NEW YORK STATE | Department of Environmental Conservation

Home Composting Guide

Making Compost Takes Some Care

Acknowledgments

We'd like to thank the South Carolina Department of Health and Environmental Control for granting us permission to use content and graphics from their *Composting: Recycling Naturally* guidebook in this booklet.

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Why Compost?

Composting is a way to enhance the natural decomposition of organics, such as yard trimmings and food scraps. Microorganisms and invertebrates, like bacteria and worms, break down this material into compost, a nutrient-rich product that can be used as a soil amendment in yards, gardens, flower beds, and potted plants.

Why Compost at Home?

Composting is good for you and the environment.

The compost you make is valuable. It can improve the soil, prevent erosion, and reduce the use of fertilizer and water—saving natural resources and money—as well as decrease the amount of waste you generate. It involves little effort, equipment, expense, and expertise.

The main purpose of this guide is to help you decide which home composting option is best for you.

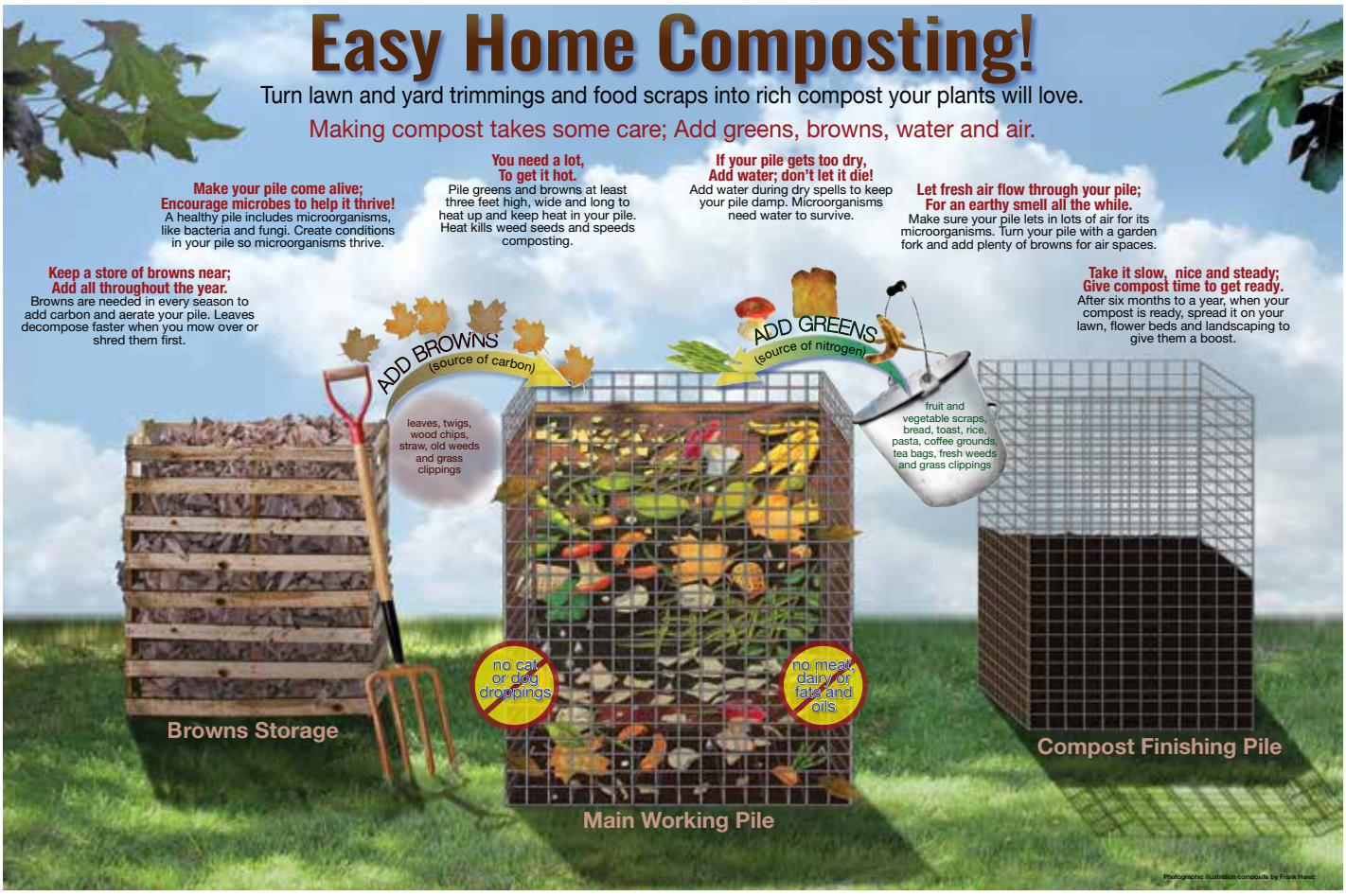
Let's Get Started

Making compost takes some care; add greens, browns, water, and air.

This rhyme captures the basis of composting, which relies on providing proper conditions for the microorganisms in the compost pile to thrive.

Consider the following questions when planning to compost at home:

- How much space do you have?
- What materials will you be composting? How much?
- How much time and effort can you give to this project?
