



# **Robert Redworm's Facts About Worm Composting or Vermicomposting**

## ***Indoor Composting with Worms***

by Connie Dunn

### **What Is Composting?**



**Composting is the process of transforming organic material into compost.**

**Compost is an absorbent material that is often rich in nutrients that help plants grow.**

**There are different sorts of composting techniques. All biodegradable material will compost. Organic matter, such as kitchen scraps, lawn waste and farm animal manure are all organic material and can be composted. However, some organic matter cannot be used in vermicompost systems.**

### **What Is Vermicomposting or Worm Composting?**

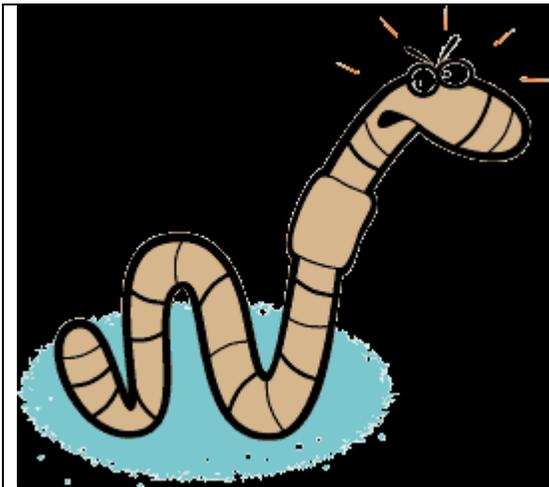
Composting worms, sometimes referred to as earthworms, are really red worms, also known as red wigglers or manure worms. Vermicomposting is simply composting with worms.

The beauty of Vermicomposting is that you can virtually do it anywhere, such as in an apartment or house. You can put together a Vermicomposting bin that is safe to have under your kitchen sink.

Worm composting requires a minimal amount of work, which makes it ideal for composting indoors. There is no smell to vermicomposting in a healthy habitat. But like all habitats that live in human environments, you need to understand how to keep it healthy.

You can't raise gerbils, hamsters, birds, snakes or cats without knowing what they need to survive. On the other hand, raising worms in your kitchen can reduce the organic waste that normally would go to your landfill.

## Facts About Landfills



Organic materials, which include table scraps, lawn waste, farm animal manure and other material that has come from a living organism, make up approximately two-thirds of the waste in most landfills.

In the state of New York, during the year 2004, there was approximately 37.2 million tons of solid waste. The state also uses outside firms to help process organic materials into reusable matter, such as compost.

## How Does Vermicomposting Work?

Vermi comes the latin word "vermin," which means worm. Vermicomposting is simply feeding worms that like to feed on slowly decomposing organic materials, such as vegetable scraps. The worms then excrete castings, which are full of beneficial microbes and nutrients. This makes great plant fertilizer.

Vermicomposting is popular, because worms are very efficient eating machines. They can eat over half their body weight in organic matter per day!



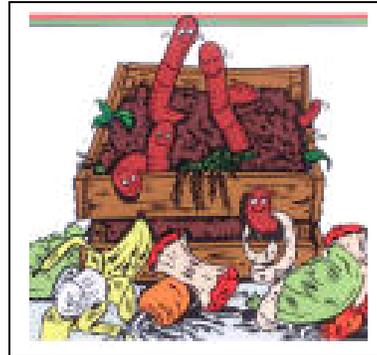
Because the red worms eat organic waste at a rather high rate, even a small bin of redworms will yield pounds of rich compost, which are the worm castings. In as little as two or three months, you can harvest your composted material. Redworms These worms are extremely prolific, taking only about three weeks for fertilized eggs to develop in a cocoon that hatches about two or more young worms. Also it only takes about three months for worms to become sexually

mature and begin to breed. Therefore, within a year, you will have enough worms to pass them on to someone else to get another worm composting bin going. And if you like fishing with worms, you won't need to buy them again. You'll be growing your own worm bait.

## Preparing Your Bin for Worms

You Need 5 Basic Ingredients to Start Vermicomposting:

1. a container
2. bedding
3. water
4. worms
5. nonfatty kitchen scraps.



