

Seattle Tilth O.T.S. (Off the Shelf) Worm Bin

Bin Design by Colleen Quinn, Illustrations by Paul Tomita for the Seattle Tilth Association

Materials:

- 10-- 1" screened louvered vents
- 2-- 2" screened louvered vents
(lumber yard)
- 2 solid color Rubbermaid bins at least 14" deep
- O-ring hose washer
- 1 Male hose adapter, $\frac{3}{4}$ " x $1\frac{1}{2}$ "
- 1 Metal hose shut-off valve, spigot
- Teflon plumbers tape
(hardware/garden store)

Tools:

- Drill motor
- $\frac{1}{4}$ " drill bit (regular)
- 1" drill bit (blade type)
- 2" drill bit (cup type)
- Measuring tape

Assembling the Tilth O.T.S. Bins

Bin # 2: Install Screened Louvered Vents and Drainage Holes

- Before drilling holes, make an indentation with the point of the 1" drill bit to help guide the drill.
- Turn the bin upside down and drill twenty $\frac{1}{4}$ " holes in the bottom of the bin for drainage. Be sure to drill in the lowest areas of the bin. Using the drill, remove any plastic residue from the holes so they are clean and free of plastic curls.
- Turn the bin on its side and drill five 1" holes for the louvered vents along the upper edge. Locate the holes $1\frac{3}{4}$ " from the top edge, spacing each hole about 3" apart. Note: When drilling holes for the louvers, drill straight through, once only. Multiple drilling will make the holes too large and the vents will not be secure.
- Repeat the process on the opposite side of the bin.
- Finish by inserting the 1" louvered vents into the holes from the outside of the bin.
- Make sure the vents are flush with the outside wall.

Bin # 1: Install Shut-Off Valve/Spigot

- Drill a 1" hole at the center, end sidewall, one half inch from the bottom. Be sure that the hole is on the flat surface of the sidewall, not on the curved area.
- Stretch and push the O-ring onto the threaded end of the male hose adapter.
- Make sure the O-ring is in the groove all the way to the end of the male hose adapter.
- Wrap the threaded end of the male hose adapter with teflon plumber's tape.
- From the inside of the bin, place male hose adapter through the 1" center hole.
- From the outside of the bin, screw the shut off valve/spigot onto the male hose adapter tightly.
- The spigot control knob should be on the top side of the spigot for easy use. Always keep the spigot in the closed position to prevent leakage.

Lid # 2: Install Screened Louvered Vents

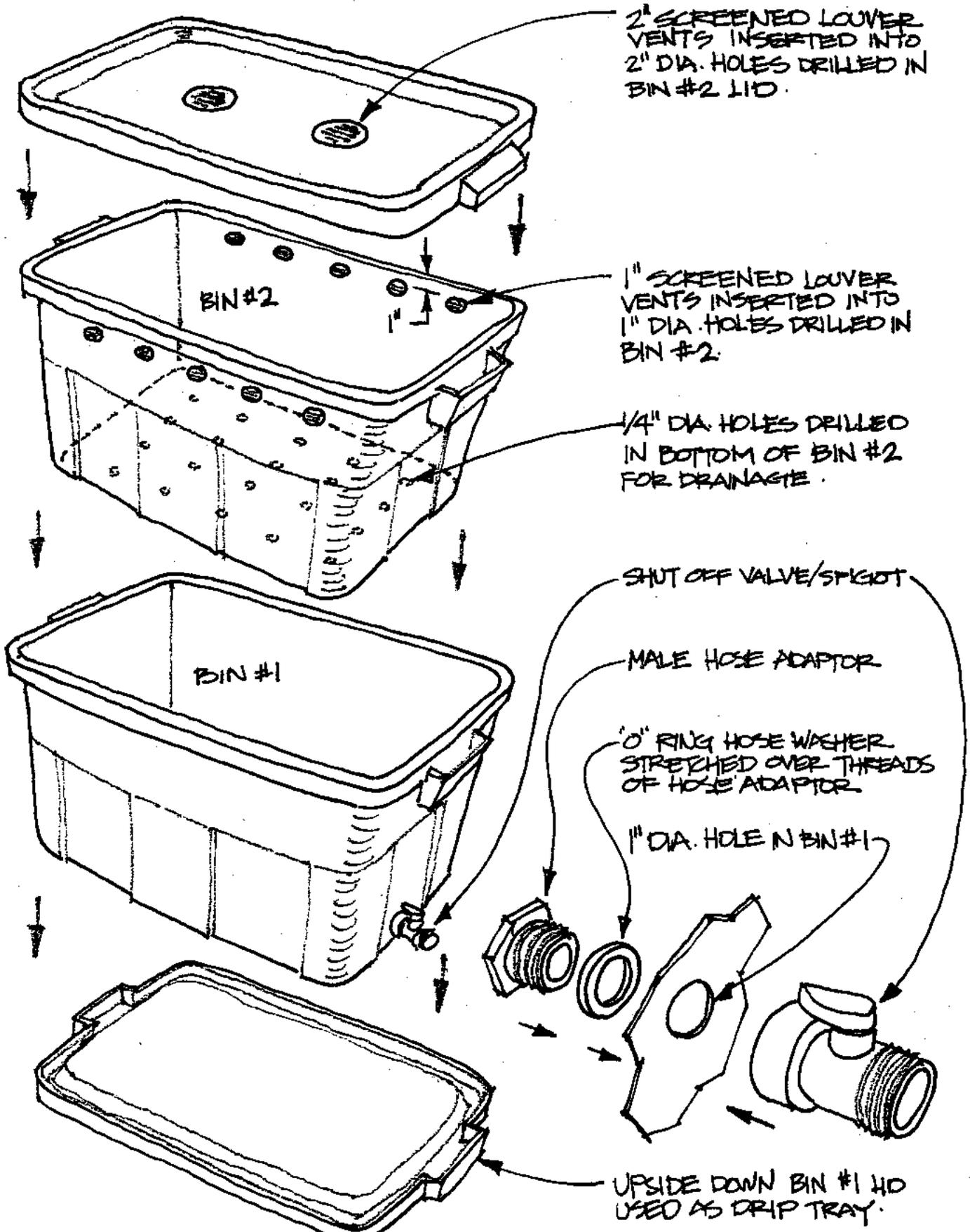
- Take the lid of bin #2 and place on top of the bin #2.
- Mark two locations on the lid for the 2" louvered vents.
- Carefully drill the 2" hole using a cup drill bit.
- Clean off any plastic residue or curls.
- Insert the 2" louvers from the outside of the lid through the holes.
- Assemble the bin according to the illustration, stacking Bin # 2 inside Bin # 1.
- Put lid #2 with the vents, on top of the bins.
- Do not snap the lid shut, just lay it loosely on top of the bin.

