

# *the basics of* Vermicomposting



Even if you don't have room for a compost pile, putting earthworms to work in a vermicomposter will turn your kitchen scraps into black gold.

BY KRIS WETHERBEE

**F**OR ALL ITS rewards, gardening can be a labor-intensive and time-consuming endeavor. Who among us hasn't at one point or another wished that a large crew of helpers would magically appear, perhaps emerging from the ground like the soldiers who grew from dragon's teeth in Greek mythology. Well, what if I were to tell you how to recruit hundreds of workers who will work without pay 24 hours a day?

Okay, so the workers I'm talking about are actually a hungry crew of earthworms. With the help of specialized bacteria that live in their digestive tracts, these worms can eat their way through kitchen scraps and other vegetative matter, a process known as vermicomposting. The end result of their efforts is worm castings, a

mineral-rich organic fertilizer that can be applied to indoor and outdoor plants.

One of the best things about vermicomposting is you don't need a lot of space to practice it—you can do it in an apartment, a townhouse, even a school classroom. Because worms can consume food at a much more rapid pace than the bacteria-driven decomposition that occurs in a conventional compost pile, vermicomposting is essentially odorless, which makes it a viable indoor option. Plus it's fairly easy to do, is a great project to get kids involved with gardening, and reduces the amount of waste

**Red wiggler worms, shown above, are the best choice for vermicomposting because they adapt well to the close confines of an indoor worm bin and consume food scraps efficiently.**

going to landfills. Some communities are even offering free or discounted worm bins to residents as part of recycling incentives.

## THE RIGHT WORMS

You can't use just any old worms you dig out of the backyard for vermicomposting. For best results, you need red wigglers (*Eisenia fetida*), sometimes known as manure worms or tiger worms. These are super-efficient composters, eating half their body weight in vegetable and fruit scraps each day and reproducing prolifically. These relatively small earthworms—usually between one and three inches long—thrive in the confined environment found in a typical worm bin.

"The larger earthworms we find in our garden soil are very active and mobile,"



Worm bins are easy to make out of recycled containers or storage bins such as the one above. There are also a variety of commercial bins available, including multi-level ones like the one at right.

says Amber Gribben, co-owner of Urban Worm Girl, a company that sets up and troubleshoots worm bins at homes and classrooms in the Chicago area. “As a result, they make poor house guests because they aren’t content in an enclosed environment” and may escape.

## GETTING STARTED

In addition to your red wigglers, you will need a container, some bedding, and some vegetable or fruit scraps to get started. The best way to get the worms is to order them from a reliable supplier (see “Sources,” page 31), preferably one based in your region so the worms will spend less time in transit. “I recommend starting with a pound of worms—which is roughly 1,000,” says Gribben.

There are dozens of prefabricated worm bins available, including some sophisticated multi-level bins that simplify the process of harvesting the worm compost. But if you’re a do-it-yourselfer, you can easily convert a plastic storage container into a worm bin, or recycle objects such as a discarded trunk, sturdy Styrofoam box, or clean, food-grade bucket. The size is up to you, but ideally the bin should be at least eight to 12 inches



deep and slightly wider or longer than it is deep. (For instructions on creating your own vermicomposter from a plastic storage bin, turn to the sidebar on page 30.) Place bins in a well-ventilated but sheltered and frost-free place, such as a laundry room, basement, or garage.

A variety of materials will serve as bedding for red wigglers, but a mixture of shredded or torn-up newspaper and cardboard is ideal (avoid glossy advertising supplements, which don’t absorb water well). You should have enough shredded

bedding that it will fill half your bin when loose and dry. After ensuring you have enough, remove the materials and soak or spray it with water to moisten. Then squeeze out excess moisture and fluff up the bedding—this creates air spaces and gives the worms freer movement—before placing it back in the worm bin.

Sprinkle three or four cups of garden soil, compost, or coconut coir (made from the fibrous husks of coconuts) over the paper, then use your hands to mix it all together. Bury some finely chopped vegetable and fruit scraps (about two cups total) in several locations under the surface of the bedding, then add the red wigglers on top. Cover the bin with a lid and let your worms start exploring their new home.

## WORM DIET

Red wigglers’ primary diet should be the peelings and trimmings from a variety of fruits and vegetables, but you can add occasional “snacks” such as coffee grounds (with paper filters), tea leaves, and starches (pasta, rice, or bread). Dried, crushed egg shells can be added once in a while because they are an aid to earthworms’ digestive processes.

Items to avoid adding include “strong-smelling or spicy foods that are distasteful to earthworms—such as the fleshy part of onions or garlic, jalapeños, Brussels sprouts, and citrus rinds—because these will sit around longer and may produce an odor,” says Gribben. “Also don’t add meat, dairy products, or oils because they won’t decompose—any animal products could introduce pathogens to the worm bin.” And pineapples might be the symbol of hospitality, but don’t add them to worm bins because they contain a chemical toxic to earthworms.

Add new food to the bin every few days as needed to replace what is being consumed. If you notice an odor or see uneaten food, cut back on the frequency or amount of food. Each time you add food, check the bedding to make sure that it stays slightly moist. Gribben recommends adding new bedding periodically, even if it’s only torn up scraps of the cardboard rolls from paper towels or toilet paper. “Adding paper is

## BUILDING A SIMPLE WORM BIN

For do-it-yourselfers, here's how to create a worm bin from an 18-gallon plastic container, which can handle kitchen wastes for a family of four to six. A container of any size can be used to make your worm bin as long as it is at least 12 inches in height and opaque to keep out sunlight, which the worms don't like. Keep in mind that the worm bin will need to sit inside or on top of another container, which serves to catch any liquids that drain from the bin.