### Choosing a Container

The most cost-effective way to create a worm bin is to purchase a plastic container with a lid. Worms do not like light, so an opaque container is preferable. Also, deep bins are better than shallow ones, because it allows more room for layering. If you can only find translucent bins, cover the container with a dark cloth. Worms will move away from light, because their bodies are light-sensitive.

Here's a handy chart that might help you determine size and numbers of worms to start with.

number of people	quantity of worms	bin size
1 or 2	1 lb.	15"h x 1.5'w x 2'l
2 or 3	1 lb.	15"h x 2'w x 2'l
4 to 6	2 to 3 lbs.	15"h x 2'w x 3.5'l

Lids on bins should fit loosely to allow oxygen into the bin. Before using a bin, it should be washed with warm soapy water and rinsed thoroughly. For wooden boxes and drawers without lids, you can use a plastic bag. The worms won't crawl out of the bin, because they are light-sensitive and will tend to burrow into the material. Holes can also be drilled into the sides of bins to allow oxygen to get into the bin.

## Bedding and Water

The bedding materials can be simple. Remember that your redworms will eat their bedding as it decomposes, which turns it into compost, as well. It is best if the bedding material is small. Here's a list of items to use:

- ❖ Fall leaves (NOTE: Leaves should be shredded and partially decomposed)
- ❖ Newspaper or computer paper, paper towels or paper bags (NOTE: Tear all paper products into 1" strips. Black ink is non-toxic, avoid glossy paper and colored inks.)
- ❖ Ground cardboard (NOTE: Corrugated cardboard cartons can be cut into one-inch strips and a few inches long. Don't use the shredded cardboard sold for insulation because it's treated with toxic chemicals.)
- ❖ Peat moss (NOTE: Make sure to mix the peat moss with other bedding, because it is too acidic to use alone.)
- ❖ Sphagnum moss/Sphagnum peat moss/Canadian peat moss (NOTE: Soak it in water for 24 hours, squeeze it out, then sprinkle some lime on it.)
- ❖ Coco peat moss/coir/coconut fibre (NOTE: These come in compressed bricks. Soak them in water until they swell up, then squeeze out the excess water)
- ❖ Chopped-up straw or other dead plant material (aged beyond the green stage), such as spoiled hay, yard clippings, dried grass clippings
- ❖ Sawdust or Wood shavings (NOTE: Use only those from non-aromatic wood and avoid treated wood. Limit this material to only about a quarter to one-third of the bedding mixture.)
- ❖ Manure (NOTE: There is a wide variety of thought on this. Some experts recommend not using manure because of the smell and heat [fresh manure may literally cook your worms]. However, if you choose to use manure, make it aged manure or composted manure from cows, horses, and/or rabbits.)
- ❖ Soil or finished compost (NOTE: Sand, soil and composted material, even a very small amount [the key here is a very, very, small amount] of lime, ground limestone or wood ash can be added. Worms have gizzards, so these materials help the worms grind up the food more efficiently)

Soak all items in water, then wring them out like you would a sponge. Those items that don't lend themselves to soaking should have water added. The bedding should fill your bin to about the three-quarter mark. The bedding material should stay damp to about a 50 percent moisture content. Using a spray bottle with water will help maintain the dampness.

## Where Can I Get Redworms?

Redworms can be ordered from a number of suppliers. Keep in mind that many worm composters in your area may be willing to give you some worms. Worms are very prolific and multiply quickly. However, ordering worms is a viable source:

Cape Cod Worm Farm ([www.capecodwormfarm.com](http://www.capecodwormfarm.com))  
30 Center Ave  
Buzzards Bay, MA 02532  
508-759-5664

Massachusetts Natural Fertilizer Co.  
P.O. Box 363  
65 Bean Porridge Hill Rd  
Westminster, MA 01473  
978-874-0744

Flowerfield Enterprises ([www.wormwoman.com](http://www.wormwoman.com))  
10332 Shaver Rd  
Kalamazoo, MI 49002  
616-327-0108



## Number of Worms Needed

Each pound of worms is equal to about 1,000 worms.

number of people	pounds of food scraps per week	quantity of worms
1 or 2	1-2 pounds	1 lb.
2 or 3	3 ½ pounds	1 lb.
4 to 6	6 pounds	2 to 3 lbs.

