

## Vermicomposting & Earthworm Q&A

### **What is vermicomposting?**

Put simply, earthworms and microorganisms convert organic materials to a beneficial soil amendment.

### **Can any type of worm be used for vermicomposting?**

No, soil and garden worms cannot be used for vermicomposting.

### **Aren't all worms the same?**

No, there are over 4,000 species of earthworms ranging in size from ½-inch to 22 feet long.

### **What earthworm species are used for vermicomposting?**

There are only four temperate and two tropical earthworm species used for vermicomposting. One species, *Eisenia fetida*, is used by most people throughout the world. *Eisenia fetida* is commonly called 'red wiggler.'

### **I've seen this spelled *Eisenia foetida*; which is correct?**

*Eisenia fetida* is the correct spelling for this species of earthworm. Earthworm taxonomists changed the spelling from 'fetida' to 'foetida' for awhile, but then changed it back to 'fetida.' That is why you see it spelled both ways, but 'fetida' is now the correct spelling.

### **Where do I find *Eisenia fetida* worms?**

In nature, *Eisenia fetida* is found in moist, organic-rich environments, such as cow patties or under logs in the woods. Since you won't know for sure what type of earthworms you have found, you should procure red wigglers from a reliable source.

### **How many red wigglers do I need to start a worm bin?**

You should start with at least 1,000 red wigglers. That number of red wigglers will weigh about a pound. You can purchase them by the pound from worm growers.

### **Where can I buy red wigglers?**

Since you need at least 1,000 worms, do not buy them from a bait shop because they usually sell 12-20 worms per cup. Buy red wigglers from an earthworm grower. See the

directory of earthworm growers on my website at <http://www.bae.ncsu.edu/topic/vermicomposting/vermiculture/directory-by-state.html>

### **How much do red wigglers cost?**

One pound of red wigglers will cost anywhere from \$12.50 to \$40 USD.

### **How much will red wigglers eat in one day?**

Red wigglers can consume 50% to 100% of their body weight per day. If you have two pounds of red wigglers, you could possibly feed them one pound of food per day.

### **What will red wigglers eat?**

You can feed red wigglers most types of organic matter that are not high in salts, acids or alcohol. For vermicomposting at home, read *Worms Can Recycle Your Garbage* on my website at <http://www.bae.ncsu.edu/topic/vermicomposting/pubs/ag473-18.html> If you are interested in larger-scale vermicomposting, read *Raising Earthworms Successfully* at <http://www.bae.ncsu.edu/topic/vermicomposting/pubs/earthworms.pdf>

### **Do earthworms have eyes?**

No, instead earthworms have receptor cells that are sensitive to light and touch. These cells allow earthworms to detect different intensities of light and to feel vibrations. They will move away from light, if they can. If earthworms are exposed to light for too long (about an hour), they will become paralyzed and die when their skin dries out.

### **Can earthworms smell?**

Instead of noses, earthworms have chemoreceptors in their anterior region that react to chemicals.

### **How do earthworms breathe?**

Earthworms do not have lungs; instead, they breathe through their skin. Their skin needs to stay moist to allow the passage of dissolved oxygen into their bloodstream. Red wigglers' skin is coated with mucus and they need to live in a humid, moist environment.

### **How do earthworms move?**

Earthworms have groups of bristles (called setae) on each segment that move in and out to grip surfaces as the worms stretch and contract their muscles to push themselves forward or backwards.

### **If an earthworm is cut in half, will it regenerate into two worms?**

No. The half with the worm's head can grow a new tail if the cut is after the segments containing vital organs. But the other half of the worm cannot grow a new head nor all of the other organs needed to sustain the worm.

### **How do earthworms eat?**

They have tiny mouths and no teeth, so earthworms eat differently than you and I. An earthworm will push its pharynx (throat) out, grab microorganisms and little bits of organic matter, and pull them into its mouth. The food is coated with saliva, pushed down the esophagus into the crop and on to the gizzard, where it is crushed and ground apart. Next, it moves into the intestine, where food is broken down more by digestive enzymes. Some of the food is passed into the bloodstream for use by the earthworm and the rest passes out the anus as castings (worm poop).

### **Which end is an earthworm's head?**

The head is at the end closest to a swollen band encircling an adult earthworm. Although they can move forward and backwards, they tend to move forward most often.

### **What is the swollen band near the head of an earthworm called and what is it for?**

The swollen band is called a clitellum and it contains eggs and sperm for reproduction.

### **How do red wigglers reproduce?**

Red wigglers are hermaphrodites, so every worm has both female and male organs. They mate by joining their clitella and exchanging sperm. Each earthworm will form an egg capsule in its clitellum and pass it into the castings 7 to 10 days later. The egg capsule is golden-brown colored and looks like a tiny lemon the size of a match head. Two to seven red wiggler babies will hatch from the egg capsules in 30 to 75 days.

### **How long does it take for a baby red wiggler to become an adult?**

In ideal conditions, it takes 85 to 150 days.

### **Where can I find more information about vermicomposting?**

Go to my website at <http://www.bae.ncsu.edu/people/faculty/sherman> and click on "Vermicomposting."

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