

Mulching and Composting

A "TAKE CARE OF TEXAS" GUIDE



See video info on back page



Mulch

What Is Mulch?

Mulch is one of the best landscape substances for growing healthy plants and conserving water. The best mulch for your yard is one created from native sources and could include straw, newspaper, sawdust, bark, pine needles, leaves, grass clippings, and compost. They can benefit your lawn and garden by aiding in root development, preventing erosion, suppressing weeds, moderating soil temperature, and adding nutrients as they break down slowly. Mulching also helps conserve water by reducing water lost through evaporation.

How to Use Mulch

- Put a 4-inch layer of mulch around your trees and shrubs and a 2-inch layer around your garden plants. These should be the depths of the layers after settling. To prevent diseases and pest infestation, mulch should not be piled up against the stems or trunks of plants. For best results, use long-lasting mulches (wood chips, wood shavings, evergreen needles).
- Create a self-mulching lawn! Wait to mow until your grass is between 2 and 4 inches high. Then mow off only the top one-third of the grass, and don't bag the clippings. This way, the clippings will feed your soil and won't smother your grass.
- If you have too many clippings, rake them into mulch layers around trees and shrubbery.

flow of water entering mulched areas, protecting them from wash-out.

Compost

What Is Compost?

Compost forms when certain substances go through a natural decomposition process, creating a material rich in humus and nutrients that can enrich your soil. Compost has many of the nutrients that plants need.

How to Use Compost

You can use it as a mulch or topdressing or can mix it into the soil.

- To plant a lawn or garden, mix 1 to 2 inches of compost into the top 6 inches of soil.
- To maintain a lawn or garden, sprinkle it with a 1/4- to 1/2-inch layer of sifted compost once a year and water the compost.
- To add nutrients and control fungus in gardens or planters, use compost as one-third of a potting soil mix (with equal parts topsoil and sand).
- Avoid backfilling planting holes with compost as it will discourage plant roots from growing outward.

Composting Basics

- Composting works best when you combine equal amounts (by weight) of "green" and "brown" materials in the mixture.
- The compost pile should remain moist throughout, like a wrung-out sponge, but not soaked.
- Compost breaks down faster in a pile at least 3 feet high and 3 feet in diameter, with all the materials broken into small pieces and well mixed.
- You can tell a pile is quickly and actively composting when it gets at least as



Why Mulch and Compost?

To Save Money

- Lower your water bill.
- Buy less fertilizer.
- Stop buying lawn and leaf bags.

To Save Time and Effort

- Stop bagging grass and leaves.
- Spend less time watering.
- Spend less time fertilizing.

To Help Your Community

- Save landfill space.
- Conserve water resources.
- Reduce water pollution.

Mulching Basics

- To control erosion in a lawn, cover bare areas with 2 to 4 inches of mulch.
- Mulch all areas that are not covered in grass or thick ground cover.
- When converting grassy areas to mulch, smother the grass with a thick layer of cardboard or newspaper rather than using chemicals. Some hardy grasses must be rooted out for successful removal.
- Blanket dormant perennials with several inches of shredded leaves or whole pine needles to protect them from the freezing weather.
- Spread mulches under annuals after they are well established.
- Water the ground thoroughly before and after applying a mulch cover.
- Do not put organic mulch where water flows rapidly or it may wash out.
- Rock and other heavy, inert materials can be used in berms or buffers to slow the



hot as the hot water in your house. Temperatures this high (140 degrees Fahrenheit or higher) can kill most weed seeds and germs that cause disease. Help your pile stay hot by putting it in a bin or covering it with a tarp. You can use a special compost thermometer to monitor its temperature.

Good Choices for Composting

- ✓ Yard waste such as leaves, grass clippings, pine needles, weeds, small prunings, and spent garden plants.
- ✓ Food waste such as vegetable and fruit scraps, coffee grounds and filters, and used tea bags.

Avoid These Materials

- ✗ Meat, bones, fish, dairy products, grease, and oil—they cause odors and attract pets and pests.
- ✗ Pet droppings—they can harbor diseases.
- ✗ Noxious weeds with seeds or runners—you could wind up spreading them with your compost.
- ✗ Diseased and insect-infected plants—the diseases and pests could survive in your compost and spread.
- ✗ Shavings and sawdust from treated wood, and other materials containing strong preservatives or other toxins.
- ✗ Ashes—they slow the composting process.

