

Vermicomposting



What is vermicomposting?

Composting is a natural process whereby organic material, such as kitchen scraps and yard waste, decomposes into a dark nutrient-rich soil amendment called humus.

Vermicomposting is simply composting with worms. The use of worms speeds up the process of decomposition to produce a richer end product, and also allows the process to occur indoors, making it an ideal system for apartment-dwellers. It's true that worms aren't pets for the squeamish, but they are great little composters!

To produce proper compost, you will want to use the kind of worms commonly known as Red Wrigglers, and not ordinary field worms from someone's garden. Red Wrigglers normally live in barnyard manure piles, and feed on fresh organic material. Field worms are better at digesting things that are already well decomposed and aren't likely to survive in a worm bin on a diet of kitchen scraps.

Your valuable little Red Wiggler worms will live quietly in their dark box. It is unlikely that you will have too much waste to compost as Red Wiggler worms will eat their own weight in kitchen scraps and bedding each day, and will reproduce prolifically if their food supply permits it. The castings they produce are incredibly rich fertilizer and look like fine-textured soil. Even a small bin of Red Wiggler worms will yield pounds of rich sweet-smelling compost.

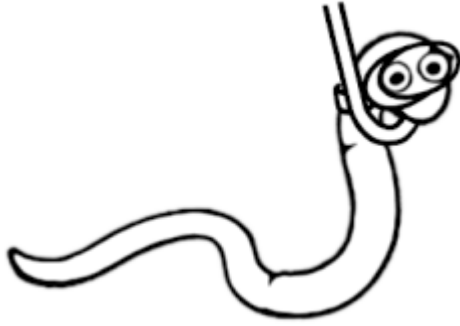
Worm Bin Setup

What size do I need?

The most important thing to keep in mind when choosing a vermicomposting container is that the box should be shallow, and wider than it is tall. The bin should have 60 centimetres squared of surface area for each kilogram of food waste you produce per week. For example, an average size vermicomposting bin for a household of two people is 30 cm high x 40 cm deep x 60 cm long. If you think you produce more vegetable scraps than the average household of two people, then you should consider using a larger bin.

The table (shown at left) provides a rough guide to help you identify the appropriate size of your bin, based on the amount of waste produced in your household. Of course, not every person produces the same amount of waste, so think about your specific situation and expect that you may have to experiment for awhile to get the right balance of worms and food.

Vol. of Waste (per week)	Worms	Surface Area in Bin
1/4 kg or 1/2 lb.	1/2 kg or 1 lb.	1/2 sq. foot
1/2 kg or 1 lb.	1 kg or 2 lbs.	1 sq. foot
1 kg or 2 lbs.	2 kg or 4 lbs.	2 sq. feet



How to build a worm home

Worms need air to survive. They can live in a plastic bin (such as a Rubbermaid Roughtote) or a wooden box, with several air holes punched or drilled in the sides and top. Monitor the moisture content of the bin, and if you find you have problems with excess water, then add holes to the bottom for drainage. You should cover these holes with mesh or screen to prevent worms from escaping. As well, you will want to place a pan under the bin to catch the drainage water.

You may find it more convenient to have several smaller, more portable units rather than one large one. Save all food scraps and deposit them into the appropriate bin, depending on how quickly each bin is advancing through the stages of decomposition. You are now free to vary the size of the compost bin depending on how much available space you have in your house or apartment.

If you improvise with available containers, be sure you do not use a bin that was once used to store chemicals, such as pesticides, or you may end up with a pile of dead worms.

