

Chicago Conservation Corps Speakers Bureau  
Vermicomposting



**Goals:**

1. Understand the difference between backyard composting and vermicomposting.
2. Develop hands-on experience with vermicompost bins.
3. Provide resources and directions for DIY bin construction and additional resources.

**Materials:** vermicompost bin, examples of greens and browns, worm castings, wooden spoon and spray bottle, *Guide to Composting with Worms*, *Shedd Aquarium The Care and Keeping of Worms*.

**KEY TERMS**

Compost

Vermicomposting

Red Wrigglers

Worm Castings

**Step 1: Introductions**

**Time: 10 mins.**

TIP: *Remember to always introduce yourself, smile and make eye contact*

1. **Introduce yourself and the goals of the presentation.**
2. **Develop a leading question.** This will help you get a sense for your audience and peak their interest.  
**Review** the *Myth Busters* and *FAQ's* for assistance.
  - How much waste is produced by each Chicagoan per day (on average)? 4.4 lbs
  - What percentage of Chicago's waste is made up of organic material? 29%, 2<sup>nd</sup> to Paper
  - Composting can reduce your waste output by \_\_\_? 30%
3. **Group introductions:** Use these questions as an opportunity for group introductions.

**Step 2: Overview**

**Time: 15 mins.**

TIP: *Be sure to clearly indicate the difference between backyard composting and vermicomposting.*

**THEME: Vermicomposting is an easy way for urban dwellers to reduce waste.**

**Big Picture Overview**

- The average person produces an average of 1600 lbs of waste annually.
- 34 million tons of food waste is generated in the US annually.
- Decomposition of organic material in landfills produces methane, a potent greenhouse gas (GHG).
- Composting, a **waste diversion** strategy, reduces GHG emissions by removing **organic waste** from landfills and transforming it into **compost**, a soil conditioner rich in nutrients. Vermicomposting also lowers GHG's by reducing the number of waste hauling trucks needed.
- **Vermicomposting** is a specific type of small scale composting that requires the use of **Red Wrigglers**.
- **Red Wrigglers** are a specific type of worm that live on top of soil in leaf piles or dead plants. Red Wrigglers can eat up to half their weight in food scraps per day. 1lb of mature worms will consume their weight in food scraps per day.
- **Worm Castings** are created as the worms digest food scraps. The result is nutrient rich material that is composed of worm poop.

(US EPA)

**Chicago Specific Overview**

- **The Chicago Composting Ordinance** approved small scale composting including backyard operations.
- **The Chicago Climate Action Plan** waste goal is to reduce methane producing waste in landfill by 90%.
- Since 2007 Chicago has reduced its landfill waste by 26%.
- In 2010, Chicago welcomed the Illinois' first large-scale, food scrap composting facility.
- Chicagoans composted over 4,000 tons of food scraps in 2010.
- Chicagoans have access to education and resources through several local programs.

(The Chicago Climate Action Plan)

**Questions?**

**Time: 5 mins.**

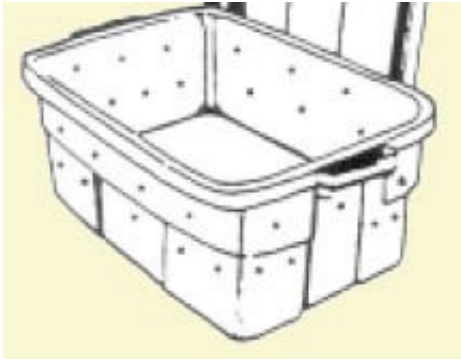
### Step 3: Vermicompost Bin Demonstration

Time: 15 mins.

**TIP:** Invite the audience to participate. Encourage tactile experience. Encourage experimentation in their composting experience.

**Materials:**

- 8-10 gallon plastic storage bin – dark plastic so as not to let light in, with lid
- Electric drill with 1/16 inch bit
- Black-and-white newspaper (no glossy or colored paper)
- 1 pound of red worms (*Eisenia Foetida*)
- ¼ pound of organic food waste (worms will process smaller pieces faster)



#### Building a Worm Bin

**1: Ventilate the bin:** Use the 1/16 inch bit to drill holes about 2 inches apart along the side of the bin near the top (to prevent worms escaping). Also, drill 8-10 holes in the bin's top. Remember to wear safety glasses when you drill.

**2: Prepare bedding materials:** Bedding holds the moisture, provides the air worms need to survive, and covers the garbage you bury (which deters pests).

-Tear black and white newspaper into long, thin strips. Fill the bin with the strips. Note: do not use colored pages or slick paper, which can be toxic to the worms. The paper should be well-fluffed – don't pack it in.

-Moisten the paper, similar to a wrung-out sponge.

-Adding one cup of soil or grit may aid in the digestion process.

