

10 Commandments of Vermicomposting

1. When starting vermicomposting remember: «*You become responsible, forever, for what you have tamed*».
Antoine de Saint Exupery
2. A hungry worm will not respond with gratitude, having dined yourself, do not forget to feed your compost pets.
3. Take care of the comfort in the composter. Cover the pile, keep the humidity normal.
4. Serve your worm dining table right. **Do not put** in a pile: fat, bones, synthetics, dairy products and twigs.
5. Want a quick return on your workers - remember: the finer the ingredients, the faster the composting.
6. **Do not squeeze** organic waste. The looser and more airy the heap, the less intervention it requires.
7. To keep odors and insects at bay, do not overfill your vermicomposter. Wait until the majority of the kitchen scraps (at least $\frac{3}{4}$) have been decomposed before adding new feed.
8. Do not be afraid of overpopulation: the earthworms themselves regulate the number, depending on the amount of feed and the area of the composter provided to them.
9. When you go on vacation or are away from home for a long time, the earthworms calmly experience loneliness: you can load the composter with food and leave for two or three weeks, they will have something to do.
10. Don't know what to do with vermicompost?! It can be used for fertilizing indoor plants or as a fertilizer in a suburban area. If you don't have any flowers or a summer cottage, you can take the vermicompost to work and feed the plants there or pour it on the lawn near the house - any soil needs fertilizer!

Still in doubt about vermicomposting, we are happy to share our experience!

Simple rules for setting up a vermicomposter

(A)

- 1) Before adding the earthworms, find out how many earthworms you are starting with. The easiest method is to weigh the earthworms. The amount of earthworms is important for knowing how much food to feed them and for record keeping.
- 2) Using about 30-60 pages per vermicompost, tear newspaper into small strips. Avoid using colored print, which may be toxic to the earthworms.
- 3) Place newspaper strips into a large plastic garbage bag or container. Add water until bedding feels like a damp sponge, moist but not dripping. Add dry strips if it gets too wet.
- 4) Add the strips to the bin, making sure bedding is fluffy (not packed down) to provide **air** for the earthworms. Bin should be $\frac{3}{4}$ full of wet newspaper strips.
- 5) Sprinkle 2-4 cups of soil in bin, which introduces beneficial microorganisms. Gritty soil particles also aids the earthworms' digestive process. Potting soil, or soil from outdoors is fine.

(B)

- 1) Add the earthworms. Sometimes it is better to have everything ready 1-2 days before adding earthworms, so the moisture level reaches equilibrium and lets the food waste start to break down. Earthworms do not actually eat fresh foods but rather feed on the microbes that thrive by decomposing food scraps.
- 2) Would be good to use a desk lamp or other light at the vermicompost bin for the first one or two nights. Earthworms often take a day or two to settle into their new home and may try to escape the bin, but their intense dislike of light can keep them inside.

(C)

- 1) Bury food scraps under bedding.

- 2) Feed the earthworms fruit and vegetable scraps that would normally be thrown away, such as peels, rinds, cores, etc.
- 3) Limit the amount of citrus fruits that you place in the bin (this is due to their acidic and anti-bacterial properties).
- 4) NO MEATS, BONES, OILS OR DAIRY PRODUCTS.

(D)

- 1) Cut or break food scraps into small pieces--the smaller, the better.
- 2) Measure the amount of food. Feed earthworms approximately 3 times their weight per week. Monitor the bin every week to see if the earthworms are or are not eating the food. Adjust feeding levels accordingly. (If you start with one pound of earthworms, add 3 pounds of food per week.)
- 3) Bury food scraps in the bin. Lift up bedding, add food scraps, then cover food with bedding.

(E)

- 1) Place a full sheet of dry newspaper on top of the bedding. This will help maintain the moisture balance, keep any possible odors in the bin, and help prevent fruit flies from making a home in the bin.
- 2) Replace this sheet frequently if fruit flies are present, or if bin gets too wet.
- 3) If bedding dries up, spray with water. (If bedding gets too wet, add dry newspaper strips.)
- 4) Fluff up bedding once a week so the earthworms get enough air.

(F)

- 1) Keep earthworms happy 😊

Troubleshooting for our vermicomposting

Keep in mind, that vermicomposting system is like a small ecosystem, with several interlinked processes happening at the same time and influencing each other. It is literally living (as well as decomposing) organism.

So, if one of the processes goes off, it may throw off the balance the whole process.

Earthworm travelers

Sometimes might happen, that earthworms will want to wander around and leave the vermicomposter. This is most often caused by anaerobic conditions or ammonia production brought on by overfeeding, and less often but sometimes due to hot temperatures. Remove excess food, mix material lightly to improve oxygen flow, and make sure the bin is kept out of the sun and at room temperature.

If everything is fine, earthworms will have no reason to migrate.

However, if everything seems fine and the worms have been happy for months but suddenly start trying to escape or dying off, it is probably time to harvest finished castings from the bin. Worms can live in compost for quite a while but it is still their own waste product, and they will eventually (and seemingly suddenly) hit a point where they've had enough.

Smelly cat, smelly cat, what are they feeding you

Odors can have several causes, among them especially food rotting before worms have a chance to eat it and too much moisture or too little ventilation preventing proper oxygen flow.

If the food is rotting – there is probably too high Nitrogen to Carbon ration and will start soon producing ammonia, which is also killing the earthworms. So, then is necessary to remove excess food and add more bedding. If the odor is due to the lack of oxygen, then you can just leave the vermicomposter opened for a while, allowing air to get our and mix the whole material to improve air circulation to all levels.

It's pretty scary to know how quickly time flies. I mean flies fly

Flies are attracted to food waste, but luckily very few of them are able to lay eggs and cause an infestation in the vermicomposter. Nevertheless, to

Biogas Research Team

Dr. Hynek Roubík and BRT members

prevent flies, keep food covered with a layer of dry bedding such as shredded newspaper. This is because the types of flies that tend to inhabit worm bins cannot burrow, thus covering the kitchen scraps blocks their access and their ability to breed.

Some people walk in the rain, others just get wet

When water is not draining and/or vermicomposter is too wet, it can cause some problems. Worm bins must have adequate drainage. Ensure that drainage holes are not clogged by wiping a paper towel over the bottom of the bin. Absorb excess water by adding additional dry, absorbent bedding such as shredded newspaper to the top of the bin– even if it is not mixed into the wet layers, the humidity in the overall system will balance over the next few days and the paper will soak up some of the excess.

If there are pools of water, you can remove them with paper towel by twisting it into a tube and placing one end in the pool and other end placed upwards and reaching past the surface of the material. The paper towel will wick up the excess moisture, and you may simply remove it once the puddle has vanished.

Keep in mind, that our vermicomposter is plastic, so it tends to hold excess moisture (while wooden ones would dry out more naturally).

We are dry dry dry

If the vermicomposter is too dry, the easiest solution is to regularly add water. Dry bins are completely inhospitable to earthworms, who require plenty of moisture to keep their skin healthy. If vermicompost is drying too quickly, consider using a wetter food source or covering the material with a breathable fabric – but keep in mind the air flow.

So, what's the deal about fruit flies?

Another organism that may try and catch a free ride in your worm bin is the common fruit fly. Seemingly harmless to you and your bin, they can be rather annoying. Try making yourself a simple trap outside the bin:

In a short glass (5-8cm), place 1 part apple cider vinegar to 2 parts water. Next add one squeeze of dish-soap and stir gently (as to not produce any bubbles). Place the trap within 1 meter of the bin and viola, say goodbye to those pesky fruit flies.