

Home composting

Compost your food and yard waste to improve your soil

Composting is a microbial process that converts waste from your kitchen and yard into a nutrient-rich soil amendment or mulch. You can compost organic material including fruit and vegetable peelings, grass clippings and leaves. Gardeners have used compost for centuries to improve their soil and to supply essential nutrients for plant growth.

What to compost

Many of us understand what we should compost, but we sometimes get confusing information about what we should NOT compost. Composting is a microbial process and microbes – also called microorganisms – will not decompose synthetic products such as plastics or glass. Home composting systems typically don't reach high enough temperatures to break down meat, dairy, grease and oil. These materials can also attract critters to your compost bin and cause foul odors. Feces from pets may carry pathogens that could cause health problems. Large pieces of wood do not compost quickly and require a lot of energy to decompose, so wood should be chipped or shredded and used minimally.



Compost:		DO NOT compost:	
✓	• Yard waste: grass clippings, plant trimmings, leaves, weeds without seeds, pine needles	✗	• Meat and dairy: meat pieces, dairy products, bones, fish scraps, raw eggs
✓	• Kitchen waste: fruit and vegetable scraps, coffee grounds, tea bags, egg shells	✗	• Fats: cooking oil, drippings and grease
✓	• Non-recyclable papers: paper towels, napkins, egg cartons	✗	• Synthetics: motor oil, glass, plastic, styrofoam, polyester
✓	• Small amounts of: sawdust, wood chips, small sticks	✗	• Feces: from dogs, cats, and humans
✓	• Wood ashes: add in small amounts. Ashes act as lime source and affect the pH of your compost.	✗	• Weeds: with seeds
		✗	• Large pieces of wood

What about cuttings treated with herbicides?

Studies have shown that low levels of herbicides are detectable even in well-decomposed yard trimmings, but these levels are less than 1 percent of the level found in trimmings prior to composting and is not considered a risk for using in the garden. Ideally, grass clippings from lawns treated with herbicides should be left on the lawn to decompose, which allows the herbicides to degrade.



Benefits of using compost

As a soil amendment:

Compost loosens and aerates soil and improves water and nutrient retention. Adding 1-2 inches of compost to the top 6-8 inches of your garden improves soil structure over time, making the soil easier to work while creating a better environment for plant growth. Compost is beneficial to a variety of soil types. It improves drainage and aeration in heavy clay soils and increases the moisture-holding capacity of sandy soils.

Adding compost to your soil will attract beneficial organisms such as earthworms and microorganisms that break down organic matter naturally. Compost also improves seeding, plant emergence and water infiltration by reducing the potential for soil crusting.

As a mulch:

Adding 6-8 inches of compost to garden beds suppresses weeds by blocking light to the soil surface. The mulch will decompose and add organic matter to the soil. Compost also reduces the potential for erosion by protecting the soil surface from wind and hard rain.

Using compost as mulch reduces moisture loss. Top-dress your lawn with compost to conserve moisture and add organic matter. Use compost in window boxes and container gardens where rapid moisture loss is a factor. Compost may also keep soils cooler in the summer and warmer in the winter.

Steps to backyard composting

✓ Get a bin:

Many lawn and garden stores sell compost bins that require minimal assembly. Additionally, you can search for options online to make a compost bin yourself with a few materials and tools.



✓ Find a place for your compost bin:

Choose a place in your yard where your bin is easily accessible year-round so you can continue composting in the winter. Some people incorporate their bin into the design of their landscape and plant their garden right around the bin!

Your compost will break down in the sun or shade. The heat in your compost pile mostly comes from the organisms living in the pile.

Good drainage and accessibility is important for your compost bin. You should have enough room around the bin to allow you to turn the compost and a water source nearby in case you need to add moisture.

Each city has its own ordinances about composting. Check with your city recycling coordinator for details concerning your local laws.

✓ Layer your materials:

Start your pile with a 6-inch layer of brown materials, such as twigs and/or dry leaves. This will help elevate your pile and allow air to circulate at the base of the pile. Then alternate layers of brown materials and green materials. Add a few layers of garden soil or finished compost, which contain the microorganisms required to speed up decomposition. Add a little water to dampen the pile, and you are on your way!

✓ Maintain your compost pile:

As your compost pile begins the decomposition process, the temperature of the pile will begin to rise, especially in the center. A well-built pile may reach temperatures of 130°-160° F in just a few days. The pile will begin to cool in four to five days, and a depression may appear in the middle of the pile. At this point, it is time to turn the pile. Use a garden fork and turn the outside of the pile inward. Steam may rise from the pile – this is a sign that the decomposition process is working! If the pile is dry, add a small amount of water. If it is too wet, add some dry materials such as dry leaves or paper towels. Cover the pile with a layer of brown materials, soil or compost (to ensure any food scraps are buried), and it will start to re-heat.



Turning your pile on a regular basis will speed up the decomposition process. Turn your pile weekly or monthly to get finished compost sooner.

✓ Identify when your compost is finished:

Under warm conditions, a well-tended compost pile will be finished and ready for use in about 4-6 months. Left untended, a bin may take a year to decompose. A finished compost pile is about half its original size, is loose, dark and crumbly, and smells good – like fresh soil. None of the materials that went into the compost pile should be identifiable. Another sign that your pile is fully composted and ready for use is when it no longer heats up.

The recipe for a successful compost pile

There are four basic ingredients for good compost: carbon, nitrogen, oxygen and moisture.

Carbon and nitrogen: In the composting process, microorganisms use carbon for energy and nitrogen to make proteins. For home composting, this translates to a proportion of three parts carbon (brown materials) to one part nitrogen (green materials). Given this “diet,” microorganisms can make short work of your compost.

Browns (carbon)

Dried grasses
Dry leaves
Straw
Sawdust
Twigs

3 to 1

Greens (nitrogen)

Coffee grounds
Fruit and vegetable peelings
Grass clippings
Green leaves
Plant trimmings

Oxygen and moisture are important for the health and activity of the microorganisms. An active compost pile – one in which microorganisms are actively converting organic materials to compost – has good air circulation and moisture consistency of a wrung-out sponge. If a pile is too dry, microorganisms will cease their work and the pile will become passive.

Air circulation can be accomplished though turning your pile with a garden fork. Do not allow the pile to become soggy as this causes anaerobic conditions (meaning without oxygen) and usually produces a foul smell. A pile can become too wet due to excess water from rain or from too much green material. This can be corrected by adding carbon (brown) material and by turning the pile to increase the oxygen level.

Tips for home composting

- Keep your compost pile at the right moisture level. If your compost pile has a bad odor, it lacks air circulation or it may be too wet. Try turning the pile and/or adding dry material to the pile.
- If your compost pile is not heating up, it may need more nitrogen or “green” material. Add more fruit/vegetable scraps or grass clippings and stir the pile.
- You can keep adding to your compost pile as it is composting; however, you may want to start a second pile if you have enough materials.
- The smaller the pieces of compost material, the faster the pile will decompose.

For more information:

- extension.umn.edu/managing-soil-and-nutrients/composting-home-gardens - Composting in Home Gardens, University of Minnesota Extension Service
- pca.state.mn.us/waste/composting-your-backyard - Composting in your backyard, Minnesota Pollution Control Agency

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