



# Wonderful Working Worms

## Compost Your Kitchen Scraps at Home with the Help of Redworms

When food scraps are thrown into the garbage, a valuable resource is turned into a liability. Garbage has to be picked up, transported, and buried or burned at significant financial and environmental cost.

Composting is a process that converts food scraps into a useful organic soil amendment or mulch. Vermicomposting (letting worms eat your garbage to make compost) is an easy and affordable way to help reduce the amount of waste that you and your family produce.

### What are you doing with your organics?

People typically deal with their food scraps in two ways: they use their handy garbage disposals or throw them into the garbage without a second thought. But both of these options have environmental disadvantages. While it seems that food ground up in the garbage disposal goes away, it only ends up going down the pipe with wastewater to city and regional water treatment plants. At these facilities, the food waste must be separated and then disposed of in landfills or incinerated. The road is longer but it ends up in the same place as your trash. Although organics by nature are biodegradable, a trip to the garbage is the end of the line for your food scraps as a usable resource. When organic material decomposes in the landfill, it picks up so many other toxins from the trash surrounding it that the end product is a highly toxic sludge—called leachate—that needs to be contained and treated. In incinerators, the material is burned, never to be used again.

### Collecting organics at the curb


Because your food scraps, leaves, and grass are valuable, recycling programs across the nation are now looking at organics as the next frontier in waste reduction. In many cities, like Hutchinson, Minnesota, organics can be separated by residents for collection, just as recyclables are separated for curbside collection. In 2001, Eureka Recycling tested organics collection in over 400 Saint Paul households. The households in the study diverted an average total of 74 percent of their discards—through recycling and organics collection—from their trash, and residents were enthusiastic about the opportunity to have their kitchen scraps collected for composting. Because of this success, Eureka Recycling and the City of Saint Paul have embraced the goal of adding household organics to curbside collection services by 2008. When organics are collected, they are delivered to a composting facility where the large amounts of organics are carefully managed to create compost.

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

Our mission is to reduce waste today through innovative resource management and to reach a waste-free tomorrow by demonstrating that waste is preventable, not inevitable.

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Whether or not the collection of organics is currently available in your city, you can use a worm compost bin today to reduce your waste and give your household organics new life as compost.

## What are some of the benefits of worm composting?

Composting:

- 1) Reduces household waste;
- 2) Saves garbage disposal costs;
- 3) Produces high-quality garden compost and recycles organics back to the earth;
- 4) Demonstrates two important natural processes: biodegradation and soil production;
- 5) Allows you to breed more worms for friends' worm bins or for fishing.

## What kind of worms are best?

*Eisenia foetida*, the scientific name for what are commonly called “redworms” or “red wigglers” are most often used to process kitchen waste into compost. They will be very happy living in a covered box that has air holes on all sides, located in a room with a temperature between 55 and 77 degrees Fahrenheit. Redworms require moist bedding and will eat a variety of kitchen wastes.

## What do redworms eat?

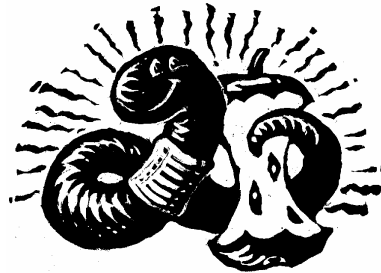
Worms are not too fussy, although they prefer some foods more than others. Some of their favorite foods are listed below, along with things you should **not** feed worms.

### Worms will eat:

- ◆ apples/peels, banana peels
- ◆ baked beans
- ◆ dairy (not too much cheese)
- ◆ biscuits/stale bread
- ◆ cabbage/celery
- ◆ cereal
- ◆ coffee grounds/filters
- ◆ egg shells
- ◆ onion peels
- ◆ potatoes
- ◆ tea leaves/bags
- ◆ tomatoes
- ◆ many other fruits, vegetables, and grains

### Do NOT feed your worms:

- ◆ meat wastes
- ◆ bones
- ◆ pet feces
- ◆ too much fat or
- ◆ non-organics (plastic, metal etc.)



