

# The Worm Chalet



**The Worm Chalet** provides an easy way to compost household food scraps into a nutrient rich soil amendment for your plants.

The Worm Chalet enables you to reduce your household carbon impact by keeping your food waste out of the landfill. Vermicomposting (worm composting) is faster than traditional composting and requires less manual work!

# Why Compost our Food Waste?

Composting our household food waste reduces the greenhouse gasses, specifically methane, generated from food that is left to rot anaerobically in landfills which, in turn, helps to mitigate climate impacts.

By vermicomposting you can:

- Reduce the amount of garbage that needs to be collected from your home
- Save the water and electricity used by kitchen sink garbage disposals
- Produce a free high quality soil amendment

<https://www.usda.gov/foodlossandwaste/why>

## Why Vermicomposting?

When worms consume and process food waste, they produce castings. Worm castings are an excellent nutrient-rich soil amendment.

Worm castings enhance soil by increasing its porosity, water-holding capacity, texture, and reducing erosion. Vermicompost may also help plants grow bigger, increase crop yields, and decrease plant diseases and pest attacks.

Refer to the link below to learn how to use the worm castings you generate from your Worm Chalet on your plants

<https://content.ces.ncsu.edu/home-composting-with-earthworms>

The liquid digestate that drains from the bottom of the bin is a highly concentrated acidic effluent (or worm leachate). The goal of vermicomposting is to **NOT** create large amounts of leachate. Lots of fluid drained off from the food waste indicates excess moisture which should be avoided. However, if you do decide to use leachate in your garden the liquid should be diluted at a ratio of 1 part leachate to 20 parts water to prevent any burning when used on ornamental plants (not those for consumption).

# Information & Research on Vermicomposting

NC State University Extension provides a wealth of information on vermicomposting:

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

# Product Attributes

- The Worm Chalet can be used both indoors and outdoors (in full shade)
- The weather-resistant polyethylene and roto-molded design of the Worm Chalet will last for decades
- The Worm Chalet's olive drab color blends in easily with outdoor landscaping
- Each unit is manufactured and hand-crafted in North Carolina
- The units are made using medium-density polyethylene with recycled content and UV stabilizers
- The stacking Worm Chalet is designed to hold up to a maximum of 6 trays
  - The basic kit comes with 3 trays, with additional trays sold separately
- There is no odor when the Worm Chalet is maintained correctly
- The Worm Chalet has an animal-resistant design to keep critters and pets out

## Tray Design Features

- Each tray has a 7" x 7" opening to the tray below
  - This generously-sized opening increases aeration and drainage, and allows for easy upward migration of the red worms
- Includes a durable 12" x 12" black poly-coated metal mesh screen (0.5" x 0.5" square grid)
- Four perforated 'feet' elevate the tray off of any surface when accessing
- Built-in aeration vents surround the top of the tray
- Handles on two sides of the tray provide a secure grip on a full tray
- Rolled inside lip on the tray top minimizes escapees



# Specifications

## Dimensions

- Assembled Unit - 20" long x 20" wide x 31" high
- Individual Stacking Tray - 17.25" long x 17.25" wide x 4.5" high
- Roof - 20" long x 20" wide x 6.25" high
- Base Unit - 17.25" long x 17.25" wide x 11.625" high

## Weight

- Empty Assembled Unit - 27 lbs.
- Empty Individual Stacking Tray - 3.8 lbs. each

## Capacity

- The collection base holds 3 gallons of liquid
- Each stacking tray holds 5 gallons each of food waste plus worm habitat
- The overall unit with three trays provides 15 gallons of bioconversion capacity

## Temperature Range

- 45 to 90° F, the optimal environment is between 60 and 80° F

## Warranty

- The Worm Chalet has a two year limited warranty

# Worm Chalet Kit Contents

- 1 Tapered Roof (**Note:** Handsome rooster not included!)
- 3 Stacking Trays
- 3 - 12" x 12" black poly-coated metal mesh screens
- 1 Base Unit
- 1 Spigot with 2 washers and a nut (**Note:** the spigot color changes with part availability)
- 1 Roll of Teflon thread tape
- 3 One-gallon bags of clean, cross-cut shredded cardboard bedding
- 3 Cotton balls
- 1 Hand rake
- 1 Small bag of sand
- 1 - 15" x 15" coir pad
- Quick-Start Guide



# Accessories & Replacement Items

- Additional Trays
- Replacement Coir Worm Topper
- Replacement Spigot

# Items You Need to Provide

## Red Wiggler Worms

To get started you will need about 1lb of red wiggler worms (*Eisenia fetida*) which is about 1,000 worms.

As you will need 1,000 worms it's best to purchase them from a worm grower instead of a bait shop.

Here are a couple of vendor links where you can purchase your worms:

<https://www.urbanwormcompany.com/>

<https://www.buckeyeorganics.net/>

**Note:** Only purchase your worms when you are ready to start using your worm chalet, they will need to have a home immediately after they arrive.

