

The Down and Dirty on Worm Composting

By Liz Pevytoe from BigTex Worms

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Introduction

Worm Composting, where do I begin? For me, it all started with an internet browse on an organic gardening website. I read a post about someone making their own organic fertilizer with worms and I kept reading. Next thing my husband knew, there was a bin in "his" garage squirming with red wiggler worms. I killed that first batch of worms, Texas heat and a dry bin, not a good combination (lesson learned). Well, that was in 2002, I now teach vermicomposting classes locally in the DFW metroplex and have over 15,000 worms at any given time.

I will warn you now, these little critters are addictive. The process is intriguing and your friends may call you strange now but give them time, before you know it, having worms in the house will be a commonplace.

The purpose of this pamphlet is a short guide on how to get started in worm composting at home. There are some awesome comprehensive books out there if you want to learn more. This is the short and sweet version.

Now for the Down and Dirty on Worm Composting,

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Table of Contents

Basics:

1. Worms (pg.3)
2. Environment (pg.4)
3. Bins (pg.4-5)
4. Bedding (pg.5-6)
5. Food (pg.7-8)

Harvesting

1. How to harvest (pg.9-10)
2. Using your castings (pg.10)

Maintaining a worm bin (pg.11)

Common Problems and Solutions

1. Top 4 mistakes of new worm farmers (pg.12)
2. Bugs (pg.12)
3. Heat and Cold tips (pg.13)

Resources (pg.14)

Step by Step Guide for days 1-60 (pg.14)

Basics of Worm Composting

You need several RIGHTS for worm composting: the right worms, the right environment, the right food, and the right harvesting method.

The Worms

The worms I recommend are, *Eisenia foetida* (Red Wigglers), are about 4 inches long, mainly red along the body with a yellow tail. These worms are MUCH smaller than I expected so don't be shocked when you get your worms.

Why are these e.foetida the preferred for composting? Several reasons:

- they adapt to bins well and do not try to escape(unless bin conditions are horrible)
- they are top feeders making feeding easy; unlike nightcrawlers who are burrowers
- they out eat many other breeds
- they survive in a wider range of temps than other breeds

In other words, they are user friendly and good bang for your buck. A full grown e.foetida ranges from 2"long to 5" inches long. They are on the smaller side of the wormbreeds. I call them petite worms. I still think nightcrawlers are nasty, yet my petites are easy for me to handle bare handed! And I am a woman worm farmer...



Top worm is a red wiggler and the bottom photo is a nightcrawler.

Can't I just go catch some worms from the backyard? Yes, but those are usually nightcrawlers and don't prefer bin conditions. Nor are they top feeders like red wigglers.

The Environment

The goal here is to replicate nature in a bin environment. So.....

Temperature:

Red wiggler Worms prefer temperature ranges from 40 to 80 degrees Fahrenheit. These are BIN Temps (it can be much cooler or much warmer outside but these are your goals for your bin temps) Temperatures below freezing and above 95 degrees can harm your worms. NO DIRECT SUN on your bin! [Click here to buy a compost thermometer.](#)

Moisture:

While worms love moisture, be sure to keep your bin away from a place where it could flood. Pick up a handful of bedding and squeeze, you should get a few drops of water out. Water pouring out= too wet. NO drops= too dry.

Air:

Just like humans, worms need air to live. Don't wrap your bin in plastic and be sure to leave air holes. No drainage holes needed in the bottom. I will tell you why in a later section.

The Bin

Setting up your proper worm habitat is very important. There are commercial worm composting bins available on the market. Ranging in price from \$30-600 for home use. [Click here to see a few of them.](#)



Bin basics: should not be translucent, needs air holes. Does not need drainage holes if you feed/water properly.



Or you can make your own bin for under \$5

[Click here to watch my video on making a worm bin.](#)

How Big should it be?

A good rough estimate is one pound of worms per person in your house. So a family of 2 will need 2 pounds of worms. And two pounds of worms will fit into an 18 gallon tote, or (3)5 gallon buckets



But you can get more “scientific” if you want: Tracking your weekly food waste will help determine the size of bin and number of worms you'll need. Collect food waste in a container and weigh it. Do this for two weeks to get an estimate of average food waste.

Your bin should provide one square foot of surface area for every pound of food waste per week. And you will need two pounds of worms for every pound of food waste per day.

The amount of worms you put in the bin all depends on how much garbage you'll be adding to it each week. The basic formula is two pounds of worms for every pound of garbage (a 2:1 ratio). It takes about 1,000-1,500 worms to make a pound

An estimate is two square feet of surface area per person, or one square foot of surface area per pound of food wastes generated each week. Vegetarians often find they need a bin with four square feet of surface area per person. And worms eat roughly half their body weight per day. So if you make 2 pounds of waste per day you need to start with 4 pounds of worms and 4 square feet of space. The average Rubbermaid 18 gallon tote is about 2 square feet of space.

