

Composting Components

Microorganisms—These are the biological engines that drive the breakdown of organic matter placed in the compost.

Microorganisms are found in naturally occurring soil. (Potting soil has been sterilized, so it will not contain microorganisms.)

Organic Material—Food scraps, yard clippings, leaves, and other organic material serve as the fuel for chemical reactions carried out by microorganisms. The compost materials must be a combination of carbon sources (“brown” materials) and nitrogen-rich (“green”) materials. Typical carbon-to-nitrogen ratios for compost materials range from 25:1 to 40:1. Brown materials include dry leaves, twigs, and sawdust. Green materials include grass clippings, vegetables, and fruit materials. The size of the organic material can greatly affect the rate of decomposition. Smaller particle size allows for more rapid breakdown.

Aeration—The microorganisms that help implement the chemical reactions are mostly aerobic bacteria that require oxygen to function and survive. For this reason, it is important to design a container that allows for adequate ventilation and to mix the pile regularly to hasten the composting process.

Moisture—Chemical reactions proceed at rapid rates with the right amount of moisture. Too much water may slow the decomposition process, thus creating anaerobic conditions and bad odors. Too little water will also inhibit the decomposition process. The compost pile should be as moist as a wrung-out sponge.

pH—This measure of acidity or alkalinity has a scale that runs from 0 to 14, where 7 is neutral, below 7 is acidic (low pH), and above 7 is alkaline (high pH). The ideal pH for microorganisms in compost piles is between 5.5 and 8.0.

Temperature—Heat is a by-product of the oxidation reactions occurring during decomposition. An actively decomposing pile should reach temperatures of 130–160 degrees Fahrenheit in the middle. As the decomposition of materials is completed, the temperature of the pile decreases.

Time—Composting is a gradual process. Depending on your compost pile, the process takes several days to several weeks. Aerating the pile helps speed up decomposition.

Worms—The introduction of worms helps to aerate the pile and break it down. The worms break down the waste and leave droppings that help enrich the soil. Red worms can be used for indoor composting.