## How much do worms eat?

Redworms will eat an amount approximately equivalent to their own weight each day. One pound of redworms living in a 4 cubic foot bin (2' wide x 1' long x 1' high) with good living conditions will eat about 4 pounds of kitchen waste in a week. Worms like a diet similar to a balanced diet suitable for humans: lots of fruits, vegetables, and grains with small amounts of proteins, dairy products, and fats.

## Can worms be left alone?

When you go on vacation, you do not need a “worm sitter” because the worms will eat their bedding when there is a shortage of fresh kitchen waste. The bedding is intended to be a food supplement and eventually becomes part of the compost. Worm bins are very easy to maintain. The redworms are happiest when they are fed, kept moist, and not disturbed while they are working (which is all of the time!). They do fine when left alone for a couple of weeks.

## What about odors and bugs?

When properly constructed and maintained, worm bins should not give off an offensive odor. Avoiding spoiled foods and meat scraps will prevent unwanted odors. The bin should also have air holes on the sides and bottom. If not, gently turn the contents about once a week. Worms need air to work at capacity. Burying or covering fruit peelings completely will help prevent fruit flies from being attracted to the worm bin. You will find many other organisms in the bin if you use natural bedding such as leaves. They are a healthy part of the composting system.

### Recipe for a happy worm bin—you will need:

- ✓ 1 box approx. 4 cubic feet, but no deeper than 18" to prevent anaerobic conditions. Wood is ideal. Plastic is OK if there are plenty of air holes. Any box should have holes for air and drainage.
- ✓ Location (kitchen or other room, garage, or basement) with a temperature between 55° and 77° F.
- ✓ 5 or 6 grocery sacks of leaves, shredded newspaper or peat moss for bedding—or a mixture of these.
- ✓ Optional: a few cups of moistened soil or finished compost to add grit, which helps worm digestion.
- ✓ Bucket of water for initial moistening of bedding.
- ✓ Approximately 1 pound of redworms.

## Setting up your system

- 1) Soak and mix the leaves or shredded paper in bucket of water until all surfaces of the bedding are wet. Mix leaves or paper with moistened soil or compost (if you opted to use those) in your bin.
- 2) Once you are sure the new bedding and surroundings are at a temperature level between 55° and 77° F, place worms in their new home. They will quickly move into the bedding away from light.
- 3) Begin adding kitchen scraps immediately. Bury scraps evenly in layers or in different sections of the bin each time. Find a system that works for you. Adding a few broken eggshells will provide good conditions for worm reproduction. Your wonderful worms will begin to work right away!

## Changing the bedding

Depending on the desired outcome, worm bedding should be changed every 3 to 6 months:

- ◆ At 3 months, the number of redworms will be high, but the compost will not be quite finished.
- ◆ At 4 months, the number of redworms will still be high, plus the quality of compost will be good.
- ◆ After 6 months, many redworms will have died, but the quality of the compost will be very good. The resulting compost will be primarily worm castings. This a good time to change the bedding because no organism does well surrounded by its own waste.

To change the worm bedding you can dump the bin contents and gently brush aside the new soil product a little at a time. The worms will keep moving away from the light until they are all huddled together in a pile as the soil is removed. Place fresh bedding in the bin and add the worms to it. They will start making new compost all over again. An alternative method is to use a larger bin with a removable center divider. Place new bedding in one half at a time. When it is time to change the bedding, place the fresh mixture in the empty half. Remove the divider and allow the worms to migrate by adding produce scraps to the new bedding only. In 2-3 weeks, most of the worms will have “moved” to their new home and the compost can be removed.

## Where do I get the worms and a worm bin?

Any wooden box or rigid plastic container can be used for a worm bin, just make sure it is the correct dimensions (see box on page 2). You may choose to add a lid (especially if you have cats).

- You might find redworms at bait shops during the spring and summer.
- **Flowerfield Enterprises** sells worms, bins and other supplies for vermicomposting. They also sell the ultimate resource on worm composting, the book *Worms Eat My Garbage* by Mary Appelhof. (You may find this book at local bookstores and libraries.)  
(269) 327-0108, [www.wormwoman.com](http://www.wormwoman.com)
- **Cosmo's Red Worms** is another online or phone-order option.  
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