Space for worms is important, too little space the worms will “self regulate” and stop breeding and eating and in extreme situations they will die off.

Worm bins can be located in the basement, outside under a tree, shed, garage, balcony or kitchen counter. But remember, NO DIRECT SUN.

The Bedding:

Bedding can be just about anything: cardboard, shredded newspaper, leaves, peat moss, coconut coir, manure and dryer lint to name a few.

BUT.....

This is VERY IMPORTANT: Even though I list many bedding options, I have come to realize that worms do much better with **starter bedding** consisting of at LEAST 50% coco coir, manure or peat moss.

Lets stop for a minute, what is coconut coir??? What is coconut fiber? AKA cococoir or coconut coir are simply the hulls/outside of coconuts. Coconuts are harvested every 60-90 days and the husks are then processed and packaged (often compressed) to be used for gardening, with pets, packing/shipping, making rope and even used in many outdoor mats.

Compressed coconut fiber is NOT the same as coconut HUSKS. Coconut husks are what is used for doormats or planter liners. NOT good for a worm bin, it would take worms YEARS to break down that course material. [Read more about coconut fiber by clicking here.](#) Did you buy a starter bag/bucket? It has coconut fiber in it!

Where was I..... Worms do NOT do as well in a new bin of newspaper/cardboard or leaves. If you do start your worms in a bed of newspaper, leaves or cardboard, **DO NOT FEED THEM FOR AT LEAST 2 WEEKS.** They need time to munch on the fiber bedding and get it going before they will be ready for food. So yes, you can absolutely use all newspaper or cardboard or leaves, but they will not be eating much food if you do. I realize this advice is far different than what you see in most places on the internet. But I stand behind it . Why?.....

My first bin was a mixture of paper shreds, leaves and dirt from the yard. The worms were dead within a week.

Also, I found out the hard way that oak leaves are not a good choice, too acidic, fyi. You can use them but just add lots of egg shells and don't use them alone in the bedding, only as a combo with other bedding sources. And again, feed MINIMALLY if you have leaves in the bin or it will become stinky. So, I just put my oak leaves in my traditional compost pile.

When you buy a starter bag from me, you simply dump the bag into your bin (or use the provided bucket as your bin if you are local). You don't even need starter bedding.

But if you are preparing your own starter bedding, you need to hydrate it before the worms arrive with tap water, pond water or rain water. Wait 24 hours before adding your worms so the chlorine in your water will dissipate. Pick up some of the bedding and squeeze it in your hand, you should have 2-3 drops of water drip out when squeezed. More than that? Too wet. No drips? Too dry.

**Don't use garden soil or mix fresh cow, horse or chicken manure into the bedding. These emit gases and will raise the temperature of your compost bin. You could end up "cooking" your worms to death. Also if you are using manure, make sure the animals have not been de-wormed in the last 3-4 months. If they have, allow the manure to age for 4-6 months before using in your bin.

The Right Foods

What can worms eat?

Fruits and veggies of course! Also, they eat the bedding materials. And It is easier to say what they won't eat rather than what they will.



Foods to avoid: Meat, dairy, bones and fish. Yes, worms will eat all this but it will stink to high heaven during the process and take a long time. NO SALT , SPICES OR VINEGAR – EVER. Or you will have dead worms.

They love most fruit and veggie scraps, tea and coffee grounds. I give my worms pasta (no sauce), citrus, onions, rice and bread in small quantities. I break all the rules!

I keep a plastic pail with a lid outside my backdoor (an old kitty litter pail I swiped from a neighbor), and collect food for my compost pile and worms. Aging it for a couple days before feeding it to them helps the process along. You can buy a pail with a lid at home depot for around \$5.

With 1 pounds of worms, try starting out with about a cup of food scraps. Observe how quickly they eat it up, and adjust your feeding routine accordingly. Do not feed again until all food is gone or your bin will sour. [Click here to watch my video on a cool feeding tip.](#)



I top feed. Simply make a “nest” with some dry bedding, place the food on top then **cover with 1” or so of new bedding** . Some people prefer to bury the food in the bedding. Either way, the food needs to be covered with something or the fruit flies will be unbearable. And remember, feed in a corner, do not spread the food out over the entire bin. Food heats as it decomposes and the worms need to be able to get away from the heat as needed.

