

A stylized, colorful illustration of a landscape. In the foreground, there are rolling green hills with a dark brown path winding through them. On the left, there is a green tree, a purple flower, and some orange autumn leaves. A small red bird is flying in the sky above the tree. The background features more rolling hills in shades of blue and white, suggesting a distant horizon or sky.

Vermicomposting

How to Set Up and Operate a Worm Bin

Brook Run Community Garden &
DeKalb Co. Master Gardener Presentation

By

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What is Vermicomposting?

- The castings of worms are called “vermicompost” and they make an excellent fertilizer and soil amendment.
- Worms are placed in a prepared bin with a variety of organic matter like kitchen waste and shredded newspaper.
- The bin is arranged so the castings can be separated from the worms and food. This “worm poop” is collected and can be used immediately as an additive to garden or potting soil, or as a side dressing for garden or houseplants.



An Active Worm Bin

Vermicompost is an aerobic cold composting process that is accelerated by adding large numbers of composting worms.

You can go from kitchen waste to vermicompost in as little as 90 days.

Do-It-Yourself!



You can make a compost bin from an old plastic storage bin with holes drilled in the bottom.



Start with a damp layer of newspaper at the bottom so the worms don't crawl out. Add bedding and food with a 50-50 brown to green ratio.

Create 2 Chambers



Food goes on one side only. When one side is full, start feeding on the other side. Worms will migrate to the side with food and you can remove the castings.



Add some worms! You can get them from someone with a bin or buy them locally or online. Be sure to get Red Wigglers.

What are “Browns” and “Greens”?

Browns

- Have a carbon to nitrogen ratio of greater than 30 to 1.
- C:N Ratio $> 30:1$ = Browns
- Cardboard 350:1
- Shredded Newspaper 175:1
- Coconut Coir 100:1
- Tea Bags 70:1

Greens

- Have a carbon to nitrogen ratio of less than 30 to 1.
- C:N Ratio $< 30:1$ = Greens
- Coffee Grounds 20:1
- Pasta, Breads, Cereals, Corn Meal 20:1
- Vegetable Waste 10-25:1

Vermicompost

- Is the only manure that can be applied directly to soil around growing plants without danger of burning.
- Is good for residential areas where outdoor compost piles may be impractical or may attract rodents and other animals.
- Helps reduce waste in landfills, where 20-30% of volume is food and kitchen waste.
- Cornell Univ. 2011 study showed that vermicompost has more nutrients than traditional compost, is teeming with microbes and even helps protect plants from diseases.

Vermicompost Bins

- Can be kept indoors in a kitchen, laundry room, basement or garage.
- Can be kept outdoors if sheltered from direct sunlight, rain and cold winds.
- Best kept at temperatures between 40-80 degrees Fahrenheit.
- Allow worms to migrate from a “finished” compost over to a new feeding area so the compost can be harvested.
- Can be homemade at little or no cost or bought commercially from about \$20 - \$100.



Importance of Grit & Microbes

You may know that birds do not have a stomach and need grit to digest food in a gizzard. Worms also digest with a gizzard and need grit in their diet. It shouldn't be a lot - a handful tossed in when you start a fresh bin or a teaspoon every couple of weeks will be enough.

Sources of Grit

Crushed Eggshells

Garden Soil

Sand

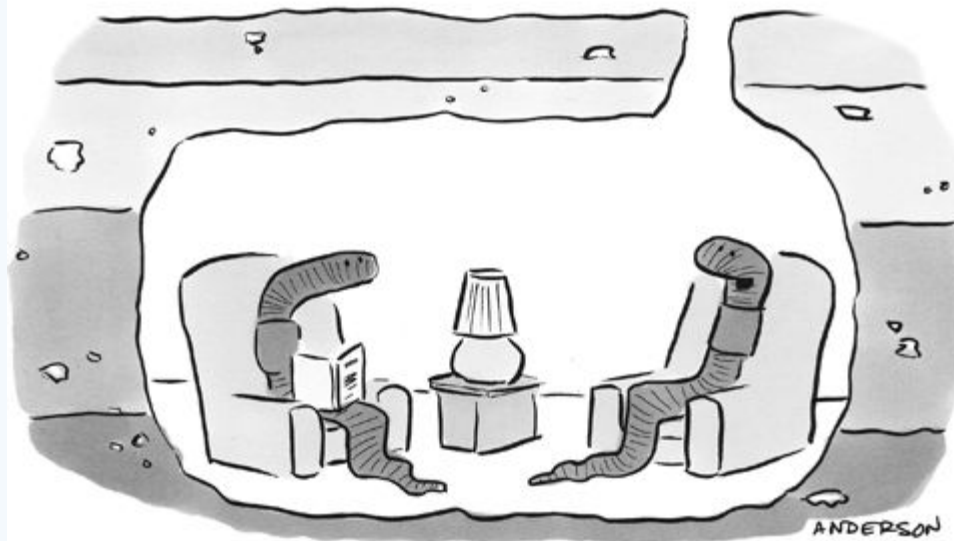
The worm's digestive system is like a long tube. The mouth sucks food into the top end of the tube and muscles carry it to the gizzard where grit greatly helps with digestion. Microbes like bacteria, mold, fungi, and nematodes will be present in your bin and will help break down food in the bin so worms can eat it.