**3: Add the worms:** About 1 pound

**4: Add Food Scraps:** Bury a handful of food in the bedding. ¼ pound of food equals about ¾ c. of sliced fruit OR 4 slices of bread. Use a wooden spoon to stir and aerate the bin

**5: Close the lid:** Let the worms get to work.

Worms LOVE...	Worms HATE...
Vegetable scraps	Meat, bones, fat
Fruit peelings	Dairy products
Bread and grains	Rubber bands
Tea bags	Twigs and branches
Coffee grounds and filters	Dog and cat feces
Well-crushed eggshells	Greasy foods
Non-greasy leftovers	Peels that have been sprayed heavily with pesticides (e.g. banana peels)

Problem	Probable Cause	Solution
Worms are dying	<ul style="list-style-type: none"> <li>• Too hot</li> <li>• Too dry</li> <li>• Too wet</li> <li>• Not getting enough food</li> <li>• Bedding is used up</li> </ul>	<ul style="list-style-type: none"> <li>• Move bin to cooler location</li> <li>• Moisten bedding</li> <li>• Add more bedding</li> <li>• Add more food</li> <li>• Harvest bin and add more bedding</li> </ul>
Bin stinks or attracts flies	<ul style="list-style-type: none"> <li>• Exposed food in bin</li> <li>• Not enough air circulation</li> <li>• Improper items added</li> <li>• Too much food added</li> </ul>	<ul style="list-style-type: none"> <li>• Bury food in bedding</li> <li>• Fluff bedding and add more</li> <li>• Remove meat, dairy, etc.</li> <li>• Turn contents and add bedding; stop feeding until problem goes away</li> </ul>
Other	<ul style="list-style-type: none"> <li>▪ Mold</li> <li>▪ Escaping worms</li> </ul>	<ul style="list-style-type: none"> <li>• Mold is an active part of the worm bin; the mold helps break down the food that the worms eat. People with extreme mold sensitivities should avoid tending the bin.</li> <li>• The bin probably has other problems; troubleshoot using the above tips.</li> </ul>

Questions?

Time: 5 mins.

### **Harvesting the Compost (After about 8-16 weeks)**

Time: 10 mins.

**TIP:** *Touch the compost either with gloves or bare hands to put uncertain audience members at ease.*

After 2 to 6 months, you should start to see compost. Once you see that most of the bedding has been eaten and replaced with dark, crumbly fertilizer, it is time to “harvest” the compost and provide new bedding for the worms. Worm castings (i.e., the compost) are toxic to worms, so you should harvest within a few days after you see compost. Here are a few suggestions for harvesting:

**Scoop Method:** If you just need a little compost, leave the top of the bin open for about 10 minutes. After the worms have wriggled to the bottom of the bin (to get away from the light), scoop out a few handfuls of compost.

**Migrating method:** Push the compost to one side of the bin and add fresh bedding to the other side. After a month or so, all the worms will have migrated to the fresh side and you can remove the old compost.

**Pile Method:** Empty the contents of the bin onto a sheet of plastic and separate the compost into little piles. The worms will wriggle away from the light into the center of each pile and you can brush away the compost on the outside by hand.

### **Applying Compost:**

Outdoor plants:

-To mulch (after planting): Apply a one-inch deep layer to the soil around plants; make sure compost is not piled against plant stems.

-To amend (before planting): Mix an inch or so of compost into soil before planting, or mix it into the bottom of seeding trenches or transplant holes.

**Houseplants:** Sprinkle compost around the base of plants.

### **Step 4: Questions and Wrap Up**

Time: 10 mins

**TIP:** *Sum up the presentation theme- Vermicomposting is an easy way for urban dwellers to reduce waste.*

### **Additional Resources**

#### **City of Chicago Publications**

*Chicago Home Composting* pamphlet

*Rain Barrel and Compost Bin How-To* two-sided hand-out

#### **Local Resources**

DOE Sustainable Backyards Hotline: 312-743-9283, [rainbarrel@cityofchicago.org](mailto:rainbarrel@cityofchicago.org)

Chicago Conservation Corps: 312-743-9283, [conservation@cityofchicago.org](mailto:conservation@cityofchicago.org)

Green Tech U Workshops: 312-746-9642, [greentech@cityofchicago.org](mailto:greentech@cityofchicago.org)

Chicago Home Composting Program Rotline: 773-265-9587

Garfield Park Conservatory: 773-638-1766

The Resource Center DIY Bin Supplies: 773-821-1351, [info@resourcecenterchicago.org](mailto:info@resourcecenterchicago.org)

U of I Extension Master Composter Program: 773-233-0476, [nkreith@gmail.com](mailto:nkreith@gmail.com)

#### **National Resources**

US EPA Composting Basics [www.epa.gov/epawaste/conserve/rrr/composting/index.htm](http://www.epa.gov/epawaste/conserve/rrr/composting/index.htm)

National Sustainable Agriculture Information Service

[www.compost-info-guide.com/make\\_better\\_compost.htm](http://www.compost-info-guide.com/make_better_compost.htm)

Mary Applehof's *Worms Eat My Garbage* publication. Also found at [www.wormwoman.com](http://www.wormwoman.com)