THE WONDER OF WORMS

Setting up a Worm Bin

Worm bins have found their way into homes, classrooms and offices across America as a method of reducing the amount of food waste thrown out with the garbage or down the drain. This fun and educational method of composting with worms or *vermicomposting* also produces a rich source of natural nutrients for plants.

Worm Bin Recipe

1 non-transparent shallow container with cover.

Solid colored plastic storage containers work well.

Choose size according to the amount of food waste that may be generated. Rule of Thumb: one square foot of surface space is needed for each pound of food waste produced per week.

Container should be no deeper than 15" to prevent anaerobic conditions from developing. Anaerobic conditions occur when air cannot circulate through the bin, causing offensive odors

Newspapers

Jug or bucket of water

1-2 handfuls of garden soil (for micro-organisms necessary to composting.)

1 pound of redworms

Food scraps

Spray bottle of water

Prepare container by drilling several holes around the upper third of the container to allow air to enter. Drill several holes in the bottom of the container to allow excess liquid to drain. Store bin on plastic tray lined with newspaper to absorb liquid.

Make bedding by ripping newspapers into strips 1 inch wide. Put the paper in the container. Add water into newspaper until bedding is thoroughly moistened but not soggy. There should be no standing water in bottom of container.

Mix in soil. Fluff bedding.

Spread worms over top of bedding.

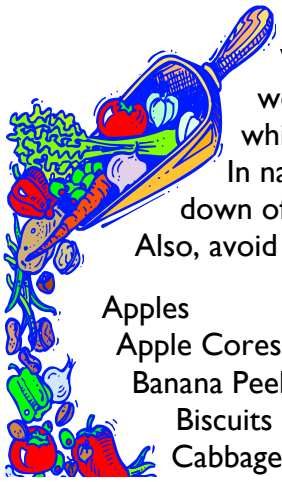
Bury food scraps completely under bedding.

Cover bin and place in a location where the temperature will remain 55-77 degrees Fahrenheit. Avoid areas where the bin may get direct sunlight since this will overheat the worm bin. Also, avoid areas with extended periods of vibrations i.e., next to a washing machine.

Bedding should remain moist at all times. Mist the bedding with a spray bottle of water, as needed.

Worm Wise

Eisenia foetida, commonly called redworms, are best suited for worm bins. You'll find them in their natural habitats near the surface of the earth, processing large amounts of organic material in manure, compost piles, and decaying leaves. They reproduce quickly and love to eat a variety of kitchen wastes.



What kind of food can I put in the worm bin?

Worms will eat most anything. A list of their favorites is given below. Feed your worms a good variety of produce scraps to keep an even chemical balance in the soil which keeps them healthy. Mostly fruit or tomato waste could make the soil too acidic. In nature and in industrial sized vermicomposting units, worms assist with the break down of meat products however meat waste is not recommended for small worm bins. Also, avoid dairy foods and oils. These foods may create unwanted odors.

Apples	Carrots	Lettuce	Pineapple Rind
Apple Cores	Coffee Grounds	Onion Peels	Pizza Crust
Banana Peels	Dry Cereal	Orange Peels	Potato Peels
Biscuits	Cucumbers	Pancakes	Tea Bags & Leaves
Cabbage	Egg Shells*	Pears	Tomatoes

*good source of calcium carbonate, necessary for worm production

How much do worms eat?

Redworms eat almost half of their body weight each day. If you start with a pound of worms you can feed them 3-5 pounds a week. Don't worry about the worms when you go on vacation for a couple of weeks. The worms will eat the bedding when no food waste is available.

Will there be odors and bugs?

A properly maintained bin should not give off any offensive odors or attract unwanted bugs.

Remember these proper maintenance tips:

- Avoid adding meat scraps or dairy products.
- Pull back the bedding to add new food. It is not necessary to "mix" the new food in. Lay it directly on top of any old food.
- Always completely bury food under the bedding material. Burying fruit waste will prevent fruit flies from being attracted to the worm bin.
- Keep the bedding material moist. Moist bedding prevents fruit flies. Use a spray bottle to moisten the bedding as needed.

Will I need to add more bedding?

Add bedding when there is not enough bedding material to completely bury the food waste. Fully prepare bedding in a separate container before adding it to the worm bin. After preparing the bedding, add it directly on top of the bedding in the worm bin. It is not necessary to "mix" in the new bedding. Other suitable sources for bedding are shredded office paper or shredded corrugated cardboard.

When can I use the vermicompost?

The redworms will work most productively when they are located in an area which maintains a temperature of 55-77 degrees Fahrenheit, fed, kept moist and minimally disturbed. Given these conditions, you will have compost available within 4-6 months.

WORM WONDERS

Worms have no eyes, but are extremely sensitive to light which they "see" via special skin cells located at the head and tail end of their body

Worms have no lungs to breathe with as we do. Their moist skin allows them to "breathe" oxygen into their body and release carbon dioxide from inside their body into the surrounding bedding

Worms, in nature, will usually live and die within the same year. Worms in a worm bin may live up to five years

An earthworm can move a stone that is fifty times its own weight

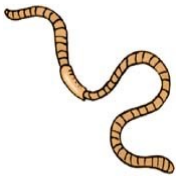
A mature redworm (four to six weeks old) can mate and produce two to three cocoons per week. Two to five baby worms can hatch from each cocoon in only three weeks

A single worm has both male and female reproductive organs, but it still takes two worms to reproduce

What is the best way to harvest the vermicompost?
The easiest method is the "Divide and Dump" technique described in *Worms Eat My Garbage* by Mary Applehof. You simply remove about two-thirds of your vermicompost, worms and all, and dump directly onto your garden. Add fresh bedding to the vermicompost that is still in the box. There will be enough worms and cocoons remaining to repopulate the worm bin.

Or you can let the worms do the sorting for you by putting the vermicompost and worms to one side of the worm bin. Add new bedding to the empty side. Bury your food waste in the new bedding only. The worms will move over to the new bedding in search of food. After 2 to 3 months the vermicompost can be harvested. You can continue this back and forth method to simplify your harvest of future vermicompost.

Another method is to dump and hand sort the worms from the vermicompost. First dump your worm bin out onto a large sheet of plastic. Make several cone-shaped piles. You will have worms all over the place and can begin hand picking them from the piles. When the light is very bright the worms will quickly move into the center of each pile. After about five minutes, you will not be able to see the worms. Gently remove the outer surface of each pile, exposing the worms to the light and sending them deeper into the pile. Following this process you will eventually end up with a container of vermicompost and a mass of solid worms. It's a good idea to have fresh bedding made up before getting started with this method so you can refill your empty bin with fresh bedding and add the worms as you sort.



Where can I get redworms?
5 Heart Earthworm Farm, a division of Saginaw-based Iris Waste Diversion Specialists sells redworms by the pound. Please contact us for availability and pricing using contact information at the bottom of this page.

Also check your local bait shop for redworms. Don't be surprised if they don't know them as redworms. They are also commonly called red wigglers, red hybrids or manure worms. If you are successful in finding redworms in your bait store you may find them to be more expensive than ordering from a grower. Growers sell by the pound (approximately 800 to 1,000 worms), where bait shops usually sell by the dozen.

Where can I learn more?
Worms Eat My Garbage is a great resource book for vermicomposters. It is available from Flowerfield Enterprises. Additional resources may be available from your local cooperative extension office, garden club, ecological organizations, or the environmental office of your local or county government. There are also many informative websites and vermi-composting groups available through social media sites such as Facebook and Linked-In.

We also provide worm bin workshops and classroom lessons. Contact us to learn more.