



## **Vermicomposting (Worm Composting) Tip Sheet**

### 1. Why Worm (vermicompost) Compost?

- Reduces pressure on landfills
- Inexpensive-free compost & soil builder-castings are garden “gold”
- Conserve resources
- Little space needed, small and self-contained
- No odor if done correctly plus it is easy and fun

### 2. Elements of a Bin

- Use a sturdy wood or opaque plastic bin with tight-fitting lid to keep pests out and moisture in.
- Bins can be purchased ready-made or you can build your own.
- A bin about 12 inches deep is best. A bin that is too deep is not optimal as worms need to live near the surface to breathe.
- Holes drilled in the bottom are essential for proper drainage. If using a plastic bin, a drain pan or a second nesting bin is necessary. The number of holes drilled depends on the size of the bin wall.
- If you plan to keep your bin outside do not put it in direct sunlight. It could get too warm for your worms causing them to escape or die. In the winter portable bins should be moved to a more insulated area (porch, along a wall, garage etc.) or add extra insulation for non-portable bins (magazines, leaves, cardboard etc.)
- Various bin styles (purchased ready-made or build your own)
  - ❖ Plastic
    - Pros-Cheap and compact. Good beginner worm bin.
    - Cons-Can retain moisture easily. Do not to over water (keep bin well-drained); compost can have mud-like appearance if too wet.
    - If you use plastic make sure to use an opaque/solid color and not a clear bin. Worms prefer a dark environment and don’t like to be in direct light.
  - ❖ Wood-
    - Pros-Pleasing to the eye. Great beginner worm bin. Wood evenly distributes temperature throughout the bin.
    - Cons- Can be expensive. Bins tend to dry out faster. Worm tea can be more difficult to harvest because compost is drier due to the structure.

NOTE: Do not use cedar. Cedar has naturally occurring anti-bacterial properties, so it does not promote bacteria and critter growth.

❖ Multi-Level Worm Condos-

- These bins can hold 10,000+ worms that eat 5-8 pounds of food per day. Worms are placed in the bottom tray along with food and bedding. New tiers of bedding and food are added on top of original tray. As worms digest food in the first tray they migrate up to look for more food. The original tray is left with almost sorted finished compost.
- Pros-Compact systems with nozzles to drain “worm tea”. Can be less messy than other bins. Automatically separates food scraps from finished compost (although not 100%). Have new designs and colors.
- Cons-Expensive (~\$75-\$300) and complex bins. You can still find worms in the first layers of finished compost. End up sorting worms from finished compost just like other bins.

- Reuse materials to make a bin-wood pallet, cinder blocks, dresser drawers, scrap lumber etc.
- Make your own bin equipment can be easily found at neighborhood hardware, garden or building supply stores.
- Off the Shelf (OTS) bin plans from Seattle Tilth is an easy way to start.
- Bin should NOT be subject to great temperature fluctuations (ideal bin temperature is between 50-80 degrees F. Worms thrive best between 55-77 degrees F.
- You will also need a kitchen collector-a container to collect food scraps between feedings. Can be purchased or re-purpose another container.

3. Rule of One (for 1-2 people, multiply these numbers for more people)

- 1 pound of food waste per
- 1 pound of worms per
- 1 square foot per
- 1 week

4. Bedding

- Carbon-rich bedding supplies worms with a balanced diet and helps prevent flies and odors.
- Best to mix 2 or 3 of the following bedding items
  - Shredded newspaper
  - Shredded cardboard
  - Straw
  - Clean wood shavings
  - Paper egg cartons