Turning the Pile

Turning helps to add more oxygen, distribute moisture evenly, and increase the temperature enough to kill weed seeds. In the summer, you should turn the pile weekly. In the winter, once a month will suffice. You can use a hayfork or a compost turner to break up clumps and move drier material from the outer edges to the center. One way to make this easier is to take down your bin, move it a few feet away, and turn the compost into it.

When Is Compost Ready?

Using compost before it is ready can damage plants. Undecayed “brown” materials in the soil can temporarily reduce plant-available nitrogen. Undecayed “green” materials can harbor pests and diseases. Immature compost can also introduce weed seeds and root-damaging organic acids.

Compost is ready when:

- it smells earthy—not sour, putrid, or like ammonia;
- it no longer heats up after it is turned or dampened; and
- it has a crumbly texture and it looks like dark soil.
- it has a pH near neutral.



Harvesting Compost

Compost can be shoveled out of a pile or bin and used just as it is, especially for mulch. Remove undecayed objects by sifting them through a screen.

- If you are using compost in preparing soil for planting or sodding, sift it through a 1-inch mesh screen. Compost used in potting mixes or as top-dressing on lawns is commonly sifted through a 3/8- or 1/2-inch mesh screen.
- Make a simple screen by mounting hardware cloth or other durable wire mesh in a sturdy wooden frame that will fit neatly onto the wheelbarrow or other container into which you will sift the compost.
- Spread compost onto the screen in a thin layer and shake it. You can work the material through the screen with a paddle if it is fine but clumpy.
- Add the “oversized” material that remains on top of the screen to a new pile to help the new pile start composting faster.

Compost Variations

Compost Containers

You can store compost in a pile or a bin, however, bins can help keep your yard tidy, discourage pests, and make the compost easier to turn. You can make containers with lumber, pallets, concrete blocks, wire fencing, or other materials.

When selecting a compost container, keep the following tips in mind:

- **Capacity.** The best composting temperature is reached in a pile



TROUBLESHOOTING

SYMPTOM	PROBLEM	SOLUTION
Bad odor.	Too wet or too much green material.	Turn the pile or add more brown material. Cover the pile with a layer of mulch if the odor continues to persist for more than one day.
Material is not breaking down and the pile is dry.	Not enough water.	Turn the pile and add water until the whole pile is moist.
Material is not breaking down and the pile is damp and sweet-smelling.	Not enough brown material.	Add more green materials.
The pile is not warm enough or is only warm in the center.	The pile is too small.	Add more materials to increase volume or consider using a container for the compost.
The pile has flies, roaches, ants, or maggots.	Too wet or food is exposed.	Ensure that the pile stays damp, but not soaking wet. Bury food items under a layer of leaves.
The pile has fire ants and is dry.	Not enough water.	Carefully turn the pile and add water. Another option is to use low-toxicity bait near, but not in, the pile.

or bin of at least 1 cubic yard (3-foot length, width, and height).

- **Access.** Select a bin design that allows easy access for adding material, for watering, and for turning.
- **Ease of assembly and relocation.** These features allow you to easily move your bin for turning and refilling.
- **Security.** A well-managed compost pile should not attract harmful bugs, and pet and vermin access should be restricted.
- **Moisture and heat retention.** Enclosed bins work better for smaller amounts of material.

Worm Composting

Worm composting uses worms to turn food scraps, newspapers, and cardboard into rich compost that you can add to potted plants, lawns, or gardens. It is convenient, and you can do it both indoors (even in an apartment) and outdoors. Worm composting is also the best way to compost paper.

The Worms

Brown-nose worms or red worms work best in containers; do not use night crawlers or other large, soil-burrowing worms. Composting worms are available from various stores and catalogs that sell garden soils and supplies.

The Material

- **Paper.** Paper serves as “bedding” for the worms to live in. The worms consume it along with the other materials. You can use any kind of paper, but worms will consume newspaper, cardboard, paper towels, and other coarse paper faster than fine printing and writing paper.
- **Food scraps.** Almost any fruit, grain, or vegetable material other than oil is good for worm composting. Egg shells, coffee grounds, and tea bags are also fine.
- **Other materials.** Add a little soil or fine sand to provide grit. Leaves and other yard trimmings can be used as part of the bedding. Livestock manure is excellent food for worms in outdoor containers.

