



orm Farming



rochedale community garden inc.

growing together

What is a worm farm?

A worm farm is an alternative to composting. A special variety of worm is used to breakdown food scraps and produce natural fertilizer products that your garden and plants will simply love.

Compost worms convert organic waste into solid castings, a nutrient rich liquid that is called worm tea (wee). Worm farms are great for households where space is at a premium. They are easy to keep pets that serve a useful purpose.

Composting worms vs earth worms.

Compost worms are called 'red worms' or 'red wigglers'. They are sometimes found in old compost piles but are a different species and have different habits and needs to earth worms which are found mostly in the ground.

The scientific names for the two most common species of composting worms are *Eisenia fetida* and *Lumbriscus rubellus*. Composting worms have voracious appetites; they eat more than half their own weight in food every day! They also breed more quickly than earthworms and will double in number every month or so in the right conditions. Compost worms also prefer and thrive in confined spaces unlike their earth worm cousins.



Composting Worms



Earth Worms

Starting your own worm farm

You can purchase a worm farm or worm starter kit from a nursery or hardware store or you take the DIY approach and build your own. Used polystyrene boxes and plastic tubs make great homes for worms. If you have the room and would like a larger farm then try an old bathtub or refrigerator. It is best to start with a couple of handfuls of worms for a 3 -4 person household.

Select a well shaded spot for your worm farm as worms like to be kept moist and cool.

You need at least 2 levels in your worm farm, one for the worms, their bedding and food and a second (lower) level in which to collect the worm wee. Some worm farms have multiple levels to accommodate larger populations of worms.

Make sure that the top level is fitted with a lining material to stop the worms falling through and drowning in the worm tea below. Damp cardboard, shade cloth or fine mesh are suitable liners for the top level tier. To start, drill some holes in the bottom of your top level container to allow the worm wee to drain. Next install your lining material followed by a layer of bedding material such as damp shredded paper or compost. Next you can add your worms followed by a moist absorbent top layer of hessian, cardboard or newspaper.

Allow your worms to settle into their new home for a least a week. During this time you can add a small amount of food such as a chopped up banana peel for those worms that settle quickly.



Examples of DIY and commercial worm farms

eeding your worms

Worms like to eat many of the same things that we eat; only they aren't quite as picky. Stale bread, apple cores, lettuce trimmings, coffee grounds and non-greasy leftovers are all foods that we normally discard that worms love to eat.

The first feeding of your worms is like stocking an empty refrigerator. Start your worms with 2 to 3 litres of scraps. Include some chopped up soft foods like melons, grapes and cooked vegetables or partially rotten food which is soft and will decompose quickly. After the first feed you can feed your worms weekly with about a litre of scraps. As the numbers increase you can feed them more regularly and with larger quantities. To avoid fruit flies and odours bury the scraps under some of the bedding.

Worms have only small mouths so they prefer small sized scraps and will eat through them much faster than a single large piece of food.

Your worm farm shouldn't have any odour. If it does, it probably means that you are adding too much food. If there is more food than the worms can process then it can heat up as it decomposes killing your worms. Quit feeding for a while and wait until most of the food is gone before you start adding food again.

Maintaining your worm farm

Add fresh bedding every few weeks. Always keep a 50mm layer of fresh bedding over the worms and food in the farm. Shredded, non-glossy paper is ideal. Keep the bedding damp, by adding a some water so that it is a little more damp than a wrung out sponge.

Harvesting and using worm compost

After three to six months of feeding you will start to see some worm compost in the bottom of your farm. You can harvest and use this nutrient rich material which is also known as vermicompost or vermicast as a wonderful natural fertilizer.

Add vermicast whenever you plant seeds or move plants outdoors. Simply mix a small amount of it into the planting hole. A quarter cup per small plant will give them a significant boost.

With older plants and houseplants, top dress with vermicast twice a year. Scratch the surface of the soil to mix it in.

Before you can use it however you must separate your worms from the castings. Worms that are put into the garden will not survive for long. Regardless of which method you use it will not be possible to remove all of the worms from the castings but remember that your goal is to retain sufficient worms to restart your farm.

Method #1

Spread a sheet of plastic out in the sun and empty the entire contents of your worm farm onto the plastic. Separate the contents into a few cone shaped piles on the sheet. The worms don't like light so will tend to dig down deeper into the pile. After 15 to 20 minutes gently remove the top layer of each pile until you start to see worms. Repeat this process every 20 minutes or so until you are left with piles of wriggling worms. Return the worms to the farm with some of the compost as bedding.