Where to buy Red Wiggler worms:

RED WRIGGLER HAVEN
Winnipeg, MB

Ask for Marilyn

Phone: 1 (204) 275-0253

www.redwiggler.110mb.com

mfirth@golden.net

St. Andrews / Winnipeg, MB

Ask for Art

Phone: 1 (204) 482-1244

cepu341@mts.net

WRIGGLER WRANCH

Phone: 1 (204) 589-0241

Toll Free: 1 (866) 256-6175

www.standinghorse.com/wiggler

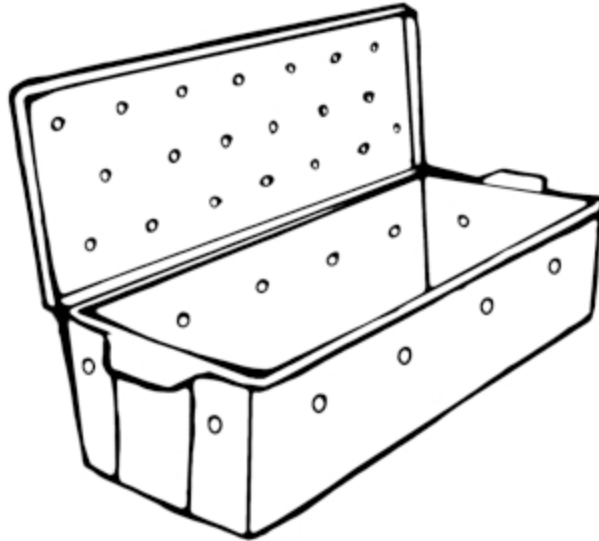
info@standinghorse.com

NORTHERN SUN FARM CO-OP

Steinbach, Mb

Ask for Mike

Phone: 1 (204) 434-6887



Location of your worm bin

Your worm bin can be located in a number of places, such as the kitchen, basement or closet. To keep your Red Wigglers happy, you will need to think about temperature, moisture and ventilation. It is important to allow air to circulate through the bin by leaving the air holes uncovered.

The Red Wigglers in your bin can tolerate a wide range of temperatures, but they should not freeze or get too hot. The worms will survive in temperatures from 5 degrees C to 32 degrees C but prefer room temperature. Some people move their worms outside to a balcony or the backyard in warm seasons. Outdoor bins should be kept out of the sun and rain. If you keep the worm bin outside in good weather, be ready to bring it in promptly when the temperature drops below 10 degrees C.

Websites

There are a number of web sites dedicated to vermicomposting, including:

Mary Applehof's site for Worm Composting Resources

www.wormwoman.com/

The Adventures of Herman the Worm:

www.urbanext.uiuc.edu/worms/

How to Compost.org

www.howtocompost.org/cat_vermi.asp



Composting with worms is a natural way to convert a lot of the organic waste from your home or yard into an extremely rich, ecologically beneficial product.

Bedding

Many materials can serve as suitable bedding for your vermicompost bin, including:

- Shredded or mulched newspaper (no coloured inks or glossy paper)
- Shredded computer paper or cardboard
- Mulched dried leaves
- Chopped up hay or straw
- Sawdust
- Dried grass clippings
- Peat moss
- Torn fibrous garden matter such as corn husks

Vary the bedding in the bin to provide more nutrients for the worms and to create richer compost. Add a handful of soil or sand to aid digestion. Red Wigglers prefer a 'loose' bedding—they don't burrow as well as earthworms

All worms need moisture, but will drown if exposed to too much water. Fill the bin with about a foot of bedding, about as damp as a wrung-out sponge: not soggy and not dry. Never use water from a water softener, as the salt will kill the worms.

Put the mixed bedding in the bin. Do not pack it down; it should be light and airy to allow for adequate air exchange in the container. Place your Red Wigglers on top of the moistened bedding. Keep the lid off and after a few minutes the worms should all disappear into their new home. Replace the lid and feed the worms regularly. By doing so, maintaining the correct moisture level should be quite easy.

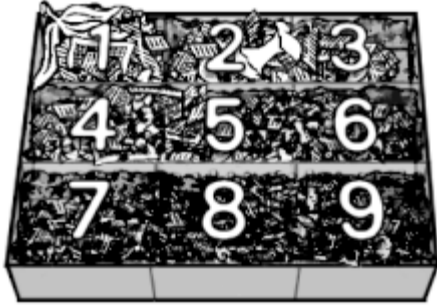


Some kitchen wastes compost faster than others. Banana peels will take about a week, while orange peels will take about a month to decompose.