- Coconut fiber (coir blocks)
    - Limited sawdust (too much wet sawdust causes clumps)
    - Shredded dried leaves
  - If your bin is going to be inside use more sterile bedding (shredded newspaper, cardboard coir blocks etc.) and not leaves, straw etc. as these items can contain insects you don't want to escape in your home.
  - Soak bedding materials in water for at least 10 minutes. Wring out excess water so materials are moist but not dripping. Should be the consistency of a wet sponge.
  - Try not to use heat sensitive or glossy papers especially if you plan to place the finished compost on vegetable beds. They can contain toxins.
  - Fill the bin to 1-2 inches from the top with loose bedding. If using the Off the Shelf worm bin plan than fill to 1 inch below the vents.
  - Initially when building your bin, you will need to add a couple of handfuls of soil to provide grit for the worms. You won't need to add soil again.
  - Bedding may need to be periodically remoistened.
5. What do Worms Need to Live?
- Air, water, food, bedding, and good drainage.
6. Where to Get Worms/Adding the Worms
- You need the correct species of worm to do the job. Use the following species of worm: *Eisenia fetida* or *Eisenia andrei* or *Lumbricus rubellus*. These worms are otherwise known as red wigglers, compost worms or manure worms. Do not use other types of earthworms for worm composting.
  - Worms can be purchased in-person or online. Google "Where to buy worms in Thurston County" for a list of local vendors.
  - Red wigglers are most used for worm composting are found naturally in the ground in Washington state. Check your soils and compost piles for them.
  - Begin with one pound of worms, which is usually about a pint in size and will have 600-1200 worms.
  - Add them to your bed next to the initial food source and cover with 2 inches of bedding.
7. Feeding the Worms/Making Compost
- Plant-based items; no meat, dairy, oils, and fats
    - Vegetable and fruits (except onions and peppers- too acidic)
    - Grains and breads
    - Coffee grounds/filters or tea bags (remove staples) are OK
    - Paper napkins and crushed eggshells in moderation
    - Limited citrus (citrus is a natural anti-bacteria killer)
    - NO human or pet waste (dog, cat, pig) due to pathogen potential.
  - Food scraps should be broken down into small pieces.
  - Dig hole in bedding, empty food waste into hole, and top with 2 inches of moist bedding.

- Rotate feeding locations. Worms will follow food sources.

## 8. Worm Reproduction

- Worms become adults and start producing offspring 6 weeks after hatching. They can lay up to 4 cocoons per week.
- After the cocoon is laid babies will hatch in 2-3 weeks. Each cocoon contains 1-5 worms.

## 9. How to Know When it's Ready?

- It can take 6-12 months depending on space, number of worms and how much they are eating. Worms work slower in extreme cold and hot temperatures.
- Harvest when you have much more castings than bedding. Bin contents should look brown, moist, and crumbly like coffee grounds.
- Push over and rebed method. Push castings to one side of bin, rebed the open space and add more food. Worms will naturally migrate over to new bedding leaving castings to be used. Or you can use the pile on a tarp method. Take your finished compost and shape it into a pile or pyramid on top of a sheet of plastic/tarp. Shine a light or let sunlight radiate over the piles. The longer you keep the piles in the light the more the worms will move from the top of the pile to the bottom. Keep shaving off the outer layer of finished castings from the pyramid. This will force the worms to dive deeper towards the bottom of the pile.
- Discard any leachate (liquid that drains out the bottom or the bin). If you want to make a "worm tea" put finished castings into a sock/nylon stocking. Soak filled stocking in a bucket of water. Let it "steep". Always dilute "worm tea" 10:1 before adding to plants otherwise it could burn your plants. Use tea immediately after steeping and use within 24 hours of making a batch of solution. Do not use vermicompost tea on the edible portion of a plant unless you are absolutely certain that the solution does not contain pathogens.

## 10. Troubleshooting

Problem	Solution
Bedding too moist	<p>Add drainage</p> <p>Add more dry bedding, fluff to create more airflow</p> <p>Reduce the addition of "wet" food wastes somewhat until situation stabilizes</p>
Bedding too dry	Keep bin cool, cover bedding with cardboard, add moist paper or cardboard, moisten food
Not enough air	Needs venting- open lid or add vents
Too much food	Slow down on feeding, add worms, increase size of bed
Odors	Add more bedding, add more drainage, bury food more deeply

Fruit Flies	Cover the top with damp cardboard, newspaper– make the top flat
Too many or not enough worms	Too many worms? Harvest and give some away Not enough worms? Harvest out of your yard waste bin or purchase some
Worms escaping	If they are leaving via drainage holes, use screen cloth over the holes Might be too hot or not enough food or using wrong type of worms

## **Worm Resources:**

### **Book: Worms Eat My Garbage**

By: Mary Appelhof and Joanne Olszewski ISBN-978-1-61212-947-1

### **Book: The Complete Compost Gardening Guide**

By: Barbara Pleasant and Deborah L. Martin ISBN: 978-1-58017-702-3

### **Website: Master Recycler Composters of Thurston County**

<https://extension.wsu.edu/thurston/gardening/mc/>

### **Website: North Carolina State Extension -Vermicompost**

<https://composting.ces.ncsu.edu/vermicomposting-2/>

### **Website: Seattle Tilth Composting Information-Off the Shelf Worm Bin Plans**

<https://tilthalliance.org/resources/composting-method-bins/>

**Website: Adventures of Herman the Worm** (everything you want to know about worms-designed for kids, but adults will enjoy it just as much):

<http://urbanext.illinois.edu/worms/>

For questions or more information email the Thurston County Master Recycler Composter  
Question/Answer Rotline at [master@co.thurston.wa.us](mailto:master@co.thurston.wa.us)

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