- How do you plan to use the finished compost?



Find the Home Composting Poster here: https://extapps.dec.ny.gov/docs/materials_minerals_pdf/easycomposting.pdf

Backyard Composting Options

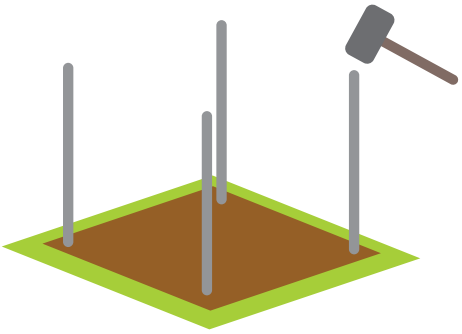
Do-It-Yourself Bins

Type	Pros & Cons	Suggestions & Precautions
Wire	**Pros:** Simple to build; adjustable size; good airflow; inexpensive; can construct using reused or new materials; and can add organic matter during the composting process. **Cons:** Poor insulation.	Use stakes to strengthen the bin. Use ½-inch hardware cloth to create a durable and rodent-resistant bin. Large piles retain heat, leading to faster composting.
Wood or wooden pallets	**Pros:** Inexpensive if reusing material. **Cons:** Must be replaced eventually due to wood decay.	Untreated wood is preferred. Check with local stores to see if they donate used pallets. Using chicken wire in combination with the wood helps hold materials in the bin. Laying down a pallet on the bottom of the bin increases airflow.
Bricks or cinder blocks	**Pros:** Long-lasting, neat appearance, inexpensive if reusing material, and can add organic matter during the composting process. **Cons:** Time-consuming to build, expensive if using new materials, and cannot be moved.	Layer bricks or lay cinder blocks on their side to leave gaps for aeration.

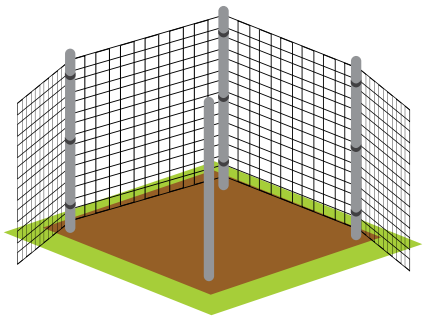
DIY Wire Bin

Shopping List:

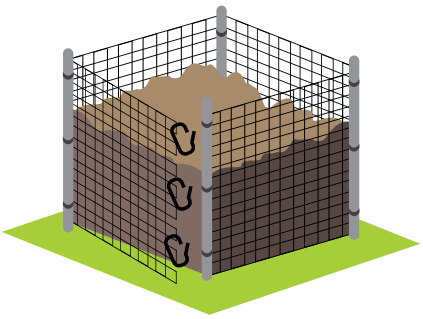
- 4-foot-tall metal poles (4)
- Chicken wire (12–16 feet)
- Zip ties (12)
- Clips or hooks (3)



Step 1: Use a hammer to drive metal posts into the ground. Space the posts 3–4 feet apart.