Feeding Your Worms: Worm food

Red Wigglers will eat most kitchen waste. Any fruit or vegetable waste that you generate during food preparation can be used, such as carrots, lettuce, cabbage, celery, apples, banana peels, and tea leaves and bags. Citrus peels, coffee grounds, and tomatoes can be added, but only in moderation, as they can acidify the bedding. Adding dried crushed eggshells will help to control acidity, and will also provide the worms with valuable nutrition. The worms are even interested in very small amounts of such leftovers as spaghetti, grain cereal, bread and pancakes.

Note: Avoid feeding your worms meats, fish, bones, eggs, dairy products and other oily foods. These foods will cause odours and attract unwanted insects. Garlic, salt, vinegar, and spicy leftovers should not be added, nor should large quantities of onions. These foods may hurt the worms.



Feeding techniques

Keep a plastic container marked “Worm Food” next to the sink or in the freezer to collect your kitchen waste. Keep the lid on, but not sealed, to avoid odours that can occur in a tightly closed container.

Chopping up the waste before placing it in the bin results in faster decomposition. Smaller pieces mean a larger surface area over which the worms, bacteria and other organisms can work, thus increasing the speed at which decomposition can occur.

Once or twice a week, depending on the amount of waste you produce, empty the contents of the container into the compost bin. Bury the food waste by pulling aside some of the bedding and castings, dumping the waste, and then covering it with the removed bedding and castings. Adding a teaspoon of sand or soil with the waste will facilitate the digestive processes of the worms.

When you feed your worms, rotate around the bin, choosing a different location every time. This will make for better use of the bedding, and will help to keep the decomposed material and fresh food scraps separate. By the time you get back to the first position, much of the waste should have been composted, having been consumed by the worms or broken down by the other natural decomposition processes present in the bin.



Harvesting the Compost

When you are ready to harvest finished compost, you will notice that the volume of material has dropped substantially and the original bedding is no longer recognizable. The contents will now be brown and earthy-looking. Removing the vermicompost is easy, and there are two ways of doing so.

The first method relies on the fact that Red Wiggler worms are afraid of light. They will wriggle down into the bedding whenever you take the lid off the bin. Place the opened bin under a light and give the worms ten minutes to get well away from the surface. Carefully scrape away the finished compost from the top layer. When your digging efforts reach the worms, keep the light on them and give them another ten minutes to go deeper, then remove the next layer of compost. Keep going in this way until the harvest is done.

The other method is easier yet. Move the contents of the bin over to one side. Add fresh bedding to the vacant side. Place food waste under the new bedding. The Red Wigglers will gradually move over in search of food. After one or two weeks the finished compost can be removed. Hint: The worms love melon. To increase the speed at which the worms will migrate to the fresh bedding and food, add half of a cantaloupe and wait just three or four days.

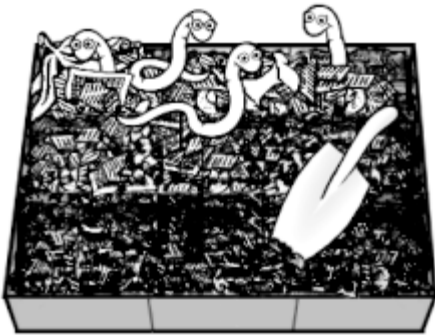
More on Harvesting



When harvesting castings, be watchful for worm eggs. Each egg case will hatch up to twenty new worms, which you will probably prefer to keep in your bin. Egg cases are roundish, translucent, brown, and slightly larger than the head of a pin.

You are now ready to fill the bin with fresh bedding and start again. On average, it is good to harvest your bin every two months, to produce a healthy worm supply and to capture a good mixture of castings and compost.

