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Getting Started with Vermicomposting

WHAT is Vermicomposting?

Vermicomposting is the process of using worms to break down waste goods into nutrient rich dirt and concentrated nutrient rich fluids (worm pee). With the help of worms and the natural environment of worms, organic material goes through decomposition that will turn into compost that can be reused in your garden as dirt or nutrient-rich liquids (aka worm poop and pee).

WHO should try vermicomposting and WHY would they do it?

Vermicomposting is a great way to help the environment by reducing their carbon footprint. This is done by:

- Having your food waste broken down by worms into useful compost, you cut down on the waste you send to the landfill
- The worms create useful fertilizer that largely benefits your garden and if you are growing your own food it is more sustainable
- The process is cheap, so you don't have much to lose if you fail or become negligent
- The process is low maintenance, it will not consume much of your time past setup
- Just about anyone can do it

WHERE to put your vermicomposting setup or worm bin?

There are **two types of bins**:

- Nesting bins
- Standard bins (the one we will be using)

Nesting Bin

The nesting bin is a bin system where trays are stacked up upon one as seen in Figure 1:



Figure 1. Nested bin

Nesting bins place trays on top of one another with holes on the bottom for worms to travel between trays. These trays allow you to maintain feedings evenly across all depths and gives you a more accessible way to extract worm dirt without having to dig for it that will then disturb the worms.

Standard Bin

A standard bin, as seen in Figure 2, is the type of bins you can find at your local goods store like Target, Home Depot, Lowes, Ikea, etc. It is the bin you usually use to store items in the garage or other places in your home needing a container either open or sealed with a lid.



Figure 2. Standard bin

Outside vs Inside (Temperature and Environment)

Vermicomposting is fairly portable with vermicomposting occurring within your average bin (with a few air holes).

If you plan to vermicompost indoors anytime can work when setting up your worms, but if you plan to have the bin outdoors it might be best to do it in the fall between summer and winter to let your worms have time to settle in and adjust to the climate before extreme temperatures occur. With an inside bin you won't have that kind of trouble, it will remain regulated.

The ideal temperature for a worm bin is between 50- and 70-degrees Fahrenheit. Temperatures over 85 degrees can kill worms.

Outside bins require some safety measures you will have to take to protect your bin against outside critters. As worms make their home it will start the process of creating a natural ecosystem that will lead to the attraction of other insects.

If you have the bin outside, it is best to put some sort of barrier around the bin that will prevent unwanted insects gaining access like ants. You can order rubber feet as Figure 3 depicts that cup around the legs or the bin itself to put around the points that touch the ground and fill it with water that will prevent ants and centipedes from entering the bin as they will drown.



Figure 3. Rubber feet

Food Waste

The foods waste you should be giving your worms are greens like lettuce, spinach, etc. You need to research what foods to give your worms or you might upset their environment with harmful foods like tomatoes or oranges that are acidic to the worms. Any greens are a safe choice.

Rotted Food

You must be careful with how rotted the food you are giving your worms! If your food is super rotted or have multiple rotten foods next to each other in the bin they can start having harmful effects on your worms which will result in a worm disease called “pearls-on-a-string”. The disease is called this as your worms will have sections of their body that are bloat and shrunk. The way to fix this problem is to start separating the worms from the bin and taking out all food waste in the bin. Then you have to make new bedding out of newspaper/shredded paper and replace with new waste (that is hopefully less rotten and more spread out). Then you start putting back the visually healthy worms and dispose of any worms exhibiting the “pearls-on-a-string” visual symptoms.

You would have to be doing something really wrong to have it get to this point like overfeeding or adding elements like animal poop that is toxic to worms.

Materials

The items that will be required and address in the upcoming instructions are:

Worms (Red Wigglers)	Red wigglers are the most adaptable of vermicomposting worms on the market with a temperature range of 40-80 degrees, meaning they can survive in places with hot climates like Las Vegas if they are in the shade when in an outside bin.
Bin(s)	This is the place where you will put your worms and maintain them. You want a semi-large bin to have the surface space to properly gap out your waste to prevent too much rot by proxy and to make sure all worms are properly fed.
Light	After spending so much time in transit, worms arrive disoriented and will most likely attempt to inch their way to the top of the bin away from the bedding. With an overhead light we will be taking advantage of their nocturnal nature to use the light to encourage them to stay away from the top of the bin to avoid the light.
Shredded/Whole paper	Non-shredded paper will be laid on top of the bedding (top layer) to provide worms some further cover as worms are nocturnal insects and thrive in dark and wet areas.
Dirt	Use regular grade dirt to place into bin for worms to move in.
Drill	You will need air holes and drainage holes for the bin you will be using. Holes between 1/8" and 1/4" should be the size you use to be small enough for the worms not to fit through to escape the bin. You will drill the sides and bottom of the bin.
Spray bottle with water	The bedding and top layer of paper in a bin should be somewhat damp to keep worms hydrated and comfortable once they arrive. Be careful not to over water to the point of flooding or they will escape to avoid drowning.

