

Compost's Dual Benefits: Recycle Yard Waste, Improve Soil

by Scott Aker

ORGANIC MATTER needs to be added to the soil from time to time to support beneficial organisms that normally live there—the same organisms that play a part in optimizing plant growth. Compost is one of the best amendments for this purpose, and, conveniently, composting is also an excellent way to dispose of the vegetative excess that every garden produces, reducing the burden on our landfills.

There are lots of “recipes” out there for how to create compost—four parts this to three parts that with a sprinkling of something else. When you consider the variety of types of green waste that your household generates, and how it varies in proportion from season to season, following a strict recipe would mean storing a lot of different materials. For that reason, I never use recipes, opting instead to focus on creating an optimal setup and environment for decomposition.

WAYS TO HASTEN DECAY

Decay is the destiny of everything that is no longer living. There are just different routes to the same end result, and generally the fastest route is the best in a garden. Piling up all your leaves, vegetable scraps, and lawn clippings and simply letting them rot on their own schedule is easy but probably won't give you the best results. This passive approach can only be used for material that is not too wet and also doesn't contain weed seeds or disease spores—fine for autumn leaves, but not the other green waste your garden generates.

Active, or hot, composting—where you help speed up the decay process—is a better way to go. This means that you must control several key factors: volume, particle size, and moisture levels.

Volume Unless a storm has created a lot of debris at one time, you are unlikely to



Regularly turning the contents of a hot compost pile encourages rapid decay, above. The internal temperature of the pile—which is easily determined with a soil or old kitchen thermometer, left—will tell you when turning is needed.

have enough fodder for your compost heap at one time to achieve rapid decay, simply because a smaller pile cannot build up enough heat to satisfy the needs of microorganisms that need high temperatures to multiply and help things disintegrate. The issue is not actually volume, but the surface-to-mass ratio of your compost heap. In a small pile, the amount of surface is great and the mass is small, so any heat generated is quickly lost. Without enough volume, your compost may never reach a high enough temperature to kill weed seeds and disease organisms that might be

in the mix. And instead of taking six weeks from start to finish, the process may take six months or more. A better approach is to accumulate materials in bulk until you have enough to make up at least two cubic yards in volume, after the materials are shredded. Bulk materials may shred down to a quarter of their initial volume, so you'll need to start with at least eight cubic yards of most materials prior to shredding.

Only a few things should be kept out of hot compost. Most diseases are killed by the heat, as are weed seeds. While many people prefer to avoid adding materials that may have pesticide residue on them, such as lawn clippings from neighbors, studies indicate that commonly-used herbicides are volatilized or degraded into

basic elements by the microbes. Material contaminated with metals should be left out, as should any meat scraps or fat, because these will attract vermin.

Particle Size All decay organisms feed at the surface of things and won't be able to multiply rapidly if surface area is limited, so shred the material you are composting into pieces no larger than coins. A mulching lawn mower works well for autumn leaves, but if you have a lot of other types of green waste, it may be better to buy, borrow, or rent a shredder.

Moisture All life needs water to sustain itself, and too little of it will curtail the growth and reproduction of the microbes in your compost. Those that promote rapid decay also need oxygen, so air needs to be able to move freely through the pile. Ideally, the material in a pile should be uniformly damp; you should never be able to wring water out of it. It is always easier



Drum composters, such as this easy-to-turn model, are especially useful in small spaces.

to add water to dry material rather than drying out material that is too wet, but, of course, this sometimes happens. It's a good idea to store some dry shredded leaves so you can add them to a pile that gets too wet. You can even use shredded newspapers if nothing else is on hand.

Some nitrogen is needed to get the process started. This will be recycled as

microorganisms die, so you don't need a lot. Some grass clippings will work, as will a few handfuls of nitrogen fertilizer. Compost starter mixtures are available commercially, but they aren't necessary because spores of the needed decay microorganisms are everywhere, even floating on air.

SETUP AND MAINTENANCE

There are many composting devices available for home use, from metal and plastic drum units that can be turned effortlessly to cube-shaped bins made of wire mesh or heavy-duty plastic. While these keep a pile tidy, they aren't necessary for success. Compost can be produced successfully in an open heap.

In any active or hot composting process, turning and mixing the material is essential. The temperature of the pile will tell you when it needs to be turned. If you followed the parameters described above, the pile should heat up to a temperature around 140 degrees Fahrenheit (F) within two or three days after you've assembled it—you can check the temperature by inserting a compost thermometer or kitchen meat thermometer into the pile. After a week, it should steam when you dig into it. Within another week it may begin to cool, perhaps to a temperature a bit above 100 degrees F. When that happens, turn the pile with a garden fork to mix the materials and give the part of the heap that was on the outside a chance to decay in the warmer interior.

Your compost is almost finished when it won't heat up much after you turn it. This may take six to eight weeks. Don't be tempted to use your compost right away. As the heat subsides, the main decay organisms die off and are gradually replaced by a broader array of beneficial fungi and bacteria. Many of these protect plants from diseases and create complex biochemical associations that help make nutrients available to plants. After letting your compost rest for a couple of weeks, you can start using it to give your garden soil a healthy boost. ♻️

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Gardening Q&A with Scott Aker

TREATING INSECTS ON INDOOR HERBS

I move my outdoor herbs indoors when temperatures drop in fall, but they usually become infested by aphids or scale. Toxic sprays are not an option and the non-toxic commercial and homemade plant soap sprays that I have tried are not effective. Do you have suggestions for how to get rid of these pests?

Delay moving the plants indoors as long as possible. If aphids are present on plants, spray the plants thoroughly with a strong jet of water from your garden hose to dislodge the aphids before bringing the plants inside. Scale insects are harder to control, so it's best to leave any scale-infested plants outdoors. If aphids or mites appear on plants during the winter, take the plants to your shower and give them a blast of water to wash away the pests. This will also rinse off any dust accumulating on the leaves, which can impair photosynthesis.

BLUEBERRY SHRUBS NOT PRODUCING

For the past 30 years, I have had a good crop of blueberries from about 40 plants variously located in sunny, semi-shady, and shady sites in my garden. This year I did not see many blossoms or fruits on three bushes that are planted in heavy shade. I mulch all the plants but rarely fertilize them, so this spring I applied azalea fertilizer. Is there anything else I can do to ensure their productivity?

Lack of sunlight is likely the main problem. Blueberries tolerate some shade but need full sun to bear heavy crops. You might need to relocate the plants to a sunnier spot, or remove any overhanging tree branches that are casting shade. Old stems also become less fruitful, so cut the thickest branches to the ground to stimulate stronger growth. —S.A.

Send your gardening questions to Scott Aker at saker@ahs.org (please include your city and state with submissions).