

## Desert Composting

Composting is the managed decomposition of organic matter through biological processes resulting in humus material that can be used to improve soil structure. As a soil amendment, compost loosens heavy clay soils and enhances aeration. It allows sandy soils to hold moisture and nutrients for root absorption. Many home gardeners create compost piles in their backyards. Cities and towns encourage this to alleviate the unnecessary quantities of organic material going to landfills.

**Process:** A compost pile is essentially an active microbial community. In the process of decaying organic matter, bacteria are the initial, most numerous and effective decomposers. Fungi and protozoa also break down plant tissue and somewhat later in the cycle centipedes, millipedes, beetles, earthworms and other organisms do their part. As microorganisms work to digest the material in a compost pile, they produce heat and carbon dioxide. This is why an active compost system will heat up. The result of this high temperature is that very few, if any, pathogens and weed seeds survive the aerobic composting process.

**Composting structures:** The type of structure or method chosen to make compost is really a matter of personal preference. Materials can be composted in a heap or a bin can be used to contain materials neatly. If the compost system is going to be visible it should be tidy and somewhat attractive. Some people don't mind seeing a pile of leaves in the back yard but a well built composting unit or a manufactured recycled plastic bin may be more desirable where aesthetics are a consideration. There are three basic types of composting structures: holding units, multi-stage units, and enclosed bins. Holding bins are the simplest type and are constructed of recycled wood, block, hardware cloth or any material that will hold the organic matter together. Multi-stage units are a series of two or more bins. They are appropriate for homes, community areas, or institutions with large gardens and high volumes of organic waste. Material in one bin can decompose while new materials can be placed into a second bin. A third bin can be used for final curing. Enclosed bins are the most appropriate for small yards. Construct an enclosed bin at home using a barrel or garbage can. A variety of bins including models that rotate or roll are available through garden centers and mail order catalogs. Many cities offer compost bins to homeowners at little or no cost. Any structure used should be at least three feet tall and wide to hold an adequate amount of material.

**Materials:** All organic materials contain carbon and nitrogen in varying proportions. In general, moist green materials such as plant trimmings, fresh grass clippings, and kitchen vegetable scraps contain a higher proportion of nitrogen while dry brown materials such as dead leaves, brush, straw, and paper contain a higher proportion of carbon. To create ideal conditions for decomposition mix materials in the compost pile so that there is an approximate ratio of 3:1 brown carbon to green nitrogen. A pile with more brown material will still decompose but it will take longer. If too much green material is added the pile may develop an odor. Do not add any meat, dairy products, fats, oils or pet feces as these may cause odors or contain pathogens.

**Surface Area:** The more surface area the microorganisms have to work on the faster the materials are decomposed. Chopping garden wastes or running them through a shredding machine or lawnmower will speed the composting process.

**Moisture and Aeration:** The microorganisms in compost need oxygen and moisture to survive. They function best when the compost materials are kept about as moist as a wrung-out sponge. It is easy to

moisten the pile as it is built and when turned. Turning or mixing the pile every one to two weeks provides the necessary oxygen for the microorganisms and significantly expedites the composting process. A pile that is not turned may take three to four times longer to decompose.

**Time:** The composting process can take approximately two months to a year. The following practices will speed the decomposition of materials:

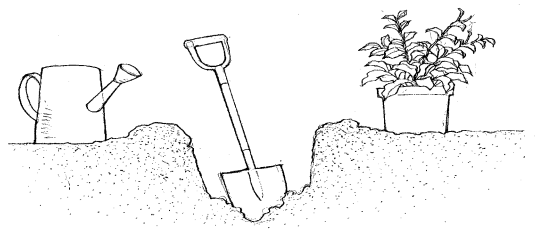
- Keeping the proper proportion of carbon and nitrogen materials in the pile;
- Turning the pile and keeping it moist;
- Cutting large items into smaller pieces before adding them to the pile.

**Using Compost:** Mix compost into vegetable and flower beds, blend it with potting soil to revitalize container plants, or spread it on lawns as a fertilizer. Use compost as a mulch around less desert-adapted trees and shrubs to cool the root zone and increase soil moisture retention during summer months. Most desert natives do not need compost as a soil amendment since they have evolved to thrive in soils with low organic content.

## Need Help?

For more information about particular desert plants or problems, call the Desert Botanical Garden's Plant Hotline, 480-481-8120, Monday through Friday, from 10:00 – 11:30 a.m. or email your questions to [planthotline@dbg.org](mailto:planthotline@dbg.org)

The Desert Botanical Garden provides a range of services to homeowners including a desert Plant Hotline, a variety of classes about landscaping and gardening in the desert, an onsite library, and an extensive selection of resources in the Garden Shop.



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