## Feeding Your Worms

Most of the things you can feed your worms would have gone into your garbage disposal or into your trash. The trash ends up at the landfill. The stuff you're your garbage disposal goes into your water treatment plant. While that seems like a fairly green way to dispose of some things, here's the problem. What goes through your pipes to your local sewage treatment plant or septic systems must be processed and as both cities and suburbs continue to grow, it puts additional demand on these systems and slows the effectiveness of the treatment plants.

Feeding your worms your kitchen waste helps the environment and makes the world a greener place.

Here's a list of what you can feed your worms:

- ❖ Vegetables
- ❖ Fruits (NOTE: Citrus fruits should be added with leafy green vegetables to maintain the correct pH level in the bin)
- ❖ Coffee grounds
- ❖ Tea bags
- ❖ Egg shells (crushed)
- ❖ Pasta
- ❖ Rice
- ❖ Bread
- ❖ Cereal
- ❖ House plant clippings
- ❖ Dead flowers



Here's what NOT to add:

- ❖ Meat or meat byproducts
- ❖ Milk or milk products
- ❖ Used cat litter
- ❖ Foods cooked in oils or fat
- ❖ Salt (seasoned or plain)
- ❖ Vinegar

Worms will eat just about any type of kitchen waste, as you can see from the above lists. Some vermicomposters suggest scattering the food scraps on the top of your bedding. However, others suggest burying it, which prevents odors from developing or attracting fruit flies and other rodents. The worms will not eat the food until it starts to decompose. One way to speed up the process is to chop the food into small pieces. Covering the scraps completely with bedding is the key. Worms should not be fed more than they can eat in several days. It is okay to feed them only once a week, so you don't have to get worm sitters if you go out of town.

### **Other Worm Bin Management Facts**

**It takes a few months for a new bin to get up to speed.**



### **Yucky vs Rich**

If you don't want to get your hands in the compost, you can wear latex gloves when burying the food and doing other management work inside your Worm Bin.



***"All the fertile areas of this planet have at least once passed through the bodies of earthworms." -- Charles Darwin***

***"The Formation of Vegetable Mould through the Action of Worms with Observations on their Habits", John Murray, London, 1881***



***"Worms seem to be the great promoters of vegetation, which would proceed but lamely without them, by boring, perforating, and loosening the soil, and rendering it pervious to rains and the fibres of plants, by drawing straws and stalks of leaves and twigs into it, and, most of all, by throwing up such infinite numbers of lumps of earth called worm-casts, which, being their excrement, is a fine manure for grain or grass." -- The Rev. Gilbert White of Selborne, 1777***

## **Temperature**

Worms prefer temperatures between 40 and 80 degrees Fahrenheit; however, they can live quite happily out on a balcony, deck, etc. until the temperatures drop to 40 degrees. Then, you will need to find an indoor location. Some basements and garages can be used if they don't freeze. Make sure your location will not drop below 40 or go over 80 degrees. High temperatures will dry out both the bedding and the worms and may actually cook your worms.

## **Collecting Food Scraps**

You can collect your food scraps in a small bucket with a lid or just about any container with a lid, such as a recycled butter dish. Rather than add the food every day, you can do this every couple of days. In the hot weather, you can do this more often. Don't let the food rot in your container! If it grows mold, it is no longer good for your worms!



## Rotating Feeding Stations in Your Bin

Rotate your feeding stations by burying the food in different places. For example, put the food in the bedding in a corner of the box. On your next feeding, bury the scraps near the first scraps but not in the same place. In a 2-foot by 2-foot box, you can have about nine different spots. Once the first site cannot be found (because the worms have eaten it and it is all castings), you can go back to your first site.



## Harvesting the Compost

The worm casts, which make up the vermicompost contain five times more nitrogen, seven times more phosphorus, and 11 times more potassium than ordinary soil, the main minerals needed for plant growth.

Large numbers of beneficial soil micro-organisms in worm casts also help plants and seedlings grow.

Humic acids that condition the soil and help create the perfect pH balance are found in the worm casts.



**Plants call for Worm Casts – There's nothing better for your plants!**

About three months after you initially start your bin, you will have enough composted material to harvest. You can tell that it is time, because the volume of the material will be noticeably less and you won't be able to recognize your original bedding.