Besides the time it takes for the worms and/or bin to be picked up or shipped, this process should take no more than an hour to two hours.

How to get Started with Vermicomposting:

1. Order red wiggler worms in a one-pound bag.
2. Get a standard bin of 20-30 gallons.
3. Drill small holes into the bin's lid, sides, and bottom (Figure 4) to allow air to be accessible to worms and to have excess moisture drain; as long as you have holes in the corners and some in the middle the air and drainage of the bin should be good enough.
 - You will want to have some sort of drain catch if this bin is indoors



Figure 4. Hole placement example

4. Prepare and fill your bin with a mix of shredded paper, non-shredded paper, and dirt. This mix will be referred to as “bedding” from now on. Figure 5 shows an example of the bedding mixture.
 - Shredded paper makes for great bedding for your worms and works as a great starting meal for new worms still adjusting. You want to give your worms no food waste for a few days to allow them to settle and properly space out into all the areas of the bin.



Figure 5. Prepared bin with bedding

5. Order your worms and once they arrive start adding them to the bin with all of your bedding.
 - Typically, worms will arrive in a cloth bag (Figure 6) and will be severely dehydrated from the journey, so it is important that you quickly get your worms in a wet bin to get them back on the road to recovery.
 - Don't worry if a few are dead or have escaped the bag, this kind of thing happens and with a pound of worms you should still have plenty.



Figure 6. Cloth bag worms are transported/arrive in

6. Set a light over the bin and for now make you don't cover the bin with a lid or any object that might block light from getting into the top of the bin to encourage worms to work their way down to settle them from transport.

- The standard recommendation is to allow for about a week with a light overhead and then you can cover the bin up with a lid.

7. Feed the worms your gathered waste

- After a week or two has passed your worms should be fully settled in and starting in on the paper. This is where you start introducing food waste to get the process of vermicomposting started.

8. Feed your worms half a pound of food waste and paper every week.

- It is standard practice to give an amount of waste that is half that of your total worm population. In this case with a pound of worms you give half a pound of food waste.

9. Water the bedding with a spray bottle weekly to a damp state---not flooded

- Worms need at wet environment to stay cool and hydrated, it is the best to dampen the bedding to the point of feeling wet but not having water build up.

10. Collect any worm dirt and replace with bedding

- Periodically you will need to extract worm dirt (Figure 7) from the bin as their "dirt" will start getting in their way with how condensed it is and it won't provide them any benefit. Most importantly this is the product that is beneficial to you and your plants. You can add this to any plant and you will give it an amazing bounty of nutrients to feast of off.

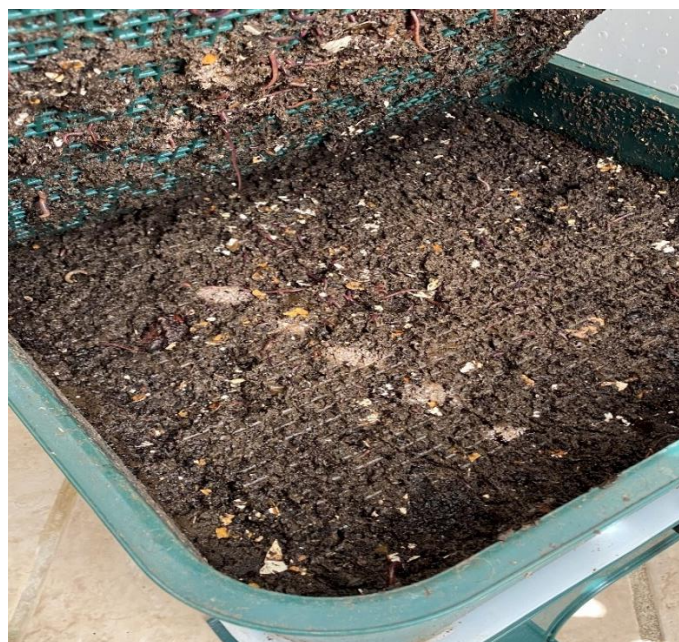


Figure 7. Worm dirt example

11. Finished!

- At this point your bin and worms are properly set up and all you have to worry about is doing too much feeding and watering

Conclusion:

Congrats on getting started with vermicomposting! You should conduct research online for safe foods to give to worms and start gathering them to add to the bin. There are many aspects to keeping worms happy which needs more information than is given here like their environment's Ph levels and the worms' grit (grit is when worms use fine particles to tear apart waste in their stomach) which can be gained/raised by adding finely crushed egg shells. In the end there is much more to learn but I hope this guide gives you a good overview and start to your worm bin.

These instructions were created as many vermicomposting instructions come off very intimidating when the process is quite easy to setup and too many focus on the issues before getting to the setup leading people to feel quite unprepared despite what myself and many other users of vermicomposting have experienced after starting the process.