## Source of Bedding

You will need a source of bedding to keep your worm bin going. The Worm Chalet kit has an initial supply to get you started for each tray, but you will need to add bedding in every time you feed the worms.

Here are some good materials to use for bedding:

- Clean cross-cut shredded cardboard
- Shredded waste paper (no gloss)
- Coconut coir
- Dead leaves

# Assembly

- Select a cool dark location for your unit either indoors or outside
- The spot needs to be flat and not sloped (ensure it is level)
- No tools are needed to assemble the Worm Chalet
- You will need some old black and white newspaper (do not use color)

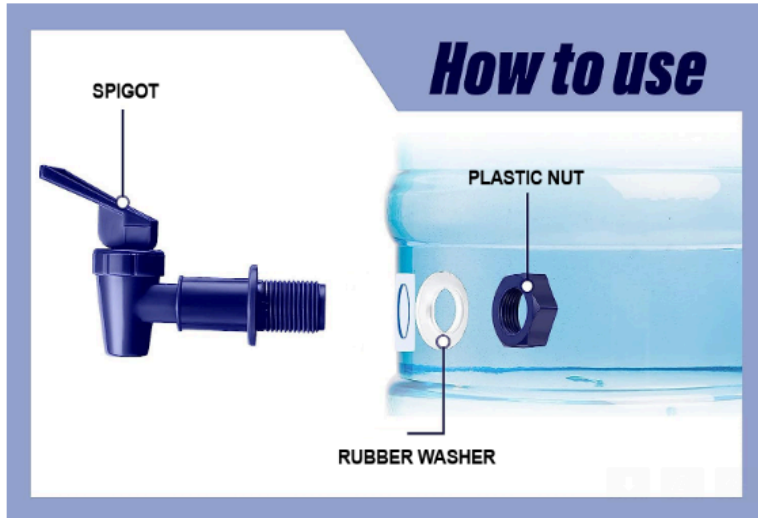
## Install the Spigot

- Locate the plastic bag containing the spigot, nut and washers



- Wrap the teflon tape snugly onto the threads of the spigot (2 layers thick)
- Carefully push the spigot into the pre-drilled hole on the base unit

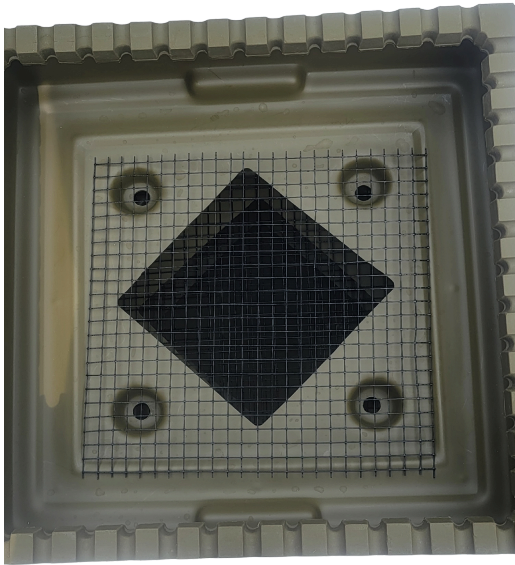
- On the inside of the unit, screw on one clear washer with the wide end facing away from the body and spigot tap



- Screw the nut on following the washer
- Hold the spigot in place on the outside of the unit, and tighten the nut until it cannot be loosened (do not over-tighten the nut)
- Save the second washer for use as a replacement when needed
- Locate the bag with the three cotton balls, and place one of the cotton balls into the inside end of the spigot where the nut is. The cotton will filter the liquid and keep sediment out of the spigot.

## Assemble and Stack the Trays

- Add one mesh screen to each tray and then place a sheet of newspaper on top of the screen



- Stack the tray on top of the base unit or a lower tray
- Repeat the two previous steps for each tray
- Place the roof on top of the assembled unit

# Maintaining your Worms

## How to Feed Your Worms

### What Can Go into the Worm Chalet

- Fruits
- Vegetables
- Grains / pasta / breads
- Shredded black and white print newspaper / office paper (no gloss) / used paper towels (except if after used with solvents)
- Eggshells
- Clean shredded corrugated cardboard (no color, no gloss)
- Coffee grounds / Non-plastic tea bags

### What Cannot Go into the Worm Chalet

- Citrus peels
- Meat, fat or bones
- Dairy products
- Animal feces
- Twigs or branches

### Notes:

- Odorous food, like onions or rotten food, can make the worm bin smell bad, so you may want to avoid adding these items depending on where your Worm Chalet is located.
- By mixing some bedding material with the food waste before adding, you can avoid excess pockets of moisture. Excess moisture can lead to fruit flies and bin odor.



