

Composting Yard Waste

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Extension Service



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Why Compost?

West Virginia law prohibits the disposal of yard waste in landfills after January 1, 1996. Nationally, 15 to 20 percent of the material going into landfills is yard waste. Backyard composting is one solution to this disposal problem.

Benefits of Composting

The organic matter generated from the composting of yard waste is a valuable soil amendment for lawns, flower beds, gardens and houseplants.

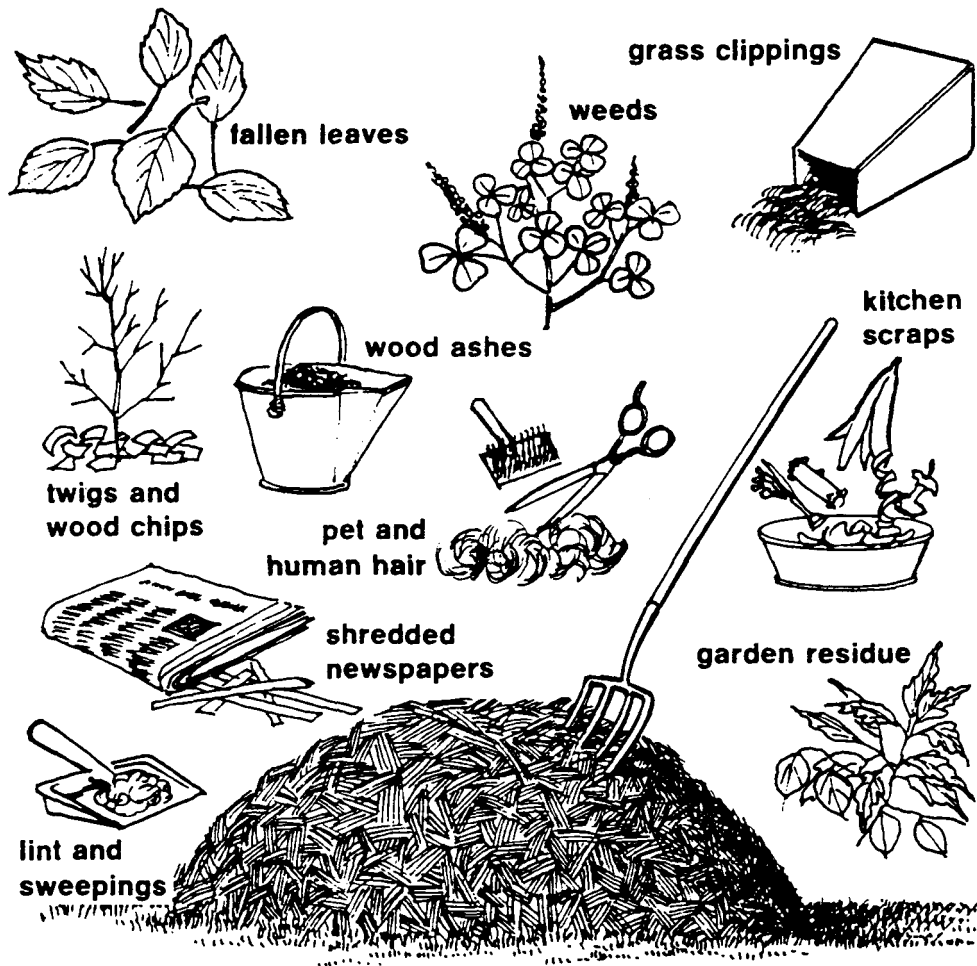
Organic matter increases the water-holding capacity of the soil, improves soil structure, increases the soil's ability to hold plant nutrients and provides small amounts of some nutrients needed for good plant growth.

What Is Composting?

Composting is a natural process. It will occur with or without human help. Next time you take a walk in the woods, think about the leaves that fall from the trees each year. They are not raked up or removed; they decompose (compost) where they fall. When you build a compost pile you duplicate and speed up the process.