Step 2: Depending on the dimensions you chose in Step 1, use 12–16 feet of chicken wire or stronger fencing to wrap around the outside of the posts. Attach wire to the posts with zip ties. (**Note:** If you use T-stakes, no zip ties are needed.)



Step 3: Leave one end detached so the bin can be opened when you turn the pile. Use metal clips or hooks to close the open end.

Bins to Buy

Type	Pros & Cons
Adjustable circular bins	**Pros:** Lightweight, adjustable size, and can add organic matter during the composting process. **Cons:** Minimal barrier against pets/pests.
Enclosed bins	**Pros:** Neat appearance, low cost, low-maintenance, and a good barrier against pets/pests. **Cons:** Often have limited airflow and may require more water since the contents are not exposed to rainfall.
Tumblers	**Pros:** Simple to load and empty, low-maintenance, less manual labor, and a good barrier against pets/pests. **Cons:** Fully loaded drums can be heavy and difficult to turn; less capacity for material; and materials in the bin can freeze in the winter, making it difficult to tumble.

Adjustable

Enclosed

Tumbler

Open Composting

Type	Pros & Cons	Suggestions & Precautions
Piles	**Pros:** Minimal labor, can add organic matter during the composting process, low-maintenance, and good airflow. **Cons:** Slower decomposition and no barrier against pets/pests.	When adding material, mix well and cover with browns. Large piles retain heat, leading to faster composting.

Pile

Mix of materials

Multi-Bin Composting

Using multiple bins adds flexibility by allowing different stages of compost to exist simultaneously. This technique also provides additional space to compost more material. There are two main ways to compost with multiple bins:

- In the **slower method**, add materials to the first bin until it's full. Then add materials to the second bin and so on. Eventually, the material in the first bin finishes composting and can be used. Once it's empty, you can fill it again.
- For the **faster method**, once the first bin is full, transfer the material into the second bin, and refill the first bin. Once the first bin is full again, transfer the material from the second bin into a third bin, and the material from the first bin into the second bin. Most commonly, three bins are used, and the third bin is where you harvest finished compost.

Multi-Bin

Collecting Your Household Food Scraps

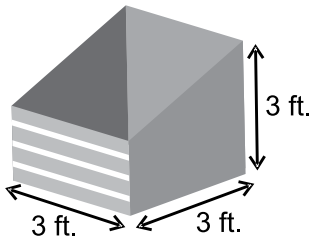
A container with a lid is a great way to store food scraps in the kitchen until you are ready to take it outside. To avoid odors and flies, empty the container frequently, or store your food scraps in the fridge or freezer. Putting a paper towel or sheet of newspaper on the bottom of the container keeps the bin clean and makes emptying it easier.

Kitchen container with lid

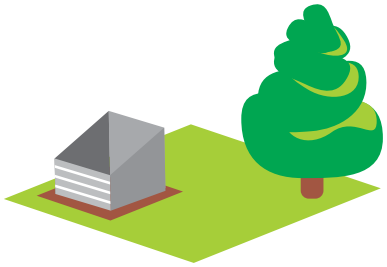
Food scraps ready for the freezer

Backyard Composting Step-By-Step

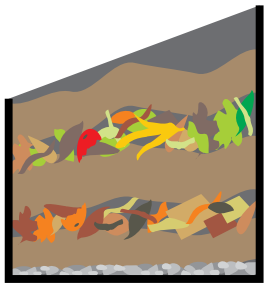
Once you've decided which backyard option you'll be using, follow these steps:



1. Size matters: The bin or pile should be at least 3 feet wide by 3 feet long by 2 feet high to retain heat.

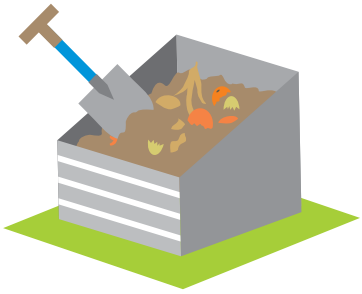


2. Connect to the soil: Your compost benefits from soil microorganisms. If you're using a pile or bin that's open to the ground, loosen the soil about an inch deep beneath it before adding material. For enclosed bins, place a layer of soil at the bottom of the container.



3. Add Ingredients: Making compost is a lot like cooking a meal—you need a recipe. Alternate layers of browns and greens as described below. **Tip:** Make sure the top and bottom layers are always browns.

4. Check moisture: Water is important. Too little moisture will inhibit the composting process. Too much moisture will cause the compost to smell. **Tip:** The compost should be as moist as a damp sponge.



5. Mix it up: Air is essential. Use a pitchfork, shovel, or roll your tumbler to turn your compost twice a month to speed up the process.

6. Watch and it's done: As material breaks down, the compost may get warm or even hot! Don't be alarmed if there is steam. Be patient—when your compost is a dark, soil-like material with no visible pieces of food, it's ready. The composting process can take 4–12 months.

Tip: Have a browns storage bin or pile near your composting system and fill it with leaves, straw, wood chips, and other browns. Then you will always have browns ready to add to your greens.

Tip: Adding coarser browns, such as wood chips (especially as a base layer), allows for more airflow and reduces the need for turning. Depending on the final use of the compost, this material may need to be screened to remove wood chips.

The Compost Recipe

Making compost takes some care; add greens, browns, water, and air. These four basic ingredients are required for home composting. Mixing the right amounts of these ingredients provides the composting microorganisms with enough carbon, nitrogen, oxygen, and moisture to break down the material into finished compost.

Recipes vary. A common mix is two parts browns to one part greens. Other variables in making compost include pile size, content, size of the materials added, turning frequency, moisture, and temperature. Getting a good balance may take time and adjustments, but composting is a basic process, and with some trial and error, you'll be able to make compost!

Tip: Always mix food scraps into the middle of the pile and cover them with browns to avoid odors and pests.

Making compost takes some care; add greens, browns, water, and air.

What Goes in Your Backyard Compost Bin?

Browns (Carbon Materials)	Greens (Nitrogen Materials)
Yard trimmings (dry leaves, clippings, and twigs)	Bread and grains
Brush and shrub trimmings	Coffee grounds, paper filters, loose tea, and tea bags
Sawdust and wood chips (from untreated wood)	Fruits (cooked or uncooked, but limit citrus)
Hay and straw	Vegetables (cooked or uncooked)
Shredded newspaper	Fresh grass clippings
Shredded cardboard	Green leaves
Paper towels and towel rolls	Green shrub trimmings
Eggshells	Hair and fur
Nutshells	Manure from chickens, rabbits, cows, and horses (herbivores only)
	Houseplants and cuttings
	Kelp or seaweed











Do Not Compost These Items in Backyard Bins!		
Meat, bones, or seafood scraps	Dairy products	Oils, fats, or grease
Metal	Glass	Plastic
Dog, cat, or human waste	Treated or painted wood	Coal ash from briquettes or fireplace ash
Diseased or infected plants (unless you have a consistently hot compost pile)	Trimmings toxic to other plants (e.g., black walnut or hemlock)	Plants that spread through rhizomes (e.g., Japanese knotweed, iris, lily of the valley, and pachysandra)

Tip: Make sure to remove any produce stickers.