At this point, you will want to do some work inside the bin. Push the finished compost and the worms over to one side of the new bin. Add new bedding in the same manner that you put it into the bin originally, making sure it is damp. You can fill the entire side you have vacated with new bedding and begin to bury the food in the new bedding, which will attract the worms to that side.

In about two weeks, you can remove the lid or cover and expose the bin to either sunlight or artificial light (the worms will react either way). The worms will burrow away from the light, which will allow you to scoop out the finished compost.

Scoop it out a few layers at a time. You can initially use an old shower curtain, drop cloth or a plastic sheet of some sort. You must go through each scoop to find the worms and worm eggs (small, opaque cocoons) and put them back into the bin.

Again, add some fresh bedding to replace the compost you have just removed.

You can store your compost in plastic bags or containers until you need it.

## Using Your Compost

**Your vermicompost or worm casting compost provides nutrients to your plants and helps to hold the moisture into the soil. While all compost can provide nutrients and holds in moisture, vermicompost has more nutrients than other compost methods.**

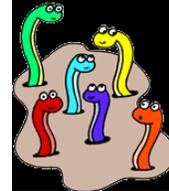


## Putting Vermicompost to Work

- ❖ For panning gardens, you can simply mix it into the seed row while you are planting.
- ❖ Using a handful of vermicompost to put into the hole where you will place the plant's roots will help give your transplants a boost of nutrients that they will need. Vermicompost unlike fertilizers will not burn the tender roots.
- ❖ You can add vermicompost around the base of most plants. However, it is suggested that you not put the vermicompost so it has contact with the stems. This keeps some of the stronger nutrients from harming the tender stems and allows the plant to absorb the nutrients naturally from the soil as they wash into and down into the soil..



- ❖ House plants can be potted with a mix of vermicompost, potting soil and sand. Add one part of each or make each ingredient one-third of the mixture.
- ❖ One way to help spread vermicomposting is to give a quart of vermicomposting away (with the worms still in it) to someone else who wants to start their own worm composting bin.



## The Littlest Worm

Lyrics not copyrighted

<p>1.</p> <p>The littlest worm          (The littlest worm)          You ever saw          (You ever saw)          Got stuck inside          (Got stuck inside)          My soda straw          (My soda straw)          The littlest worm you ever saw          Got stuck inside my soda straw</p>	<p>2.</p> <p>He said to me          (He said to me)          "Don't take a sip          ("Don't take a sip)          'Cause if you do          ('Cause if you do)          You'll get real sick" [alternate: "I'll really flip"]          (You'll get real sick) [alternate: "I'll really flip"]          He said to me, "Don't take a sip,          'Cause if you do, you'll get real sick"          [alternate: "I'll really flip"]</p>
<p>3.</p> <p>So lip to lip          (So lip to lip)          And squirm to squirm          (And squirm to squirm)          Try drinking so-          (Try drinking so-)          da through a worm          (da through a worm.)          So lip to lip and squirm to squirm          Try drinking soda through a worm.</p>	<p>4.</p> <p>I took a sip          (I took a sip)          And he went down          (And he went down)          Right through my pipe          (Right through my pipe)          He must have drowned          (He must have drowned)          I took a sip and he went down          Right through my pipe, he must have drowned</p>

<p>5.</p> <p>He was my pal  (He was my pal)  He was my friend  (He was my friend)  There is no more  (There is no more)  This is the end  (This is the end)  He was my pal, he was my friend  There is no more, this is the end.</p>	<p>6.</p> <p>Now don't you fret  (Now don't you fret)  Now don't you fear  (Now don't you fear)  That little worm  (That little worm)  Had scuba gear  (Had scuba gear)  Now don't you fret, now don't you fear,  That little worm had scuba gear.</p>
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Song written as an "Echo" Song

Lyrics: Joyce "Tex" Dixon Webster wrote these lyrics as a parody of the tune "Sipping Cider" when she was a teenage counselor at Camp Wannabe, Metuchen, New Jersey, ~1959.

The last verse was added by an unknown poet at a later time.

#### SOURCES:

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- ❖ [kids.niehs.nih.gov](http://kids.niehs.nih.gov)
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