What Can You Compost?

- Leaves
- Grass clippings
- Branches (chopped / shredded)
- Weeds
- Sawdust
- Cornstalks
- Livestock manures
- Fruit & vegetable scraps
- Eggshells



- Coffee grounds
- Wood ashes

Actually, any animal or vegetable matter can be composted. However, there are things that should not go into the backyard compost pile. They may cause odors, attract pests or cause human health problems.

Don't include:

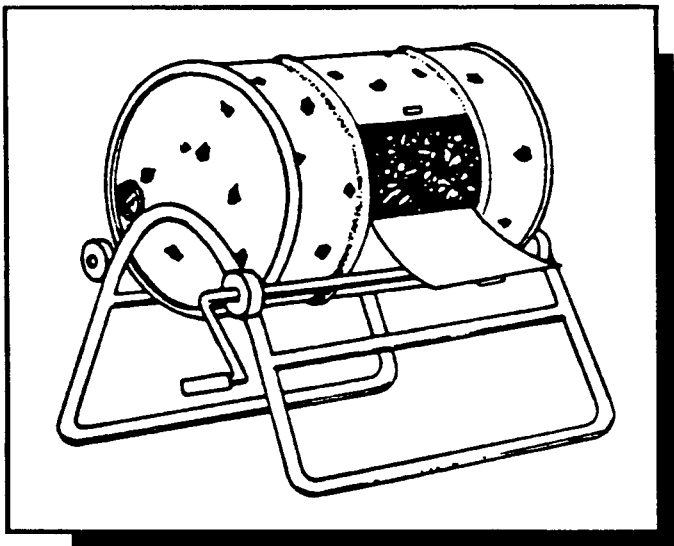
- Meat or bones
- Fish scraps
- Animal / vegetable fats or oils
- Peanut butter
- Salad dressings

- Mayonnaise
- Dairy products
- Manures from animals (dogs and cats) that eat meat
- Coal ashes

What Equipment Do You Need?

Composting can fit almost any backyard situation. Equipment can be as elaborate or as simple as you desire. You can use containers or bins, or you can make the pile directly on the ground.

Using containers may provide



easier aeration of the pile and faster results.

You can make compost bins from a wide variety of materials. These include pallets, scrap lumber, snow fence, wire mesh, screen material and concrete blocks. Bins should allow a free flow of air. Allow air spaces if you use solid materials like concrete blocks, bricks or wood. Bins hold the shape of the pile, sometimes resulting in faster composting action, and also may hide the pile from view.

If you're interested in advanced composting techniques, consider the use of compost thermometers, hand aerators, sieves and other accessories available through garden supply stores and mail order catalogs.

The Composting Process

Composting is the process of decomposition or rotting of organic waste. During this process, heat, water vapor and carbon dioxide are given off and the resulting organic matter is known as compost.

The composting process is accomplished primarily by microscopic organisms, such as bacteria and fungi. Insects and other tiny creatures also play a part in this process. They increase the surface area of the material as they feed, physically transport microbes throughout

the pile and directly consume the organic matter.

Four things are necessary for the microbes to work: a source of carbon (the material being composted), nitrogen, moisture and oxygen.

The pile should be wet enough that you can pick up a handful and squeeze a few drops of moisture out, but not so wet that water runs out of it. Oxygen is obtained from the air. If oxygen is

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depleted, a simple turning of the pile will usually replenish it. If the pile is too wet, water will replace some of the oxygen and the composting process will slow down.

The temperature of the compost pile is important. As the microbes work, the pile heats up. This increase of internal temperature favors certain kinds of microbes, the ones that are most efficient. Decomposition will occur even at relatively low temperatures, but the process will occur more rapidly at higher temperatures, in the range of 90-140°F. Moisture is critical in this temperature range. The pile may dry out if there is no rain or added water. Remember the squeeze test mentioned earlier.