Method #2

Most of the worms and uneaten material will be in the top third of your farm. Remove this material and all of the worms; reserve for restarting your farm. Remove the remaining (bottom two thirds) for use as fertilizer. Put the reserved uneaten food, bedding and worms back in the farm and resume feeding and maintaining your farm.

Method #3

This method will only work with larger (over a metre long) farms. Move the entire contents of the farm to one end of the container. Place fresh bedding in the empty end and bury your food scraps on this end for several weeks. Over time most of the worms will move to the end of the farm that has food in it and you will be able to harvest the old castings.

Making and using worm tea

A fantastic, organic, liquid fertilizer can be made from the juices that are extracted directly from your worm farm or by making a tea bag filled with vermicast. Worm tea is great to use indoors and out as it has also no smell unlike some compost teas. It is fine to use as a foliar spray as well as applied directly to the soil.

To make worm tea from the juices extracted from your worm farm add an amount of worm juice to a watering can and dilute it with water until it looks like weak black tea. Start with a ratio of worm juice to water of about 10:1 and adjust as necessary.

To make worm tea from your vermicast make a teabag by placing about a litre of vermicast into a closed hessian or cloth bag. Place the bag into a 20 litre bucket of de-chlorinated water and soak overnight. Water can be dechlorinated by leaving it out in the sun for a few hours before use. Next day remove the tea bag and dilute the contents of the bucket as per the instructions for worm juice (above).

Some organic fertilizer commentators recommend aerating the teabag whilst it is soaking. This can be done using an aquarium style air pump and air stone. This is done to keep the oxygen levels in the mixture high preventing anerobic (smelly) bacterial growth.

Troubleshooting

Occasionally things can go wrong with worm farms. Below are some of the more common issues and ways to deal with them.

Problem		Solution
Ants	Too dry	<ol style="list-style-type: none"> 1. Fill small containers with water and place each leg of the worm farm into a container. 2. Keep your worm farm moist. Soak top layer in water and consistently spray water on the bedding. 3. Make sure your worm farm is located in a well shaded and cool location
Small insects and midges present	pH levels	<ol style="list-style-type: none"> 1. Check the pH level with a test kit or probe. 2. Sprinkle crushed egg shells and dolomite to level out the pH from the worm farm bedding which is often acidic.
Small flies	Rotting food	<ol style="list-style-type: none"> 1. Remove rotting food. Adjust pH level. 2. Reduce the amount of food given to worms until they have broken down all of the waste. 3. Cut the food into small pieces. Worms have difficulty eating large pieces of food.
Vermin present	Bread, meat, oils, and fats in worm farm	<ol style="list-style-type: none"> 1. Check you have not mistakenly placed large amounts of bread, meat, oils and fats into your farm. Remove immediately.
Slow to break down	Too much food. Not enough worms present in farm	<ol style="list-style-type: none"> 1. Reduce the amount of food given to the worms until they have broken down all of the waste. 2. Cut large pieces into small pieces. Worms will not eat large food waste. 3. Increase the number of worms in your farm.
Rotting food	Too much food.	<ol style="list-style-type: none"> 1. Remove rotting food 2. Refer to the solution for slow to break
No worm tea or castings	More time required	<ol style="list-style-type: none"> 3. Allow your worm farm time to break down scraps. Depending on the size of your farm and the number of worms you have, it can take a few months before you can harvest castings.

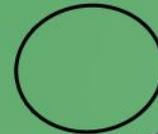
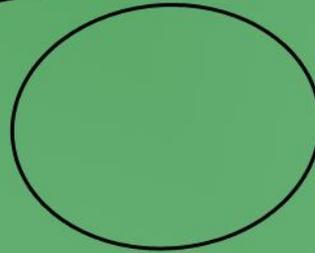


A healthy worm colony

Feeding your worms

Yum

Fruit and vegetable scraps
Egg shells, Cardboard and newspaper
Vacuum dust
Tea bags
Dog, Cat and human hair
Coffee grindings



AVOID

× Citrus Fruit

× Onions

× Twigs and branches

× Dairy products

× Pineapple

× Greasy foods

× Manure

× Meat and fish scraps