

What is Vermicomposting?

Let worms eat your organic waste! They will happily turn it into some of the best fertilizer on earth, worm compost. This type of composting is contained in a closed container with vents and is good for people who do not have a yard large enough for an outdoor compost pile.

Vermicomposting is the process of composting with a special species of earthworms. The composting worms most often used are Brandling Worms (*Eisenia foetida*) or Red Wigglers (*Lumbricus rubellus*). Composting worms are available from mail-order suppliers, or from angling shops where they are sold as bait.

Vermicompost (also called worm castings) is a nutrient-rich, natural fertilizer and soil conditioner. As the worms deposit their castings, their mucous is a beneficial component absent from compost produced by hot or cold composting. Because the mucous component slows the release of nutrients, worm compost is usually too rich for use as a seed starter. It is useful as a top layer and as an addition to potting mixes. Only a few things are needed to make a good worm compost: a bin, bedding, worms, and worm food. If you want to learn to make, take care of, and use your own worm compost, visit www.mcswd.org for more information.



Montgomery County
Solid Waste District

Home
Composting

Recycling
Nature's Way



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COMPOSTING
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VERMICOMPOSTING

look inside



Recycling Nature's Way — don't bag it!

Since February 1, 1995, Ohioans have not been able to dispose of yard waste in a landfill. Homeowners, landscapers, and communities have needed to find other ways of managing yard waste, most commonly through mulching, composting, and leaving the grass clippings on the lawn.

Recycle naturally!

- Branches
- Leaves
- Grass
- Food waste



Composting

What is composting?

Composting is the natural process of decomposition and recycling of organic material into a rich soil amendment known as compost.

Composting is a practical and convenient way to handle yard and food wastes. It can be easier and cheaper than bagging these wastes and, in some cases, paying to have them removed. Compost also improves soil and the plants growing in it. If you have a garden, lawn, trees, shrubs, or even planter boxes, you have a use for compost.

Composting is simple and can take place in both urban and rural yards that have space for a pile or bin. With just a little help, nature does all the work.

Composting can be set up using a variety of methods, ranging from inexpensive and easy, to expensive and highly technical. A compost bin can be used in yards to keep out pests and keep the area looking neat. Properly monitored compost piles are odor-free.

It's simple. Nature does all the work—you get all the benefits!

Types of Compost Bins

Holding bins are designed to allow you to make compost in a short time by turning the materials on a regular schedule.

Turning bins are the most appropriate for gardeners with a large volume of yard wastes and the desire to make high-quality compost.

Bins You Can Build

Snow Fence Bin:

To build this bin, buy the appropriate length of prefabricated snow fencing, and fasten two-by-fours to the bottom to form a square.

Woven Wire Bin:

Multiply the diameter you want for the compost heap by 3.2 and that is the length of woven wire fencing you should buy. Fasten the ends with wire or chain snaps (available at hardware stores) to form a circle.

Block or Brick Bin:

Compost bins can be made with bricks, cement blocks, or rocks. Lay the bricks/ blocks without mortar and leave spaces between them to permit aeration. Pile them up to form three sides of a square container or a multi-bin unit, leaving the front side open.

Wooden Bin:

Construct bins with removable fronts or sides so that materials can be easily turned. Old wooden pallets can be used for construction. Wire mesh can be substituted for wooden sides to increase air flow.

Bins You Can Buy

Numerous compost bins are available for purchase through home care centers and online. Shown here are a few examples of prefabricated bins and the type of variety you can expect to find.



Compost bins shown courtesy of www.composters.com, phone number: 1-800-233-8438.

Making a Compost Pile

The Basics:

Place the compost bin where it is most convenient for you.

Remove the grass and sod cover from the area where you will construct your compost pile to allow materials to have direct contact with soil microorganisms. The following "recipe" for constructing your compost heap is recommended for best results:

1st Layer: 3"- 4" of chopped brush or other coarse material on top of the soil surface. This allows air circulation around the base of the heap.

2nd Layer: 6"- 8" of mixed scraps, leaves, grass clippings, sawdust, etc. Materials should be "sponge damp."

3rd Layer: 1" of soil serves as an inoculant by adding microorganisms to the heap.

4th Layer: 2"- 3" of manure provides the nitrogen needed by microorganisms. A cup of high-nitrogen fertilizer will work if manure is not available. Add water if the manure is dry.

5th Layer: Repeat steps 1-4 until the bin is almost full. Top off the heap with a 4"- 6" layer of straw and scoop out a "basin" at the top to catch rainwater.

A properly made heap will reach temperatures of 140-160°F in four to five days. At this time, you'll notice the pile "settling," a good sign that your heap is working properly.

After 5-6 weeks, fork the materials into a new pile, turning the outside of the old heap into the center of the new pile. Add water if necessary. You shouldn't need to turn your heap a second time. The compost should be ready to use within three to four months. A heap started in late spring should be ready for use in the autumn. Start another heap in the autumn for use in the spring.

You can make compost even faster by turning the pile more often. Check the internal temperature regularly; when it decreases substantially (usually after about a week), turn the pile.

Compost is ready to use when it is dark brown, crumbly, and earthy-smelling. Let it stabilize for a few extra days and screen it through a 1/2" screen if you want the finest product. Turn your soil, apply 1"- 3" layers of compost, and work it in well, up to one pound (a heaping, double handful) per square foot.