Temperature Check

As organic material decomposes, it produces heat. While not necessary for composting, higher temperatures provide an environment where the microorganisms can work to break down the material more quickly. Understanding and monitoring the temperature of your compost system helps produce quality compost and is essential if you plan to include weeds, seeds, or diseased plants. Below are important details and considerations regarding composting temperature:

- A hot compost pile can reach temperatures of 130°F to 160°F.
- Heat destroys plant pathogens at 131°F and weed seeds at 140°F when these temperatures are maintained for 72 hours.
- Use a compost thermometer. Take the temperature from the center of the pile, where it is hottest.
- Don't overheat. Heating your pile above 170°F for more than a few hours is not recommended because it inhibits most microorganisms which slows decomposition.

Composting Throughout Winter

Winter temperatures can cause a composting pile or bin to freeze. Adding insulation will help keep your compost pile warmer throughout the cold weather.

The easiest way to insulate a compost pile is to build it larger as the cold weather approaches. This should keep the center of the pile above freezing. Cover the top of the pile with a one-foot-deep layer of leaves. When adding food scraps, pull back the top layer of leaves, add your food scraps, and cover them back up.

Another way to insulate your compost bin or pile is to surround it with browns. Add a one-foot layer of lightweight browns, such as leaves or straw, to each side of the bin and to the top. To hold the browns in place, try fencing them in. Sturdier browns, such as straw bales or bagged leaves, can simply be piled around the bin. When warm weather arrives, you can add these insulating materials to your browns stockpile.

Common Problems and Simple Solutions

Any time you try something new, problems can arise. Luckily, composting is not too complicated, so most problems can be easily remedied. Below are the usual trouble spots.

Issue	Cause	Solution
The pile has a rotten-egg smell.	There is too much water and not enough air.	Turn the pile and add more browns if it's soggy.
The pile has an ammonia smell.	There is too much nitrogen or not enough air.	Add browns and turn the pile.
The pile isn't decomposing quickly enough or isn't producing enough heat.	The pile is too small.	Mix new ingredients into the pile.
	The material is too dry.	Add water and turn the pile.
	The pile needs nitrogen.	Add greens.
	The pile needs oxygen.	Turn the pile more frequently.
The pile is too hot. The temperature is 170°F or higher.	There is too much nitrogen.	Spread the pile out or transfer it into another bin and add water.
The pile freezes in the winter.	The pile is too small and not insulated.	Increase the pile's size and add more material. Add a layer of browns around the bin as insulation.
Flies and/or gnats are around the pile.	The food scraps are exposed.	Bury food scraps under at least 3 inches of browns or composting material.
Animals are attracted to the pile.	Food scraps are exposed. The pile is not animal resistant.	Bury food scraps under at least 3 inches of browns or composting material. Use ½-inch hardware cloth under and around the pile.

When Is Your Compost Ready to Use?

When the contents of your compost pile, typically the material at the bottom, begins to cool and has no remnants of food or yard trimmings, your compost should be ready to use. Finished compost is the rich, brown color of good soil and smells earthy.

The Nose Knows

Do a simple smell test to see if your compost is ready. Place a small amount in a sealed container, such as a glass jar or a plastic bag, and take a sniff before sealing the container. After a few days of storing the container in a dark place, smell it again. The sample should smell the same as it did before. If it smells worse, your compost needs more time to cure.

Uses for Compost

- Use it as mulch. Spread a 2–3-inch-deep layer around plants, trees, and shrubs to help retain moisture.
- Use it on your lawn. Use a rake to apply a thin layer. It will leave you with healthier soil that holds water better and keeps your grass green. Do this once a year and you'll need less fertilizer.
- Use it as a soil amendment. About one month before planting, apply a 1–3-inch-deep layer of compost and work it into the top 3–4 inches of soil. Your flowers and plants will thrive. Compost can also be used in the garden as a top dressing or mulch.
- Use it to make potting soil. Mix one part compost with two parts soil.
- Use it when planting trees. Dig a hole and fill it with a mixture of one part soil and one part compost.
- Use it to top-dress trees and shrubs. Add a 2–3-inch-deep layer around the base of the plant, leaving a gap between the compost ring and tree trunk. Spread the compost out to the area under the plant's outermost leaves.
- Use it as a gift. Give compost to friends and family to spread the practice of composting.