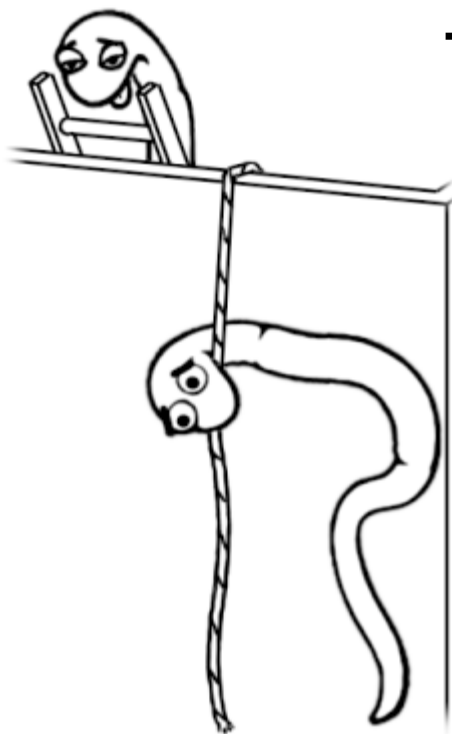
At some point, with all the baby worms being born, you may decide there are too many worms for your compost bin. Simply find a new home for them in another bin, or give them to a friend who wants to start their own worm compost bin.



Using finished compost

Vermicompost will provide nutrients to your plants and help the soil retain its moisture. When planting your garden in the springtime, incorporate up to 10 cm of finished compost into a seed row. You will rejuvenate your houseplants by adding a handful of compost to the potting soil when transplanting them. You can also simply sprinkle castings around the base of garden flowers. Finished compost can also serve as a top dressing on your lawn.

Vermicompost is organic, rich in nutrients and can be used for any garden project.



Troubleshooting

Like any illness, the best approach is prevention. The most common concern is the presence of fruit flies. By always burying the food waste you will discourage fruit flies from hovering in your bin. An alternate method to storing waste before adding them to the bin is to keep a tight lid on the container. This may cause odours, but will prevent flies from laying eggs in the food scraps.

It is also a good idea to cover the bedding with a sheet of moist newspaper. Aside from keeping flies away, the newspaper will prevent odour problems. It is unlikely that your worm bin will have an unpleasant odour. If it does, there are a number of possible causes and steps you can take to remedy the problem.

Problem: The bin has more food than bedding.

Solution: Don't add any more food for a week or two.

Problem: The bedding is too wet and compacted.

Solution: (a) gently stir the entire contents to allow more air in and stop adding food waste for a week or so. Make sure that your food waste is still buried. (b) The lid can be removed or left slightly ajar to allow the contents to dry out.

Problem: The bedding is too acidic, causing the worms to crawl through the holes of the bin.

Solution: Add egg shells and cut down on the amount of citrus peels, tomatoes, coffee grounds and other acidic food waste.

Note: Worms will normally crawl up the walls of the bin in order to bathe in the warm water that collects on the lid. Unless the worms are escaping through the holes, this does not indicate that your bedding is too acidic.

Additional Information

The book *Worms Eat My Garbage* (1982) by Mary Appelhof, Flower Press, is very thorough and provides all the information you need to set up and maintain a worm composting system. It can be ordered through a local bookstore.



The Compost Action Project is a service of Resource Conservation Manitoba (RCM), with thanks to the City of Winnipeg Water and Waste Department and Manitoba Conservation for financial support.

For further information on this project and RCM, please contact us at the following:

Toll-free: 1 (866) 394-8880

In Winnipeg: 925-3777

Fax: 1 (204) 942-4207

Email: info@resourceconservation.mb.ca

Or visit us on the web at

www.resourceconservation.mb.ca

Conclusion

Worms are living creatures with their own unique needs, so it is important to create and maintain a healthy habitat for them to do their work. They hate light and prefer to remain in the dark of their bin. They are very sensitive to vibrations, so try not to disturb them unnecessarily.

They will not leave their home if they are well fed and comfortable. If you supply the right ingredients and care, your worms will thrive and make compost for a long time.

Happy and successful vermicomposting!