Worms Don't Like

- Foods that are spicy, oily or strong-smelling like onion, salad dressing, hot peppers, citrus, pickles, etc.
- NO SALT, prepackaged foods or fats. No meat or dairy. No Pine Needles, but some leaves and garden waste is OK.
- Newspaper is great, shredded or torn, but don't use any slick paper. The ink on newspaper is vegetable based. Ink on shiny paper such as magazines is petroleum based and will harm worms.
- Whole foods and newspaper pages will be eaten by the worms, but they will eat it faster if it is shredded. Same with vegetable matter that is chopped or pureed. Microbes must break down the food so the worms can suck the food into their mouths. They have no teeth!

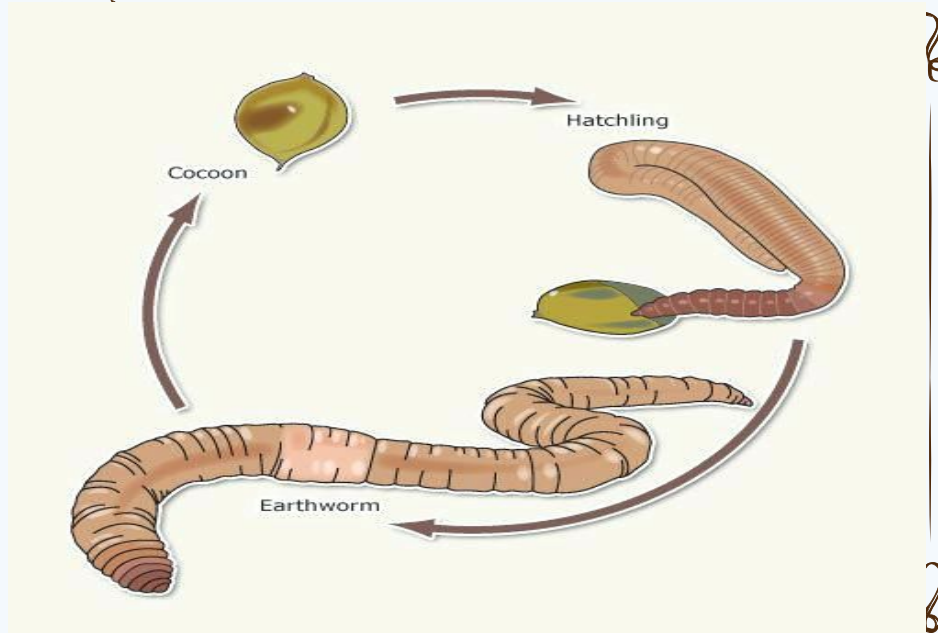
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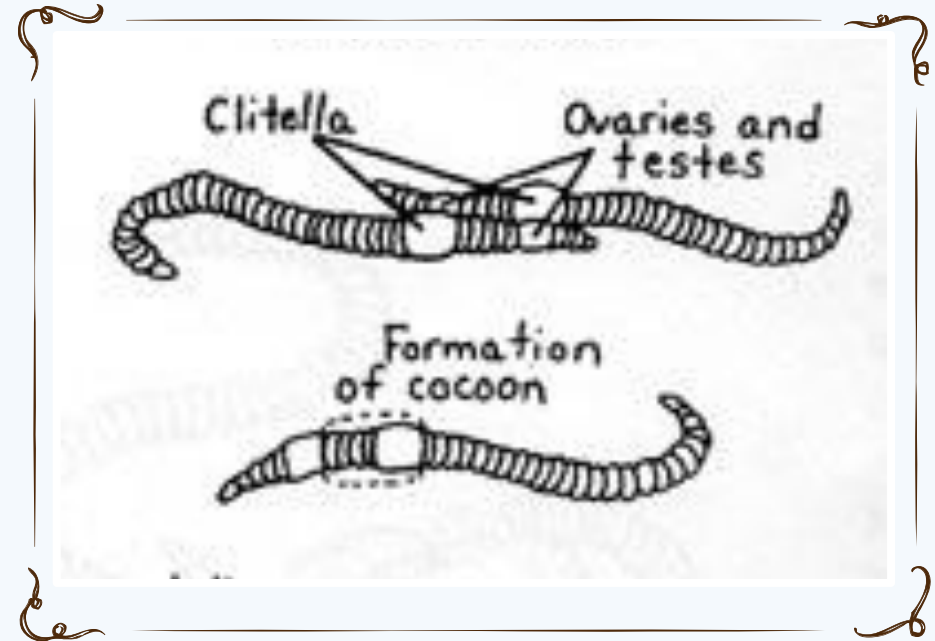


"I've got it! It's so simple! We'll just sleep in!"