Carbon to Nitrogen Ratio

The carbon to nitrogen ratio (C:N) refers to the amount of carbon in the pile in relation to the amount of nitrogen present.

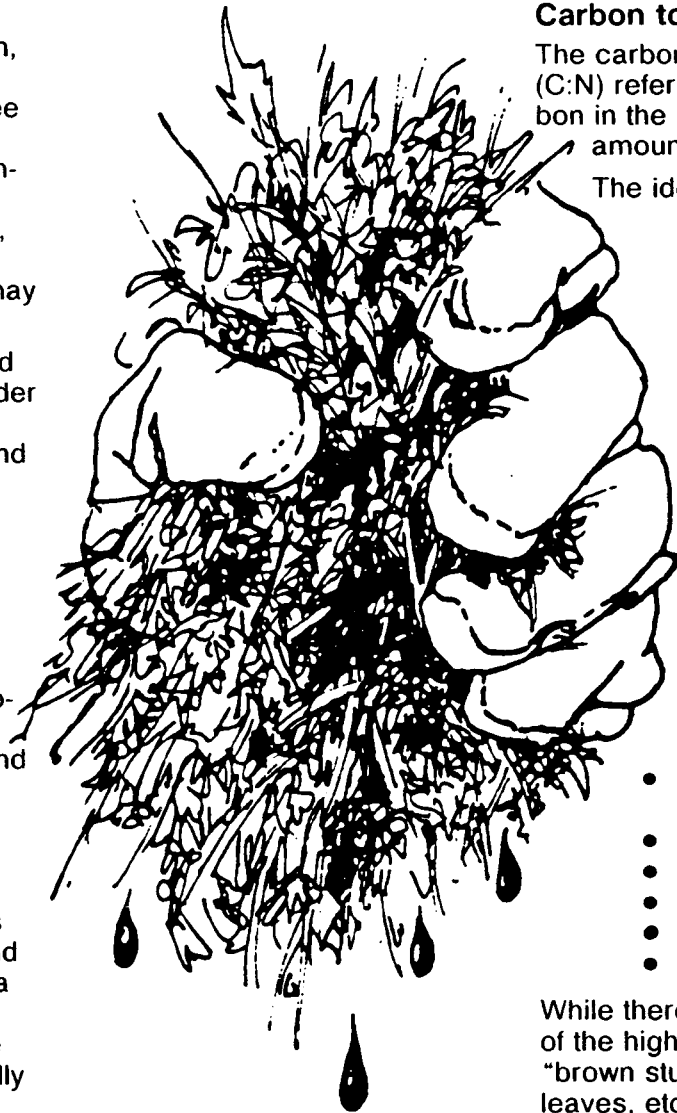
The ideal ratio is about 30:1 (30 parts carbon to 1 part nitrogen).

The following materials generally have a low (10-20:1) C:N ratio:

- Vegetable wastes
- Grass clippings
- Coffee grounds
- Green weeds
- Most manures

The following materials generally have a high C:N ratio:

- Manure mixed with bedding (30-60:1)
- Cornstalks (60:1)
- Straw (40-100:1)
- Paper (150-200:1)
- Leaves (60-80:1)
- Sawdust (500:1)



While there are exceptions, think of the high C:N materials as "brown stuff" (straw, sawdust, fall leaves, etc.) and the low C:N

materials as "green stuff" (fresh grass clippings, vegetable kitchen waste, fresh green weeds, etc.) Combinations of green stuff and brown stuff will make a satisfactory pile. The closer you get the mixture to the ideal 30:1 C:N ratio, the better it will work.

While it is not essential to grind or shred materials before they are composted, it definitely will speed up the process. The microbes work at the surface of the material and the more surface area available, the better the microbes can work.

How Long Does Composting Take?