Lid # 1: Drip Tray

- Use lid #1 upside down, positioning lid under valve/spigot as the drip tray under the bins.

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O.T.S. Worm Bin Tips

Prepare bedding in another container and transfer to the bin.

This can be done in a 5-gallon bucket in small batches.

Your bathtub or shower is a good place to mix the bedding, as mixing bedding with water can be messy.

Set Bin #2 in the tub or shower while you transfer bedding, allowing excess liquid to drain before putting the bins together.

To moisten paper, rip into squares, crumple, dunk into water and shake out excess water before placing in the bin. Wood shavings should be soaked first to insure that they take up the water.

Using paper and wood shavings will mean less crawling critters in your bin.

Using leaves will introduce more crawling critters into your bin.

Fill your bin almost full with bedding, leaving 1" louvered vents exposed.

Do not block the louvered vents with bedding. The bin needs air for the worms.

Add food scraps by burying your food in holes or pockets in the bedding.

Do not overload your bin. Use the formula below to figure pounds of food per week your bin can handle:

Width' X length' (square feet) = # lbs food per week.

For example, the O.T.S. bin that measures 1' width by 1¹/₂' length can handle about 1¹/₂ lbs food per week.

Create a pattern when burying food. Bury in a new place every 4-6 times you bury food.

Avoid disturbing all the bedding when burying food. The bedding may heat up and the worms will have nowhere to go to avoid the heat.

Take care that the spigot is in a protected area- so that it is not kicked, etc...

Drain compost tea liquid often.

Check daily after newly bedding bin, less often later. Pick up both bins and move side to side. A sloshing sound means you need to drain the compost tea liquid.

Lift and tip bins toward the spigot, open spigot and drain liquid into another container or bucket.

Use the compost tea liquid for your houseplants. (Note: If the liquid is foul smelling like very rotten food, it is not healthy for your plants, so flush the liquid down the toilet.)

Keep adding fresh bedding to your bin, as materials break down into compost.

You need to be able to bury food scraps under the bedding, so add more fresh bedding on top as the existing bedding decomposes.

Harvest compost when bin material looks brown and crumbly (like coffee grounds) and smells like the forest floor.

To harvest compost, your Tilt O.T.S. Worm Bin will need to be emptied and re-bedded.

First drain the compost tea.

Lift the interior bin (Bin #2) out of the exterior bin (Bin #1).

Rinse out Bin #1, flush spigot with water and set Bin #1 aside.

Remove visible food scraps from Bin #2 and set food aside.

Lay down plastic sheeting and dump out the contents of Bin #2 in a pile on the plastic.

Separate the worms from the bedding:

The worms will avoid light and burrow down into the compost.

You can remove the 3" top layer of compost without getting worms.

Repeat the process, removing a 3" compost layer every 5 to 10 minutes.

Finally, you will have a little compost and a pile of worms.

Re-bed Bin #2. Add worm/compost pile to Bin #2 and reassemble bins.

Bury the food scraps you put aside.

You may want to put the finished compost into another container to age.

In case of problems with little flies...

Fruit flies can be prevented by laying a piece of plastic bag or cardboard over the top of the bedding, inside the bin. (This breaks their life cycle, as they don't like to lay their eggs on the smooth surface.) Be sure that food scraps are buried beneath the bedding. Existing fruit flies can be sucked up with the vacuum cleaner. Also be sure to wash the food scrap bucket on your kitchen counter often, with soap and water.

Fungus gnats can be attracted to moist organic matter, such as found in a worm bin. They don't respond to the same fruit fly techniques listed above, but they can be trapped with a sticky trap made for gnats. Attach sticky trap tape to a piece of cardboard and place on top of the bedding, inside the bin. If fungus gnats get into houseplants, you can let the soil dry out before watering and scratch the soil surface to disturb the life cycle.

What causes worm death?

Bedding too dry— no moisture for the worms. It should be moist like a wrung out sponge.

Too much water— they drown. Use the spigot to drain the liquid often. A layer of coco peat fiber or peat moss at the bottom of the bin can help absorb excess moisture.

Too little air— they suffocate. Keep bedding fluffy and vents clear.

Too much acid is toxic and burns worms delicate skin. Avoid adding too many citrus foods.

Digging around in the bin too much will cause the food and bedding to heat up, killing the worms.

Harvest the compost when it is ready, as the worm's castings are toxic to the worms. Remember to continue to add fresh bedding to the top in your bin, as the existing bedding begins to decompose