outdoor wooden bin can even serve double-duty as a bench. If a plastic container is used, it should be thoroughly washed and rinsed before the worms and bedding are added. The bin size depends on the amount of food produced by your household. The general rule of thumb is one square foot of surface area for each pound of garbage generated per week.

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For two people (producing approximately 3 1/2 pounds of food scraps per week), a box 2 feet wide, 2 feet long, and 8 inches deep should be adequate. A 2-foot-by-3-foot box is suitable for four to six people (about 6 pounds of waste per week). Redworms (the type used for vermicomposting) thrive in moist bedding in a bin with air holes on all sides. For aeration and drainage, drill nine 1/2-inch holes in the bottom of the 2-foot-by-2-foot bin or 12 holes in the 2-foot-by-3-foot bin. Place a plastic tray under the worm bin to collect any moisture that may seep out. Drilling holes on the upper sides of your bin will also help your worms get needed oxygen and prevent odors in your worm bin. Keep a lid on the bin, as worms like to work in the dark. Store the worm bin where the temperature remains between 55° and 77°F.



- **Bedding.** The worms need bedding material in which to burrow and to bury the garbage. It should be a non toxic, fluffy material that holds moisture and allows air to circu-



late. Suitable materials include shredded paper (such as black-and-white newspapers, paper bags, computer paper, or cardboard); composted animal manure (cow, horse, or rabbit); shredded, decaying leaves; peat moss (which increases moisture retention); or any combination of these. Do not use glossy paper or magazines. Add two handfuls of soil to supply roughage for the worms. Adding crushed eggshells provides not only roughage but also calcium for the worms, and it lowers acidity in the bin. About 4 to 6 pounds of bedding is needed for a 2- foot-by-2-foot bin (for two people), and 9 to 14 pounds of bedding should be used in a 2- foot-by-3-foot bin (for four to six people). Worms will eat the bedding, so you will need to add more within a few months.



- **Water.** The bedding must be kept moist to enable the worms to breathe. You will need to add about 1 1/2 to 2 1/4 gallons of water for 4 to 6 pounds of bedding. If the bedding dries out, use a plant mister to spray some water on it.
- **Worms.** It is important to get the type of worms that will thrive in a worm bin. Only redworms or "wiggler" which are "composting worms" should be used (do not use night crawlers or other types of worms). Many companies sell composting worms and will aid you in setting up your own vermicomposting bin.
- **Food Scraps.** Feed your worms any non-meat organic waste such as vegetables, fruits, eggshells, tea bags, coffee grounds, paper coffee filters, and shredded garden waste. Worms especially like cantaloupe, watermelon, and pumpkin. Limit the amount of citrus fruits that you add to the bin to prevent it from becoming too acidic. Break or cut food scraps into small pieces so they break down easier. Do not add meat scraps or bones, fish, greasy or oily foods, fat, tobacco, or pet or human manure. Be sure to cover the food scraps completely with the bedding to discourage fruit flies and molds. One pound of worms will eat about four pounds of food scraps a week. If you add more food than your worms can handle, anaerobic conditions will set in and cause odor. This should dissipate shortly if you stop adding food for a while.
- **Temperature.** Redworms will tolerate temperatures from 50° to 84°F, but 55° to 77°F is ideal. They are also grown outdoors in the coldest areas of the country. Information regarding this method is available online from different sources.

For More Information

Online:

Worm Composting: <https://static1.squarespace.com/static/5626ca64e4b0869ef5062e82/t/56b53058356fb0778ea2a47e/1454714969471/worm-composting-amystewart.pdf>

Vermicomposting for Beginners: <https://rodaleinstitute.org/science/articles/vermicomposting-for-beginners/>

Books:

"Worms Eat My Garbage" by Mary Appelhof, Flower Press, Kalamazoo, Michigan, 1982

"The Earthworm Book: How to Raise and Use Earthworms for Your Farm and Garden" by Jerry Minnich, Rodale Press, Emmaus, 1977

Call the Butler County Department of Recycling & Waste Management if you need more information.



Board of Butler County Commissioners

There are many resources online that can guide you on how to build your own bin and for troubleshooting when you have problems.

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