Other Methods of Composting and Diversion

Residential Food Scraps Collection Haulers

Residential food scraps collection haulers may offer curbside pick-up options in your area. Because the material typically goes to a commercial compost facility, a broader range of organics can be included with your food scraps for composting, such as fruits, vegetables, meat, bones, spoiled leftovers, compostable products, and more. Always check with your collection hauler on what is and isn't allowed in the collection bin.

Community Food Scraps Drop-Off Programs

Food scraps drop-off programs are local spots where you can drop off your food scraps at a community collection point. Always check with your food scraps drop-off program on what is and isn't allowed in the community collection bin.

Vermicomposting

Vermicomposting—composting with worms—turns food scraps into a nutrient-rich soil amendment from worm castings, which can be used on both houseplants and outdoor plants. Vermicomposting is relatively easy, requiring only a container, bedding, worms, and food scraps. Purchase a worm bin or make one from wood or with a 3- to 12-gallon plastic storage bin. Use shredded newspaper or leaves for bedding. The most common worms for vermicomposting are red wigglers (*Eisenia fetida*), which may be available from other home vermicomposters or purchased online. This project is great for indoor composting in a minimal space and is virtually odorless. It usually takes four months to produce vermicompost. One common mistake is putting too much food in the worm bin—so choose your bin size based on the amount of food scraps you produce.

Kitchen Food Scraps Recycling Machines

Kitchen food scraps recycling machines are typically found on kitchen countertops, require electricity, and process food scraps into a dried soil amendment. While manufacturers often label these machines as composters, they don't compost in the traditional sense, but usually process the food scraps with heat and agitation. This reduces the weight and volume of the resulting material, lessens odors, and makes the material easier to handle. Material from these machines can be added to your home compost bin, taken to a community food scraps drop-off program, or put in a designated bin for curbside food scraps collection. These machines are more expensive than backyard composting options, but offer more convenience, especially for people with limited or no outdoor space.

Outdoor Food Digesters

Outdoor food digesters are designed to accelerate the natural decomposition process by raising temperatures, maintaining aerobic conditions, and encouraging the growth of microorganisms. This system processes almost all household food scraps, including items that are usually not recommended for composting, like raw and cooked meat, fish, bones, and dairy. An aboveground solar chamber with a sealed lid provides access to a bin installed belowground. When the belowground bin is full, dig another hole and start again. The previous location then becomes a fertile spot to plant a tree or shrub.

Bokashi

Bokashi is an anaerobic method developed in Japan that uses inoculated bran to ferment food scraps. Food scraps are broken down quickly by microorganisms until they are fermented. The anaerobic fermented mixture should be combined with soil two to three months before being used for planting so it can fully decompose. Bokashi bran (or bran and inoculant) and a bucket with a lid are required for this method.

Pit or Trench Composting

For pit or trench composting, dig holes or trenches and bury your organic materials. This method is low-maintenance and doesn't require browns. However, the decomposition process is slower, and you must dig a new hole or trench whenever you want to bury new material. Don't bury the material where any pets may dig it up. After composting finishes, the pit or trench becomes a fertile area for planting.

Mulch Mowing Leaves and Grass

Mulch mowing leaves and grass onto your lawn is one of the easiest ways to recycle these resources. Grass clippings contain at least 80% water and rapidly decompose. They enhance soil fertility by returning water, nitrogen, and other valuable nutrients to the soil. Leaves are high in carbon, and returning them to the soil also improves soil health. By mulch mowing, you spend less time maintaining your yard and save money by using less fertilizer and water.

Before mulch mowing

During mulch mowing

24 hours after mulch mowing

Visit DEC's home composting webpage† to learn more about these and other methods of composting.

†https://dec.ny.gov/environmental-protection/recycling-composting/organic-materials-management/home-composting

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