Feeding scraps can have challenges. The main challenges are odor and fruit flies. I personally put my scraps in the my regular compost pile to allow them to decompose some, then give to the worms when partial composted. This method reduces pests and odor. Not to mention it speeds up the worms composting process.

Going on vacation? But don't worry—they can survive for weeks at a time without any fresh scraps. Do NOT be tempted to overfeed before you leave. Simply leave a layer of 2-3 inches of shredded newspaper or cardboard for them to munch on while you are away.

***** Feeding tip The smaller you chop up/crush the food, the faster the worms will eat it. (And the faster your bin will produce compost.) Although some home-scale worm keepers use blenders to puree food scraps, others believe vermiculture should be a low-carbon-footprint endeavor and thus use little or no electricity. I've done both, at first I used the blender and gave them about 2 cups of blended goodies, now I give them whole scraps. I feed my worms 1 time per week. (See video link above)

Harvesting Methods



Approximately 60-90 days after you start your bin, it is time to harvest. The processed foods/bedding will take on a coffee ground looking appearance. These are the worm castings: poop. This is the fertilizer you have been waiting for!

There are two basic ways to harvest the castings: [Watch my video here](#) or read on....

Hands On approach:

(Warning: Do this outside or in a work room - it could get a little messy You may want to wear rubber gloves if gooey gets you bothered..)

Spread a large plastic sheet on the floor and dump everything in your worm bin onto it. Make a few piles out of the casting material. Form each pile into a mini pyramid shape. Worms will be everywhere and they'll try to dig down into the piles to avoid light. Wait about ten minutes and then start to gently remove the outer edges of each pile. Every time you remove enough bedding to expose the worms, they'll try to dig even deeper into the pile. By repeating this for each pile, you'll end up with piles of worms and not much else.

Hands OFF approach

If you prefer a hands-off technique, simply push the contents of the bin all to one side and add fresh food, water, and bedding to the empty space. The worms will slowly migrate over on their own. This could take a month. This requires more [patience](#), of course.

Or you can use a commercial separator. Which can be found on the internet!

After you have harvested, then all you do is put fresh bedding (newspaper, dead leaves) into your bin, dump in the worms and watch 'em munch. I usually leave

some of the old bedding in the bin to get it started and so the worms don't freak out.

***There will be worm cocoons in the vermicompost. Some people like to let those babies hatch before using the compost and some people (like me) just use it then. I like the idea of adding worms to my garden/houseplants. If you want to wait and let the babies hatch: all you need to do is put the compost into a separate bin or a cardboard box for 30 days or so then do the harvesting one more time before using it. Top feed coarse food, keep moist and check for baby worms once per week.

Where/how Do I Use My Compost?

The compost can be mixed with potting soil and used for houseplants and patio containers. It is an excellent top dressing (spread in a layer on top of the soil) for potted plants. You can use it as a starter for seedlings, and finely sprinkled on a lawn as a conditioner. It can be used directly in the garden, either dug into the soil or used as a mulch.

I use about ¼ cup castings sprinkled around the base of my indoor plants every couple of months. Sometimes I do the same outside but most of the time I make compost tea for outside.

The Easy Method

1. Fill a 5 gallon bucket with tap water.
2. Allow the 5 gallon bucket to sit for 1-2 days to de-chlorinate.
3. Put 2 cups of castings in some old pantyhose or a fabric sachet
4. Allow castings to steep for 24-48 hours. Mix it as frequently as possible
5. take out castings put liquid in pump up sprayer
6. spray liberally on plants

The better method: Aerated Compost Tea.

1. 5 gallon bucket of de-chlorinated tap water OR rainwater
2. Add 2 cups of worm castings in a mesh bag or old tube sock (so you don't clog the air stones)
3. Add 2-3 Tablespoons of unsulfured molassis or fish emulsion
4. Put in air stones (bought at a fish supply)
5. Aerate tea for about 24 hours: it will be bubbly/foamy when it is ready.

No matter which method you use to make your tea, you **MUST** use it within 4-6 hours. It is alive with beneficial micro-organisms and the longer you wait to use it,

[Here is a video by Howard Garrett on making compost tea.](#)

*** The drainoff of your bin during the composting process is **leachate: worm pee** and water from veggies, NOT worm tea, NOT fertilizer, NOT good for your plants. I pour this on my outdoor compost pile as an activator. Some people say it is fertilizer, but I have seen it kill plants so I don't use it. Not to mention, if you get the moisture levels right, you should not ever have runoff. I only had runoff for the first few months as a new vermicomposter. If you are having a lot of runoff, then your bin is way to wet from overwetting or overfeeding.