The Container

You can use wooden boxes, plastic bins, or holes in the ground. A 1-by-2-by-3-foot box or four 10-gallon containers are big enough to compost the food scraps from a medium-sized family. Punch a few 1/8-inch holes in the upper sides for ventilation. Tight-fitting lids help keep pests out of outdoor

- **Flexible size and adjustable shape.** These features will accommodate changes in compost volume.
- **Aesthetics.** This is a personal consideration for both you and your neighbors.

Composting in the Ground

Burying Problem Materials

Mix smelly food scraps and insect-infested garden plants with soil and bury the mixture at least 8 inches deep in unused garden space. If the material stays moist, it will compost in a year without producing an odor or spreading diseases or pests.

wooden boxes, but don't use a lid with a plastic container unless the container is well ventilated. A poorly ventilated, sealed plastic container can quickly suffocate the worms.

How to Compost with Worms

- Tear newspaper or cardboard into strips. Dip the strips into water, and let them drain.
- Add this paper bedding to a bin until it is one-third full. Mix in a little soil or fine sand. Start with a pound of worms for each pound of food scraps that you plan to compost each week. Unless you start composting more food scraps, you should never need to add any more worms.
- Add a 1/2-inch or thinner layer of food scraps on top, mix it lightly into the top 2 inches of bedding, and cover everything with at least 1 inch of shredded paper. Don't leave any food scraps at the surface. Wait two days or longer, and then repeat these steps as materials are available.
- When a worm bin is full, scoop out any undigested food scraps and the material that contains the most worms—usually the top 3 to 4 inches of the material. Use the rest as compost. Put the worm-rich material back in the bin, mix it with an equal amount of fresh bedding, and cover it with 1 inch of shredded paper.

Sheet Composting

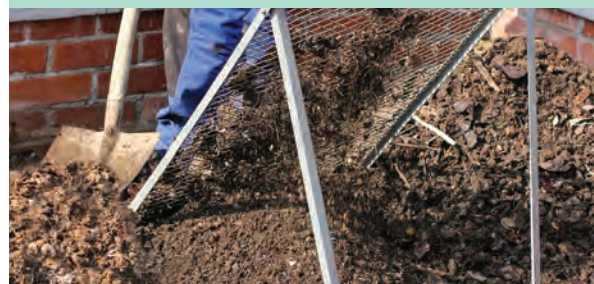
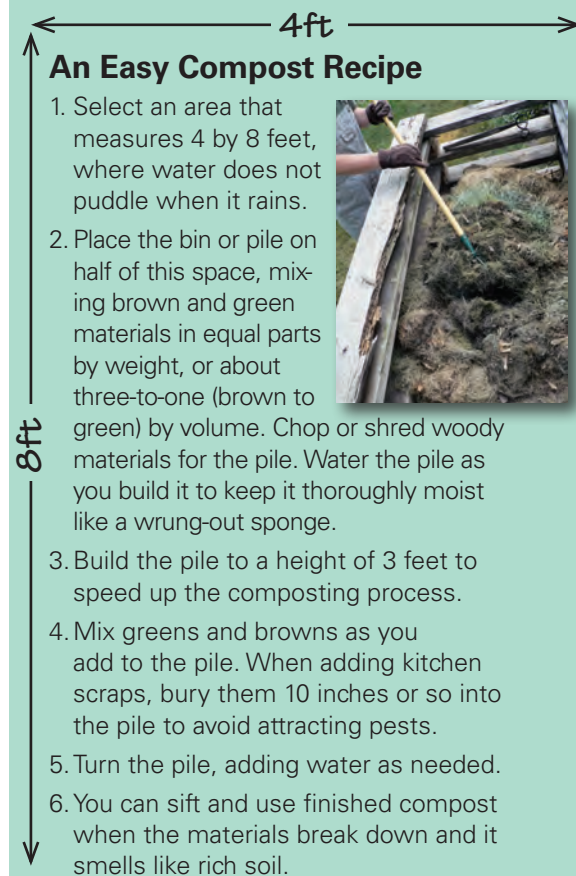
When tilling in the fall, add a few inches of leaves in unplanted garden space to enrich the soil for spring planting. Avoid using this method, called sheet composting, just before planting. Much of the soil's plant-available nitrogen will become temporarily unavailable as composting microbes consume it along with the brown leaves. A few months after sheet composting, there will be more plant-available nitrogen in the soil than before.