How does composting help the environment?

Yard wastes and kitchen scraps use up valuable space in our landfills—space which is running out fast! By recycling these wastes naturally at home, you can help protect the environment, save money, and improve your own soil at the same time.

Why does compost make soil healthier?

By using compost, you return organic matter to the soil in usable form. Organic matter in the soil improves plant growth by loosening heavy clay soils, thereby allowing better root penetration. In addition, essential nutrients are added to the soil. Improved

soil leads to healthier plants that help clean our air, conserve our soil, and beautify our landscape.

What is the difference between compost and mulch?

Compost is a soil enricher that looks and feels like dark, crumbly soil. Mulch is any material used to cover soil in order to retain moisture and suppress weeds. Shredded yard clippings, woody yard wastes, leaves, and pine needles can be used as mulch without prior composting.

CAUTIONS: All yard wastes will work for composting. However, do not use diseased, infested plants, or walnut in mulch. Avoid composting meat, fatty foods, bones, dressings, cheese, cooking oil, etc.



What Can I Compost?

Good additions to a compost pile include sawdust, wood ash, egg shells, leaves, grass, fruit and vegetable food waste, coffee grounds, weeds, and plant remains.

Leaves

Leaves make great compost. Leaves can also be used as mulch to protect plants and control weeds. A layer of leaves left on flower beds and in the garden during winter, will decompose to provide nutrients for new growth. Leftover leaf remains in the spring can be tilled into gardens and flower beds.

Grass

Save time, money and labor; leave grass clippings on the yard! Blades are 80% water and will decompose to add nutrients back into your lawn and will NOT cause thatch.



The Essentials of Composting

With these principles in mind, everyone can make excellent use of their organic wastes.

Biological Process

The compost pile is really a teeming microbial farm. Bacteria, the most numerous and effective composters, are the first to break down plant tissue. Fungi and protozoans soon join the bacteria as do centipedes, millipedes, beetles and earthworms (somewhat later in the cycle).

Materials

Anything growing in your yard is potential food for these tiny decomposers. Microorganisms use the carbon in leaves or woodier wastes as an energy source. Nitrogen provides the microbes with the raw element of proteins to build their bodies.

Everything organic has a ratio of carbon to nitrogen (C:N) in its tissues. The following carbon-nitrogen table can help you judge the ratio of your compost ingredients:

Material	C:N	Material	C:N
Food Wastes	15:1	Leaves	60:1
Wood	700:1	Fruit Wastes	35:1
Sawdust	500:1	Rotted Manures	20:1
Straw	80:1	Cornstalks	60:1
Grass Clippings	19:1	Alfalfa Hay	12:1

A C:N ratio of 30:1 is ideal for the activity of compost microbes. This balance can be achieved by mixing two parts grass clippings with one part fallen leaves. This

combination is the "backbone" of most compost systems.

Surface Area

The materials will decompose faster when the microorganisms have a larger surface area to work on. Chopping your garden wastes with a shovel or machete, or running them through a shredding machine or lawnmower will speed up the process.

Volume

A large compost pile will insulate itself and hold the heat of microbial activity. Its center will be warmer than the edges. Piles smaller than 27 cubic feet will have trouble holding this heat, while piles larger than 125 cubic feet do not allow enough air to reach the microbes at the center. These proportions are of importance only if your goal is a fast, hot compost. Slower composting requires no exact proportions.

Moisture & Aeration

All life on Earth, including compost microbes, needs a certain amount of water and air to sustain itself. Microbes function best when the compost heap has many air passages and is about as moist as a wrung-out sponge. Extremes of sun or rain can adversely affect this moisture balance.

Time and Temperature

The faster the composting, the hotter the pile. If you use materials with a proper C:N ratio, provide a large amount of surface area and overall volume, and allow for adequate moisture and aeration, you will have a hot, fast compost and will most likely want to use a turning bin. If you just want to deal with your yard wastes in an inexpensive, easy, non-polluting way, using a holding bin will serve you well.



Trouble Shooting*

The compost has a bad odor.

Reason: Not enough air, C:N ratio too low, or too much moisture in the pile.

Solution: Turn the pile; add dry material if the pile is too wet; add appropriate items to obtain the proper C:N ratio.

The center of the pile is dry.

Reason: Not enough water.

Solution: Moisten and turn the pile.

The pile is damp and sweet-smelling but still will not heat up.

Reason: Lack of nitrogen (C:N ratio > 50:1), too little or too much moisture, or too many large/coarse particles.

Solution: Mix in a source containing higher nitrogen ratios; adjust the moisture content; make sure the contents are ground up/shredded enough; or add high-nitrogen fertilizer (one cup per cubic yard).

The compost is damp and warm only in the middle of the pile.

Reason: The pile is too small.

Solution: Collect more material and mix it in with the old material.

**Sources: BioCycle magazine, Montgomery County Solid Waste District, and the Ohio State University Extension Service.*

Disposing Yard Waste in Montgomery County

1. Check with your local municipality. Many have yard waste collection programs or drop-off sites for leaves, branches and grass.
2. Montgomery County Solid Waste District operates two drop-off yard waste sites for a per-pound fee. Waste must be loose or in paper (yard) bags. For information, call (937) 225-4999.

