

Home Composting

Bulletin #1143

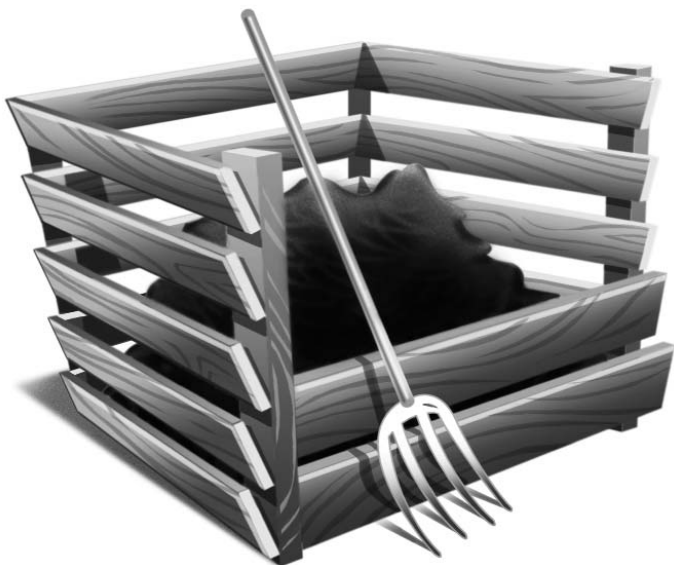
What Is Compost?

Compost is a dark, crumbly and earthy-smelling form of decomposing organic matter.

Why Should I Make Compost?

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

By using compost you return organic matter to the soil in a useable form. Organic matter in the soil improves plant growth by helping break heavy clay soils into a better texture, by adding water and nutrient-holding capacity to sandy soils and by adding essential nutrients to any soil. Improving your soil is the first step toward improving the health of your plants. Healthy plants help clean our air and conserve our soil.



What Can I Compost?

Anything that was once alive can be composted. Yard wastes, such as fallen leaves, grass clippings, weeds and the remains of garden plants make excellent compost. Woody yard wastes can be clipped and sawed to a size useful for the wood stove or fireplace, or they can be run through a shredder for mulching and path-making. Used as a mulch or for paths, they will eventually decompose and become compost.

Care must be taken when composting kitchen scraps. Compost them only by the methods outlined in this brochure. Meat, bones and fatty foods (such as cheese, salad dressing and leftover cooking oil) should be put in the garbage.

How Can I Use Compost?

Compost can be used to enrich the flower and vegetable garden, to improve the soil around trees and shrubs, as a soil amendment for houseplants and planter boxes and, when screened, as part of a seed-starting mix or lawn top dressing. Before they decompose, chipped wood wastes make excellent mulch or path material. After they decompose, these same woody wastes will add texture to garden soils.

The Essentials of Composting

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

Biology

The compost pile is really a teeming microbial farm. Bacteria start the process of decaying organic matter. They are the first to break down plant tissue and also the most numerous and effective

composters. Fungi and protozoans soon join the bacteria and, somewhat later in the cycle, centipedes, millipedes, beetles and earthworms do their part.

Materials

Anything growing in your yard is potential food for these tiny decomposers. Carbon and nitrogen from the cells of dead plants and dead microbes fuel their activity. The 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), by weight, in its tissues, ranging from 500:1 for sawdust to 15:1 for table scraps. 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 (which have a C:N ratio of 20:1) with one part fallen leaves (60:1) in your compost. Layering can be useful in arriving at these proportions, but a complete mixing of ingredients is preferable for the composting process. Other materials can also be used, such as weeds and garden wastes. Though the C:N ratio of 30:1 is ideal for a fast, hot compost, a higher ratio (i.e. 50:1) will be adequate for a slower compost.

Surface Area

The more surface area the microorganisms have to work on, the faster the materials are decomposed. It's like a block of ice in the sun—slow to melt when it's large, but melting very fast when broken into smaller pieces. Chopping your garden wastes with a shovel or machete, or running them through a shredding machine or lawnmower will speed their compost.

Volume

A large compost pile will insulate itself and hold the heat of microbial activity. Its center will be warmer than its edges. Piles smaller than three feet cubed (27 cubic feet) will have trouble holding this heat. Piles larger than five feet cubed (125 cubic feet) don't allow enough air to reach the microbes at the center. These proportions are of importance only if your goal is a fast, hot compost.

Moisture and Aeration

All life on Earth needs a certain amount of water and air to sustain itself. The microbes in the compost pile are no different. They function best when the compost materials are about as moist as a wrung-out sponge and are provided with many air passages. Extremes of sun or rain can adversely affect this moisture balance in your pile.