Walkway Composting

Spread a thick layer of leaves, chipped branches, and grass clippings into shallow ditches or rows between garden beds to form walkways. Add more material later as it compacts. In a few months, most of this material will decompose enough to be incorporated into the garden soil when the soil is reworked for planting.

An Easy Compost Recipe

1. Select an area that measures 4 by 8 feet, where water does not puddle when it rains.
2. Place the bin or pile on half of this space, mixing brown and green materials in equal parts by weight, or about three-to-one (brown to green) by volume. Chop or shred woody materials for the pile. Water the pile as you build it to keep it thoroughly moist like a wrung-out sponge.
3. Build the pile to a height of 3 feet to speed up the composting process.
4. Mix greens and browns as you add to the pile. When adding kitchen scraps, bury them 10 inches or so into the pile to avoid attracting pests.
5. Turn the pile, adding water as needed.
6. You can sift and use finished compost when the materials break down and it smells like rich soil.





FREQUENTLY ASKED QUESTIONS



WHAT ARE "BROWN" COMPOSTING MATERIALS?

Dead leaves, dry hay, wood shavings, and shredded paper are examples of "brown" materials.

WHAT ARE "GREEN" COMPOSTING MATERIALS?

Vegetable and fruit scraps, green grass clippings and shrub prunings, and manure are examples of "green" materials.

WHAT SIZE IS BEST FOR COMPOSTING MATERIALS?

Composting occurs most rapidly when green and brown materials are reduced to small pieces and thoroughly mixed together. That way, every part of the pile gives decomposing organisms access to needed carbon, nitrogen, oxygen, and water. A pile of large chunks of material will have too much air space, and the surfaces will dry out rapidly. On the other hand, a pile of very fine materials may have too little oxygen and require frequent turning.

For best results, break down large objects before adding them to a compost pile.

- Twigs and leaves can be run over with a lawn mower or run through a leaf shredder.
- Garden plants or fleshy prunings can be chopped with a machete or pruning shears.
- Food scraps can be cut up in the kitchen or chopped up in a bucket with a square-point shovel.

DO COMPOST PILES HAVE OFFENSIVE ODORS?

Not if composting is done properly. A bad odor can mean that your compost pile has too many "green" materials, or is too wet. Also avoid the use of any pet wastes.

WHY IS IT IMPORTANT TO TURN A COMPOST PILE?

Turning your compost optimizes conditions for composting bacteria and serves to:

- restore oxygen and moisture throughout the pile;
- break up clumps and compacted material; and
- blend green and brown materials better.

WHY IS COMPOST CONSIDERED GOOD MULCH?

Compost makes good mulch because it is generally free of weeds, and is inexpensive. Compost helps the soil absorb and retain nutrients and moisture, and protects plants from diseases and pests.

WHEN SHOULD I MULCH MY YARD?

Mulch as you mow with a mulching mower or a mulching blade on a regular mower. Returning mulched clippings to your lawn rather than bagging and disposing of them can reduce the need for lawn fertilizer by about 30 percent. Mulching your lawn in the spring (and fall, if needed) with 1/8 to 1/2 inch of compost is also a great soil-building strategy.

SHOULD I BAG LEAVES IN THE FALL?

Don't let leaves pile up. A thick ground cover of leaves blocks sunlight, which is good for suppressing weed growth in planting beds; but on the lawn, it can also suppress the growth of grass. Mow fallen leaves to create good winter mulch for your lawn, or add the leaves to your backyard compost pile.



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Need More Information on Yard Care?

Mulching and Composting complements the *Guide to Yard Care*, which is meant to be a general overview of ways you can help take care of Texas in your own yard. For more detailed information, see the following other TCEQ "Take Care of Texas" guides at <TakeCareOfTexas.org/publications>:

- *Guide to Yard Care* (GI-28)
- *Rainwater Harvesting with Rain Barrels* (GI-383)
- *Managing 10 Common Texas Yard Pests* (GI-405)
- *Managing Lawn Problems in Texas* (GI-407)
- *Landscape Irrigation* (GI-409)

Watch our video of **How to Start Composting in Your Own Backyard**, featuring Travis County Master Gardener Patricia Mokry, who explains simple ways to begin and maintain various types of compost. <www.tceq.texas.gov/goto/composting-video>

Also available is our video on **Building a Rain Barrel**, a step-by-step demonstration on how to build a rain barrel using a 32 gallon plastic trash container. <www.tceq.texas.gov/goto/rain-barrel-video>



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