Worm Reproduction



Red wigglers are hermaphrodites so any 2 worms can reproduce together forming cocoons that are shed off. In 8-11 weeks, 3 hatchlings will emerge from the cocoon



Red wigglers can live up to 5 years. They begin reproducing at 3 months and can produce 2-3 cocoons per week. Under good conditions, your worms will fill your bin quickly!

Want to Buy a Bin?



“Worm Factory 360” Costs about a hundred bucks but makes your job so easy! You can drain liquid buildup with the spigot and cleaning and harvesting is a breeze.



This pretty wooden bin costs about the same as plastic, and there are other possibilities on the market on Amazon, ebay and other sources.

Putting it all Together

1. Choose and prepare your container.
2. Place 3 sheets of wet newspaper at the bottom, with bedding (browns) of your choice. Make sure it is damp.
3. Sprinkle some grit over the bedding.
5. Add food (greens). Use spray bottle if necessary for desired dampness.
6. Add worms and leave undisturbed for at least 24 hours. If any try to “escape”, leave a light on until they get used to their new home.

Frequently Asked Questions



Can I use worms from my garden in my bin?

Some folks claim to have done this successfully but it's not a good idea.

The best worms for vermicomposting are *Eisenia foetida*, commonly known as “Red Wigglers”. Worms from your garden may be any of a thousand types of earthworms, most of which would not be compatible with an indoor bin.

Red Wigglers eat only decaying organic matter and live only in the top few inches of the soil. They are voracious eaters and reproduce rapidly in a worm composter and you are assured of a much better result with vermicomposting by using them.

Are Red Wigglers good for Fishing Bait?

Yes. Some bait sellers use Red Wigglers for this purpose. If you are sure that the seller is using Red Wigglers, a bait shop can be a less expensive way to purchase worms for your bin.

Can You Overfeed a Worm Bin?

Yes. It's a good idea to watch how much your worms are eating and try to keep the amount adjusted to what they need. If you overfeed when going on vacation, that's OK, the bin will balance itself and you can let it go for a week or two. If you overfeed routinely, the bin will get out of balance and you will smell rotting vegetables.

If your bin is well balanced, you should not have any odor.

How do I keep my bin from getting too soggy or too dry?

Food waste can contain a lot of water that is released as the food decomposes. Adjust the amount of shredded paper or other dry bedding to absorb the water. If you have a tower with a spigot, keep the spigot open. If you make your own bin make sure there are plenty of holes in the bottom to let water drain out.

If your bin gets dry, keep a spray bottle beside your bin with plain water in it and spritz the bin every time you feed. The bedding (such as shredded newspaper) should be damp. Add enough water so it has the wetness of a wrung out sponge.

Sometimes I have too much kitchen waste and sometimes not enough to feed the worms.

The easiest solution is to use kitchen waste when you have it available along with bedding like shredded newspaper, and keep a container of oatmeal and cornmeal in your refrigerator for supplemental feeding. A dusting of 1/8 cup of this with some shredded newspaper, sprayed with your water spray bottle, is a quick way to make sure the worms get fed even when you don't have a lot of kitchen waste available.

If you want to make the most of kitchen waste, you can freeze it for later use. The breakdown of freezing actually makes the food more accessible to the worms. Just make sure you bring it to room temperature before putting in the worm bin.

How do I store vermicompost?

Remember that your vermicompost is a living ecosystem. If you let it dry out too much, get too hot or too cold, you will destroy the microorganisms in the compost.

Store your vermicompost in a cool, dry place in a plastic bag. Try to use it as soon as you can, as a soil amendment, side dressing to plants, or as an addition to your home-made potting soil. A combination of 1/3 each vermicompost, peat or coir and vermiculite or perlite makes an excellent potting soil for indoor plants or as a seed starter.

Resources

Uncle Jim's Worm Farm

unclejimswormfarm.com

Source of Red Wiggler worms and supplies. Pricey but good quality.

There are MANY, MANY videos, blogs, and websites online to help you start and manage a worm bin. Just as with anything else on the internet, beware and verify. Not everyone posting knows what they're talking about. But there is LOTS of very good help out there.

Nature's Footprint

naturesfootprint.com

Manufactures and sells the Worm Factory 360 tower bin. This tower is also available on Amazon and other retailers.

Go to naturesfootprint.com/community for a wide array of articles and videos to help you with vermicomposting!