—K.W.

### What You'll Need

- 18-gallon plastic storage bin (not clear) with lid, for worm bin
- 30-quart plastic storage bin, about 8 inches high, for collecting any excess moisture (this can be diluted with an equal volume of water and used to fertilize outdoor plants)
- 4 bricks or blocks of wood about 2 to 3 inches in height (all the same height)
- Electric drill with  $\frac{1}{4}$ -inch and  $\frac{1}{16}$ -inch bits (for making drainage and ventilation holes)
- A mixture of torn or shredded non-glossy newspaper and cardboard (empty paper egg cartons work well)
- Garden soil, potting mix, coconut coir, or well-aged compost
- Chopped kitchen scraps
- One pound of red wigglers



**step 1** Using the  $\frac{1}{4}$ -inch bit, drill 15 to 20 drainage holes in the bottom of the 18-gallon bin (shown). Next, using the  $\frac{1}{16}$ -inch bit, drill 6 to 8 evenly spaced ventilation holes near the top edge on each long side of the bin.



**step 2** Set the 30-quart plastic bin in a well-ventilated but sheltered location. Place the bricks or blocks of wood, spaced equally apart, in the bottom of this bin. Set the 18-gallon bin on top of the bricks or wood. The bottom bin will collect excess moisture that drains from the worm bin.



**step 4** Fill the bin about half full with the torn paper and cardboard, then remove the paper and soak it in water to moisten. Squeeze it until it has the consistency of a wrung-out sponge and return it to the bin.



**step 5** Fluff up the moistened bedding to create air spaces for the worms to move through, then add several handfuls of soilless potting mix, coir, or compost. Mix the bedding together by hand.

PHOTOGRAPHS BY RICK WETHERBEE



**step 3** To create the bedding for your worms, start by tearing up or shredding a mixture of newspapers (avoid the glossy inserts) and cardboard—you can “repurpose” items such as egg cartons and the cardboard tubes from paper towels and toilet paper rolls for this purpose.



**step 6** Place the worms on top of the bedding and bury food scraps in several places underneath. Cover the bin securely with the lid. Check the bin every day or two to make sure the worms are adequately fed and maintained as described in the article.

partly for moisture management,” she says. “You can use it to compensate for humidity and excess moisture in food scraps, which can be more of an issue in summer months when you tend to be adding juicier, more water-rich food scraps.”

### TENDING THE WORM BIN

Always keep a lid on your worm bin when not actively tending it. This will reduce moisture loss from the bedding and help prevent fruit flies or other pests from laying their eggs in the kitchen scraps. “Keep a nice layer of shredded newspaper or compost on top of food scraps at all times,” Gribben also advises. A lid also will keep out household pets, although Gribben says they are not usually attracted to worm bins.

When the volume of the bedding has diminished substantially and what remains looks like compost, it’s time to remove the worm castings and refill with



**Having children participate in maintaining a worm bin is a great way to introduce them to nature and gardening.**

fresh bedding. Worm bins should be harvested every two to three months on average. “One of the common problems we encounter with new clients is a reluctance to harvest the compost,” says Gribben, who emphasizes that it’s beneficial both for the worms and for homeowners to remove it on a regular schedule. Some prefabricated worm bins are set up so you can add new food and bedding to another level to encourage worms to migrate upward, but if you have a home-

### Sources

**Gardens Alive!**, Lawrenceburg, IN. (513) 354-1482.

[www.gardensalive.com](http://www.gardensalive.com).

**Northwest Redworms**, Camas, WA. (360) 513-7251.

[www.northwestredworms.com](http://www.northwestredworms.com).

**Planet Natural**, Bozeman, MT. (800) 289-6656. [www.planetnatural.com](http://www.planetnatural.com).

### Resources

**The Complete Compost Gardening**

**Guide** by Barbara Pleasant and Deborah L. Martin. Storey Publishing, North Adams, MA, 2008.

**Composting Inside and Out**

by Stephanie Davies. Krause Publishing, Betterway Home Books, Cincinnati, OH, 2011.

**EarthWormDigest.org**,

[www.wormdigest.org](http://www.wormdigest.org).

**Urban Worm Girl**,

[www.urbanwormgirl.com](http://www.urbanwormgirl.com).

made bin, the easiest way to harvest is to transfer all the old bedding and compost/castings over to one side of the bin. Fill the vacant side with moistened fresh bedding and food scraps. The worms will gradually move over to the new bedding in search of food. The worm castings can then be removed, and new moistened bedding added in its place.

You can use the worm compost as a soil amendment for garden beds or containers, mix some into the potting medium you use for houseplants or seedlings, or dilute it and use it as compost tea. According to Gribben, an active, well-tended worm bin can produce 10 to 15 gallons of compost a year. “Research indicates that the worm castings function like hormones—boosting plant health and providing protection against disease,” she says. For best results, she recommends adding 30 to 40 percent vermicompost to potting soil mixtures.

Given how easy it is, why not try your hand at vermicomposting with your own crew of red wigglers? The worms will reward your efforts by turning your garbage into high quality compost your plants will appreciate. And, what’s more, it’s a lot of fun! ☺

*Freelance writer Kris Wetherbee lives in Oakland, Oregon.*