Composting At Home

Derived from information at *www.epa.gov/recycle/composting-home*

Basic ingredients for all composting:

Browns – e.g., dead leaves, branches, and twigs.

Greens – e.g., grass clippings, fruit & vegetable waste, & coffee grounds.

Water - the right amount of water, greens, & browns for compost development.

Your compost pile should have an equal amount of browns to greens. Brown materials provide carbon while green materials provide nitrogen to the compost, and water provides moisture to help break down the organic matter by action of microbes and worms in the compost. Alternate layers of organic materials of different-sized particles to promote composting.

What to compost: Fruits and vegetables, Eggshells, Coffee grounds & filters, Tea bags, Nut shells, Shredded newspaper, Cardboard, Paper, Yard trimmings, Grass clippings, Houseplants, Hay and straw, Leaves, Sawdust, Wood chips, Cotton and Wool Rags, Dryer and vacuum cleaner lint, Hair and fur, Fireplace ashes.

Note: Some of the items listed above may contain substances that would put them in the "Not to compost" category, e.g., paper or cardboard with coating, ink or dyes that release chemicals that may harm plants. Some materials may contain harmful insects or pathogens that could transfer disease to plants or people. Some items (e.g., wood chips) may take a long time to decompose.

What <u>Not</u> to compost & why:

Materials that contain or release substances that may harm plants	Black walnut tree leaves, twigs Coal or charcoal ash
Food items that may create odors & attract pests, such as rodents or flies	Dairy products & eggs Fats, grease, lard & oils Meat or fish bones & scraps
Disease carriers harmful to plants	Diseased or insect-ridden plants that may transfer disease or insects to other plants
Disease carriers harmful to humans	Pet wastes (dog or cat feces, soiled litter) that may contain parasites, bacteria, or virus pathogens
Materials that may kill beneficial organisms in compost	Yard trimmings treated with chemical pesticides

Benefits of Composting

Enriches soil, helping retain moisture and suppress plant diseases and pests.

Reduces the need for chemical fertilizers.

Encourages production of beneficial bacteria and fungi that break down organic matter to create nutrient-filled humus material.

Reduces methane emissions from landfills. Lowers your carbon footprint.

Back Yard Composting

Tools you may need: clippers to make materials smaller, garden fork or pitchfork to turn the pile, shovel to chop plant materials or turn the compost pile.

Basic Compost Pile Method

Select a dry, shady spot near a water source for your compost pile or bin.

Add brown and green materials as they are collected, making sure larger pieces are chopped or shredded.

Moisten dry materials as they are added.

Once your compost pile is established, mix grass clippings and green waste into the pile and bury fruit and vegetable waste under 10 inches of compost material.

Optional: Cover the compost with a tarp to keep it moist.

How long to finished? When the material at the bottom is dark and rich in color, your compost is ready to use. This usually takes between two months to two years.

Indoor Composting

If you do not have space for an outdoor compost pile, you can compost materials indoors using a special type of bin that uses worms to digest waste plant matter. You can buy a bin system at a local hardware store, gardening supplies store, or make it yourself. A properly managed compost bin will not attract pests or rodents and will not smell bad. Your compost should be ready in two to five weeks.

Indoor Vermicompost Bin

A worm composting bin can be fairly inexpensive and easy to maintain. There are several ways to vermicompost. Instructions on how to build one form of worm composting bin designed for indoor use. (Commercial vermicompost bins are also available.) You may need to put your bin inside to prevent the worms from freezing in winter or getting too warm in summer. A place in a basement or other out-of-the-way space may be best to store the bin because you will be producing compost and worm “tea” in the composter.

Building a Vermicomposter

Materials Needed:

Two plastic bins – one must be taller and rest inside the other, shorter bin. The taller one needs a cover to keep the worms inside the bin; the shorter one is the bottom bin and does not need a cover.

The taller bin is the top bin. A rectangular 18 gallon tub or plastic storage bin that is about 15 inches long, 20 inches wide, and 15 inches high works well. It should be flexible enough to allow you to drill holes into it. Holes near the top allow air into the bin for the worms to breath. Holes near the bottom allow excess liquid to drain into the shorter bin, so the worms do not drown. Both sets of holes are covered with a fine mesh vinyl screen to prevent worms from escaping. The taller bin needs to have a cover to prevent worms from crawling out.

The shorter bin is made of rubber or plastic, with dimensions of about 15 inches long, 25 inches wide and 5 inches high works great. The extra length allows you to scoop out extra liquid or

“worm tea” for use elsewhere (e.g., in the garden, for plants, shrubs, etc.).

A drill – A drill with two bits (1 inch diameter, and 1/8 inch diameter) is needed to drill the holes mentioned above.