# Initial Setup

- Pre-moisten one bag of the cardboard bedding
- Starting with just one tray on top of the base, add the bag of damp bedding on top of the sheet of newspaper covering the wire mesh screen



- Place about one tablespoon of sand on top of the bedding and mix it in using the hand rake



- Add 1 lb of red wiggler worms
- Add some household food waste mixed with bedding (paper/cardboard scraps), into the tray (to start, up to about 0.25 lb total)
- If you do not pre-mix the food scraps with bedding, after adding the food waste and bedding, use the hand rake to cover the food scraps completely with bedding to prevent fruit flies from finding the food

- If it is seasonally cold, 40 to 60°F, place the coir worm blanket on top of the active tray's bedding/food mixture.



- Place the roof back on top of the Worm Chalet

# Feeding and Harvesting

- Feeding the worms 50% food scraps and 50% bedding will create the optimal environment
- In a healthy environment, composting worms will maintain their population size
- **Note:** If your bin has a bad odor, you might need to skip a feeding or decrease the amount of food per feeding until your worms can catch up



## Daily

- In general, an established worm colony can eat up to nearly half their weight in food per day. This means that if you start with 1 pound of worms, eventually the colony can eat up to a half pound of food per day (**Note:** do not exceed a half a pound a day)
- The new food/bedding should be added in layers of no more than 2 inches
- Check the temperature regularly in your active trays so that you can adjust accordingly if needed.

## Weekly

- Based on your food scrap output, you can feed them either a half pound daily or, at least, a half pound once a week
- Worms can survive up to two weeks without any additional food
  - If you are going on a long vacation, just feed them a bit more than usual
- Drain the liquid accumulated in the base

## Monthly

- When a tray with the active pile fills up, add a new tray on top; refer to the Initial Setup section above on how to add a new tray

- o The worms will gradually migrate up through the metal mesh screen to get to the new tray where the food waste is placed
  - o Wait for the worms to leave the old tray before using the castings they leave behind. The worms will eventually leave the old tray once everything has been consumed. This can take several months.
- Check on the cotton ball inside the spigot and replace it if it is full of particles

# Using your Worm Compost

After you have harvested your worm castings and compost, you can use it as a soil amendment that your plants will love.

Adding the castings and compost as a soil amendment is the way to go. However, you don't want to use it as the only growing medium for your plants. Aim to use it for about 10% of the soil for your plants. For example, you can use an eighth of a cup (no more than a quarter of a cup) of worm compost per one quart of soil.

# FAQs



## **Will I ever need to replenish the worms?**

- If you encounter an extreme situation of heat or cold, your worms may perish. If this is the case you will need to order another colony.
- If your worms are maintained they should reproduce continuously and not need replenishment.

## **What should I do if I see fruit flies around my Worm Chalet?**

- Fruit flies will be attracted to a high moisture content or exposed food waste. Ensure that you are adding enough bedding with your food mixture, and make sure to bury the food waste under the bedding material.

## **What should I do if my Worm Chalet has a bad odor?**

- You likely have excess moisture which could be the result of not enough bedding or too much food. Ease off on feeding for a bit until there is less moisture or you can see that the worms have eaten the food that is there.
- You can also add a bit of dry bedding to absorb the excess moisture.

## **What if worms are crawling out of my bin?**

- This will happen from time to time as the worms are natural explorers. However, the unit is designed to minimize this tendency.
- You may have higher rates of escape if the environmental parameters in the Worm Chalet are not optimal (too hot or too wet, for example).

## What if there are other bugs or creatures in my Worm Chalet?

### **Black Soldier Flies (BSF)**

- BSF larvae will find your Worm Chalet if it is heavy on food waste. They are a beneficial species and will not harm the worms, but will out-compete them for food.
- Meats and fats will attract BSF more readily, so try to minimize adding those to your Worm Chalet.
- BSF grubs will clump and you may also be able to scoop out the colony and place it in the garden compost bin for faster control. They are harmless and will not bite or sting.

### **House flies**

- House flies may also appear in your Worm Chalet.
- House flies tend to lay their eggs directly on food waste. If the food waste in the active tray is not exposed, it's harder for them to reproduce.
- Ensure that you cover the food waste fully or use a coir pad to prevent house flies from laying eggs. They will not lay eggs on the coir. You can use the coir for this purpose as well as for insulation in cooler months.

## What should I do if my Worm Chalet is too dry after returning from vacation?

- If your active tray is overly dry, you need to gradually add moisture back in. If you add too much water at once, it will run off and not soak in. Add a bit at a time until you get the tray moisture back to normal.
- A spray bottle of room-temperature water (preferably non-chlorinated) will help you add the moisture back in gradually.

## What should I do if the unit ever gets over 95?

- This is a serious situation and the temperature needs to be reduced immediately.
- The fastest way is having reusable frozen cold packs and placing them inside the active trays.
- Monitor the temperature and consider adding additional cold packs if the temperature does not drop.