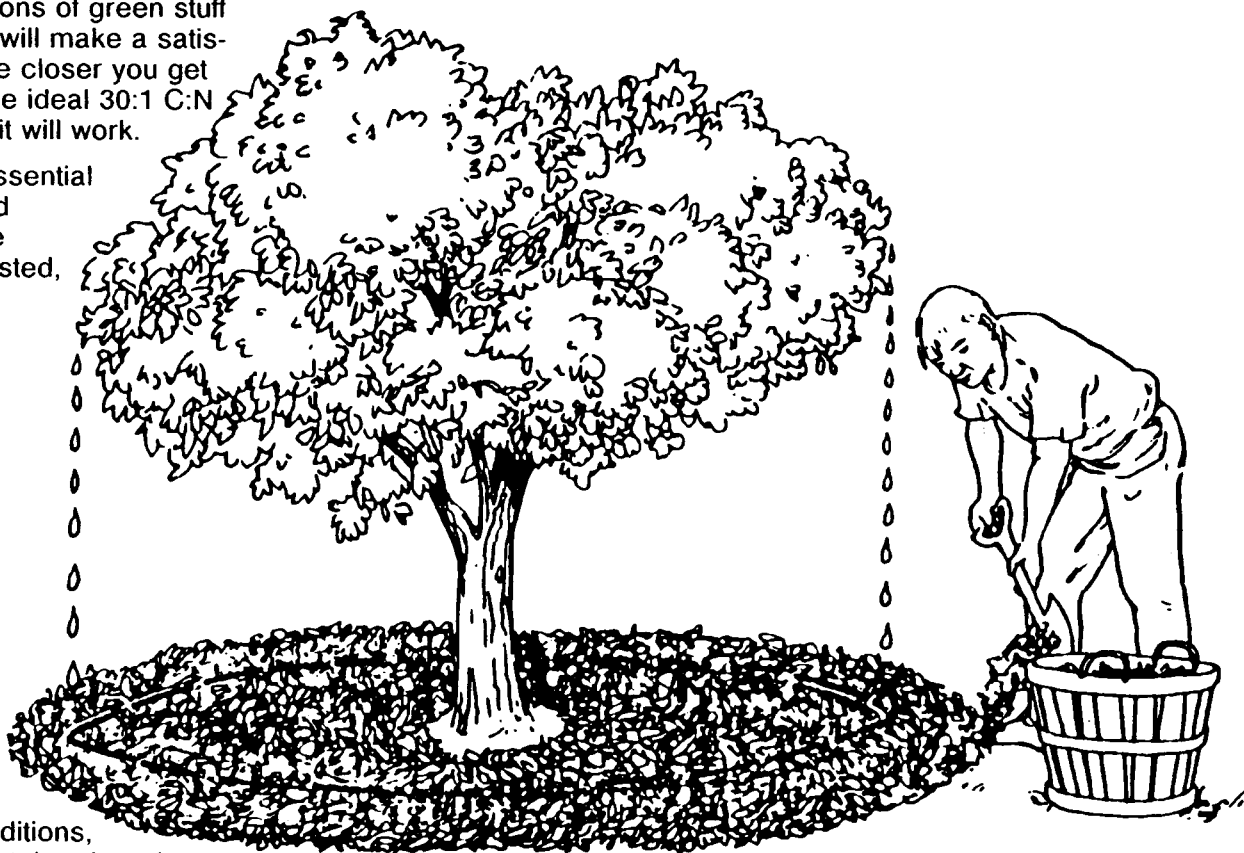
Under ideal conditions, composting can take place in as little as two to three weeks.

While it can take up to two years, the average backyard compost pile, with proper attention, will produce compost in three to eight months. Frequent turning of the compost pile will speed up the process.

Starting the Pile

Collect enough material to form a pile at least 3 feet high and 3 feet across. Smaller piles may not heat. Piles larger than 5 feet high may compress under their own weight and drive out the needed oxygen.

