



Got Compost? Learn About the Decomposers

Compost activators or decomposers help break down your compost. Find out what works.

(Compost Basics by Jessica Walliser, page 4 of 5)

Meet the Crew of Decomposers

Once the right ingredients have been used to create the pile, it's the job of billions of microbes and other soil-dwelling organisms to break it down.

The organisms needed for this decomposition process are already present in most compost ingredients. However, throwing some finished compost into the pile as it's built may increase populations more quickly. Wondering about worms? [Click here>>](#) Compost activators, consisting of inoculants (bacteria), enzymes and sugars, are also available to rapidly establish microbe populations, though it's not necessary to use them.

There are literally thousands of different decomposers at work in the typical compost pile and they number in the tens of billions.

They all do their part and they do it year-round. Some species of bacteria continue to work even in freezing temperatures. Fortunately, these bacteria usually generate enough heat to support those bacteria that prefer warmer temperatures.

The most rapidly decomposing bacteria work at the highest temperatures, between 100 and 160 degrees F. At 160 degrees F, the rapid decomposers are happiest and the decomposition process is at its fastest. These microbes require very little from the farmers hosting them.

They ask only for two things: food and oxygen.

Aerating the Pile

Microbes use oxygen and exhale carbon dioxide while decomposing, which means it's an aerobic process.

To maintain those necessary aerobic conditions, oxygen must be provided by turning or otherwise aerating the pile on a regular basis (at least once a week).

If the pile is not turned and no oxygen is present, decomposition happens through fermentation.

Different organisms are at work here, and they release both methane and ammonia; as a result, the pile stinks. In addition, fermenting piles don't generate enough heat to kill pathogens, creating a potential food safety issue.

Decomposition doesn't smell bad when adequate oxygen is present.

We are mimicking nature in a compost pile by trying to create the right blend of ingredients, including sufficient oxygen. Creating quality compost is all about pleasing those decomposers.

Hot, Hot, Hot!

Since the process of decomposition naturally creates heat, properly constructed compost piles will be hot to the touch.

For Certified Organic farmers, the pile must reach between 131 and 170 degrees F for a minimum of 15 days, during which time the pile is turned at least five times. This is essential because it takes sustained, high temperatures to kill human and plant pathogens, as well as weed seeds.

Compost thermometers are readily found at garden supply retailers and online. They have long probes that reach into the center of the pile where temperatures are usually the highest. The temperature should be checked at approximately the same time every day.

"Cold" or "slow" composting methods (otherwise known as pile-it-up-and-wait) are valid techniques for home gardeners, but caution should be taken when animal manures are used in these methods.

All organic materials will eventually decompose; the rate at which they do so may or may not be important to individual



gardeners, but the safety and weed seed contents of “cold” piles are an important factor to consider when choosing a type of compost pile to work with.

The Worms Have It

Vermicomposting is another technique for reducing fresh organic materials into compost.

An artificial system meant to support worms is created in order to harvest their rich castings.

Though a bit more expertise and equipment is required to compost via worms, it’s a satisfying experience, providing growers with a nutrient-dense, natural fertilizer.

Special bins can be purchased for large-scale production of castings or homemade alternatives can be easily constructed. Simply cut holes in the bottom and the lid of a large, plastic storage bin and layer plenty of shredded newspaper, kitchen scraps, small pieces of cardboard and the like into the container (do not use animal manures in the bins).

Following the recipe for the proper C:N ratio isn’t strictly necessary, but it may help speed decomposition.

Add purchased worms to the bin and store the container in a cool area, but do not allow it to freeze.

Add thin layers of raw, organic matter at one- to three-day intervals.

The required duration to complete decomposition is anywhere from two to four months.