Maintaining the Bin

Keep an eye on your worms to make sure that they haven't eaten up all their bedding and that their home has enough water to be moist but not WET. Worms breathe through their skin and will drown.

Add bedding when you feed. Your worms will reduce everything in your bin quickly. You will start with a full bin of compost or paper/cardboard, and soon it will be half full.

Common Problems And Solutions

4 biggest MISTAKES of Newbie Worm Composters

#1 Wrong Bedding choice: covered previously

#2 OVERFEEDING :feed only when all food is gone

#3 OVERWATERING: keep bedding damp not dripping wet

#4 OVERSTIMULATING: leave the little critters alone

A few more:



The a common complaint is unpleasant, strong odors which are caused by lack of oxygen in the compost due to overloading with food waste so that the food sits around too long, and the bin contents become too wet. The solution is simple: Stop feeding, mix in some dry bedding and wait at least a week before feeding again. Check the drainage holes to make sure they are not blocked. Drill more holes if necessary. Remember worms cant swim and will drown if too wet.



Fruit flies can be an occasional nuisance. Discourage them by always burying the food waste and not overfeeding. You can place a sheet or a piece of plastic over the bin to keep the flies down. But watch the temperature if you do this.

Other critters!. Most are helpers. However, do remove centipedes: Centipedes are carnivores, and eat baby worms and worm eggs.

[Read my article on other worm composting bugs here.](#)

Cold Weather tips:

- Buy a compost thermometer to monitor temps. and conditions frequently
- Insulate bins (this can be as simple as wrapping with an old blanket or as fancy as foam insulation)
- Feed scraps that heat like lettuce and corn, but do not broadcast feed, feed in sections in case it heats too much so they have a cool area to move to if needed.
- Consider providing a heat source if you have outdoor bins with a constant temp below 40 degrees in the winter (this can be done with tube lighting, warm water currents or overhead lighting)

[Click here to watch my video on winterizing a worm bin.](#)

Hot Weather Tips:

- Buy a compost thermometer and check bin temps and conditions frequently Keep bin shaded and out of direct sunlight
- Keep bin moist (condensation will help keep bin cool, I water my bins DAILY in Texas during the summer)
- Feed less scraps/manure and consider feeds of paper, cardboard or compost (food scraps that have already gone through the heating process)

[Click here to watch my video on Summer tips.](#)

Resources

Helpful websites:

www.bigtexworms.com My website of course!

www.vermicomposters.com (this site has listings nationwide of people willing to “share” some worms with others.)

www.redwormcomposting.com

www.worndigest.com

www.wormwoman.com

www.vermicomposting.org

Join my newsletter: [click here](#)

Join my forum : [click here](#)

I have an online worm composting class included with any purchase of worms.

Suggested reading:

Worms Eat My Garbage, by Mary Appelhof

DEAR CHARLIE, by Patrick Shields

As the Worm Turns, by Roy and Dianne Fewell

Still have questions? Submit a question for me to answer [by clicking here.](#)

PRETTY PLEASE WITH SUGAR ON TOP: PRINT OFF THIS SHEET AND KEEP IT WITH YOUR WORM BIN. IT IS VERY IMPORTANT!

Step by Step Startup for Worm Composting Days 1-60

Day 1

Build/Buy your worm bin

Prepare and wet down your bedding (not necessary if you bought a starter bag)

***Watch class video by BigTex Worms** for specifics on bin and bedding, you should have received an order confirmation email with this information (**VERY important**)

Day 2

Place your worms in bin

Shine a light on the bin for 8-12 hours (a lamp next to the bin with the lid OFF)

Day 3

Feed your worms

For starter bag start with $\frac{3}{4}$ cup veggie/fruit scraps

For worms by the pound, feed $\frac{1}{2}$ wt of worms. (ie 1# would be $\frac{1}{2}$ # feed which is roughly $\frac{1}{2}$ cup)

Days 4-14

Feed worms again when all food is gone (maybe 1 day, maybe a week, lots of variables)

Add dry bedding with each feed (make a "nest" with bedding if feeding watery scraps)

Resist urge to mess with worms too much

Mist spray with water as needed to keep bedding damp

Day 14

Turn/loosen bedding

Days 14-60

Feed/Water/add bedding as needed

Turn/loosen bedding every 2 weeks

Day 60 (give or take) DO NOT NEGLECT TO HARVEST

Harvest Worms and Castings

Divide and start new bin (leave $\frac{1}{2}$ gallon of processed bin materials in new bin)

Share $\frac{1}{4}$ of worms with a friend or start a new bin

REPEAT AND REPEAT AND REPEAT.....

Questions: www.bigtexworms.com

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