Screening material – A small amount of screen material (e.g., 4 inch square) is needed to cover the holes in the bin to prevent worms from escaping. Vinyl window screen material is fine, but not metal, which will rust over time. The screening material should be glued in place by using **waterproof glue**.

Shredded paper – You need enough to fill your bin to 3 inches deep, and you will need extra shredded paper weekly for each time you feed the worms. Almost any kind of paper works, but avoid heavy, shiny paper and colored paper.

Dirt – About a pound of clean soil (no harmful chemicals in it) will be enough. Dirt provides grit for the worms used in digesting the plant matter you will feed them. If all goes well, the worms will be producing their own dirt (compost) soon.

A little bit of water – Some water is needed to moisten the paper and dirt to create a comfortable medium for the worms to thrive. Soak the paper and then drain it before using. The dirt should be moist enough that you can make it into a clump that sticks together when you squeeze your hand, but not muddy wet.

Worms – A pound of red wrigglers is recommended because they consume waste quickly, but earthworms also work. Red wrigglers are available online, from your U.S. Department of Agriculture (USDA) extension office or from another worm bin owner.

Do <u>not</u> use invasive species, such as the Asian Jumping Worm (also known and sold as the **Alabama Jumper, Georgia**

Jumper or Snake worm); they are very destructive to forests and crop land if they escape.

A trowel – Needed to move the compost as needed in the bin.

Food scraps container – Use a small container with a tightly fitting top to collect vegetable and fruit scraps which you will add once a week to the bin. Worms do best when left alone, so it is best to feed them only once a week. Use a covered food scraps container to collect scraps for a week and then feed the worms.

Preparing the Bins

The Top Bin: Drill a 1-inch hole about 2 inches from the top of the taller bin on one side. Drill another hole on the opposite side. Drill four 1/8-inch holes near the bottom near the corners of the bin.

Cover each of the holes with vinyl screening and glue the screening in place with the waterproof glue. Be sure the glue is completely dry before continuing to the next step.

The Bottom Bin: Do NOT drill any holes in the short bin. Place the taller top bin inside the short bin.

Preparing the Paper and Soil Medium and Adding the Worms

Combine the shredded paper with water to moisten it. Wring out excess water and put it loosely in the bottom of the tall bin. Mix enough water with the soil to dampen it (do not make mud). Add the soil to the paper in the tall bin and mix it up to fill the tall bin to about 3 inches deep. Make sure the mixture is very moist, but not forming mud or puddles of water. Gently add your worms to the mixture and cover the top bin. Place the top bin in the bottom

short bin and let the worms get used to their new home for about a day before feeding them.

Feeding the Worms

Collect food scraps, such as vegetable and fruit scraps, bread, paper tea bags, coffee grounds, and cereal in your food scrap container. Do not include any animal products (fat, bone, dairy, meat, or feces). It may take the worms longer to process woody or dry items like stems or the outer layer of onions, compared to soft moist plant matter. Worms will eat paper if it is thin or torn into small pieces. Worms will <u>not</u> eat any plastics, fabric tea bags, coffee filters, or labels placed on produce by grocery stores.

<u>Weekly feeding of Worms</u>

Take the saved food scraps to the worm bin.

Gently use a trowel to create a hole in the paper-soil medium to hold the food scraps. First, throw in a small handful of shredded paper. Then add all the food scraps on top of the paper. Cover ALL of the food scraps with dirt and moist paper. Exposed food attracts fruit flies, but covered food scraps don't.

Add a mixture of damp dirt and moist paper to the bin until the worms have made enough compost to cover the food scraps.

Notice what the worms are eating and what they are not. Remove any scraps that your worms have not eaten for a while as they may not like that type of food. For example, some worms will not tackle a whole potato or citrus rind, but may eat those foods if they are cut into small pieces.

Put the lid back on the worm bin.

Wash out the food scraps container for the coming week.

Maintaining the Vermicomposter

Once every few months, scoop the liquid out of the lower container and use it as fertilizer outside on soil near plants, or dilute it with water to use on indoor plants.

When the worm bin is full (i.e., when the compost reaches the bottom of the top holes you drilled), do the following:

Feed the worms on one side of the bin for a couple of weeks in order to draw them over to that side.

Once all the worms are on one side, harvest the compost on the other side with a trowel and use it in pots, your garden, or sprinkle it across your yard. You can also scoop the compost with worms onto a newspaper and sort them out, but that is messier. Harvest compost at the end of the week, before you feed the worms again.

If there are too many worms in your worm bin, share extras with friends and family for their own worm bins. **Do not release the worms outside** because all worms in North America are non-native species that can become invasive and cause severe harm to vegetation, trees and forests. You can humanely kill worms by putting them in a bag or container, sealing it, and placing it in freezing cold (e.g., a freezer or snow bank). They will go to sleep and not wake up. When they are completely frozen, you can dispose of them.