You can mix the material thoroughly at the start, or you can build layers of 4 to 6 inches. If layering, start with a high C:N material (brown stuff) and follow it with another 4 - 6-inch layer of low C:N material (green stuff). Alternate layers of brown and green until the pile is at least 3 feet high. Mix the layers together



er for faster action. Check the moisture content and add water if necessary. A final layer of topsoil will insulate the pile, help retain moisture and add additional microbes. While not essential, adding topsoil may speed up the process.

You do not need to purchase starter organisms to put in your pile. If conditions are favorable, those that are present in nature will quickly multiply to do the job.

Composting Fall Leaves

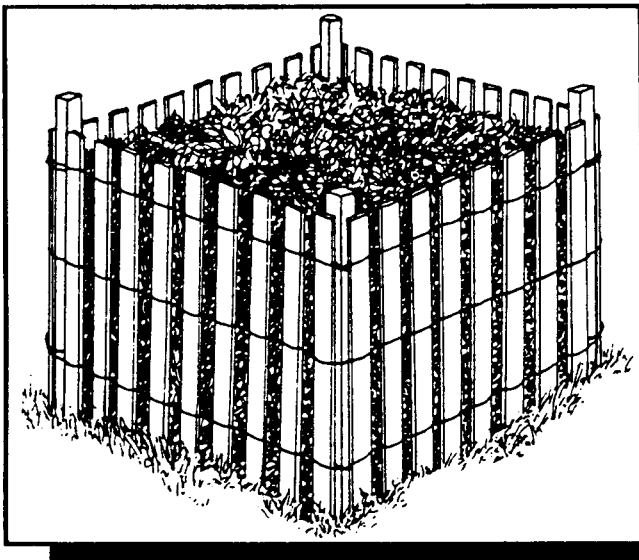
To compost fall leaves, you can add them to your existing compost pile or you can compost them alone without adding other materials. Since the C:N ratio of leaves is much higher than the ideal 30:1, the process will take longer. Shredding the leaves with a lawn mower will help, but it is not essential. The leaves

should be quite wet when you add them to the pile.

If you add manure or a nitrogen fertilizer, the speed of the process will increase, but again, it is not essential. A compost pile made entirely of fall leaves may take several weeks to reach the desired temperature.

After the pile reaches the desired temperature, turn it about once a month during warm weather. This brings material from the outer edges to the center for more even decomposition and incorporates more oxygen. A thin, outer layer of leaves usually will be dry. Turn the pile less frequently during cold weather since each turning will allow heat to escape.

Failure to heat may be caused by too little or too much water, improper aeration, packing too tightly or making pile too small.



You can mix a small amount of compost in the seed furrow or with the soil in the bottom of each transplant hole.

Do not use unfinished compost as it may rob plants of nitrogen. Fresh compost may be toxic to young seedlings. Aging it for a year before use should be sufficient.

help. During wet periods, it may be necessary to cover the pile.

An ammonia odor is an indication of too much nitrogen. Adding more high-carbon materials (brown stuff) will help.

Low pile temperatures resulting in very slow decomposition often are caused by low moisture, cold weather, poor aeration or too small a pile.

Remember, pests often are attracted to meats, dairy products, fats and oils. Avoid including these products in your compost pile.

Using Compost

Compost can enrich the soil by adding organic matter and nutrients. As a general soil amendment, mix a 2-inch layer into the top 4 to 6 inches of soil. Compost also can be used as a mulch around trees, shrubs and other plants. Use a layer up to 4 inches thick if weed control is desired.

As a container mix for houseplants or seedlings, limit the compost to 1/3 of the volume. As a topdress for the lawn, spread a layer 1/8 - 1/4-inch thick of finely screened compost.

It takes a little more than 3 cubic yards of compost to make a layer 1-inch thick over an area of 1000 square-feet. (10 feet by 100 feet, 1-inch thick.) So most homeowners easily can use up the compost generated from a backyard compost pile.

Troubleshooting

Undesirable odors usually indicate inadequate oxygen. The cause may be compaction of the pile due to its size, too much moisture or depletion of oxygen by the microbes. Turning the pile and/or allowing it to dry out will