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 a big enough volume, and see that moisture and aeration are adequate, you will have a hot, fast compost (hot enough to burn your hand!) and will probably want to use the turning unit discussed in the next section. If you just want to deal with your yard wastes in an inexpensive, easy, nonpolluting way, the holding unit (discussed in the next section) will serve you well.

Composting Yard Wastes

Holding Units

These simple containers for yard wastes are the least labor- and time-consuming way to compost.

Which wastes? Place the holding unit where it is most convenient. As weeds, grass clippings, leaves and harvest remains from garden plants are collected, they can be dropped into the unit. Chopping or shredding wastes, alternating high-carbon and high-nitrogen materials and keeping good moisture and aeration will speed the process.

Advantages and disadvantages: For yard wastes, this is the simplest method. The units can be portable, moving to wherever needed in the garden. This method can take from six months to two years to compost organic materials, so you only need to be patient.

Variations: Holding units can be made of circles of hardware cloth, old wooden pallets or wood and wire. Sod can also be composted with or without a holding unit by turning sections of it over, making sure there is adequate moisture and covering it with black plastic.

Turning Units

These units consist of a series of three or more bins that allow wastes to be turned on a regular schedule. Turning units are most appropriate for gardeners with a large volume of yard waste and the desire to make a high-quality compost.

Which wastes? Nonwoody yard wastes are appropriate. Kitchen wastes without meat, bones or fatty foods can be added to the center of the pile if it is turned weekly and reaches high temperatures.

How? Alternate the layering of high-carbon and high-nitrogen materials in approximately a 30:1 ratio. These should be moistened to the damp sponge stage. The pile temperature should be checked regularly. When the heat decreases substantially, turn the pile into the next bin. Dampen the materials if they are not moist and add more high-nitrogen material if heating is not occurring. Then make a new pile in the original bin. Repeat the process each time the pile in the first bins cools. After two weeks in the third bin, the compost should be ready for garden use.

Advantages and disadvantages: This method produces a high-quality compost in a short time but needs a substantial input of labor.

Variations: The unit can be built of wood, a combination of wood and wire, or concrete block. Another type of turning unit is the barrel composter, which tumbles the wastes for aeration.

Mulching

Yard wastes can be used for weed control and water retention.

Which wastes? Woody yard wastes, leaves and grass clippings.

How? You can simply spread leaves or grass clippings beneath plantings. For woody materials up to 1 inch in diameter, rent or purchase a chipper/shredder. Tree services, if they are in your neighborhood, often will deliver wood chips free.

Advantages and disadvantages: All yard wastes will work first as a mulch and then, as decomposition proceeds, as a soil enrichment. A disadvantage of mulching with woody yard wastes is that you may have to buy or rent power equipment or make arrangements with a tree service.

Variations: Use chipped materials for informal garden paths.

Troubleshooting guide to more efficient composting using a turning machine.

Symptoms	Problem	Solution
The compost has a bad odor.	Not enough air.	Turn it.
The center of the pile is dry.	Not enough water.	Moisten materials while turning the pile.
The compost is damp and warm in the middle, but nowhere else.	Too small.	Collect more materials and mix the old ingredients into a new pile.
The heap is damp and sweet-smelling but still will not heat up.	Lack of nitrogen.	Mix in a nitrogen source like fresh grass clippings, fresh manure, blood-meal or ammonium sulfate.

Composting Food Wastes

Soil Incorporation

Burying your organic wastes is the simplest method of composting.

Which wastes? Kitchen scraps without meat, bones or fatty foods.

How? Everything should be buried at least 8 inches below the surface. Holes can be filled and covered, becoming useable garden space the following season.

Advantages and disadvantages: This is a simple method but, because of the absence of air, some nutrients will be lost. Rodents and dogs can become a problem with wastes buried less than six inches deep.

Variations: Using a posthole digger, wastes can be incorporated into the soil near the drip line of trees or shrubs and in small garden spaces.



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Earthworm Compost

Feeding earthworms in wooden bins is a good way to make high-quality compost from food scraps.

Which wastes? Kitchen scraps without meat, bones or fatty foods.

How? Fill a bin with moistened bedding such as peat moss for the worms. Rotate the burying of food wastes throughout the worm bin. Every three to six months, the worm population should be divided and moved to fresh bedding.

Advantages and disadvantages: This is an efficient way to convert food wastes into high-quality soil for houseplants, seedling transplants or general garden use. The worms themselves are a useful product for fishing. However, worm composting is more expensive and complicated than soil incorporation for dealing with food wastes.

Variations: A stationary outdoor bin can be used in all but the coldest months, or a portable indoor/outdoor bin can be used year-round.

For more information contact your county Extension office or call 1-800-287-0274 TDD 1-800-287-8957.

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