

MESSENGER-INQUIRER

	University of Kentucky College of Agriculture, Food and Environment <i>Cooperative Extension Service</i>
	extension.ca.uky.edu HORTICULTURE EDUCATION Annette Meyer Heisdorffer, PhD Davies County Extension Office

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Turn Yard Waste into Compost **Annette Meyer Heisdorffer, PhD**

How can recycling yard waste yield “black gold” for landscape plants? The process is called composting. This material is used as a soil amendment or mulch for plants. By following the easy tips, composting waste can take place in the backyard.

Composting is a controlled, natural, biological process where bacteria, fungi (microbes), and other organisms decompose organic materials. Four key factors, aeration, moisture, particle size, and carbon-to-nitrogen ratios are involved in successful composting. These factors are associated with keeping the microbes happy, so they break down organic materials through a heating process. If any of these four factors are limited, the process of decomposition slows or stops.

Compostable materials include leaves, grass clippings, pine needles, straw, and non-woody plant clippings such as weeds and vegetable plants. If the compost will be returned to the garden, do not use diseased plants from the flower or vegetable garden for composting. A small compost pile at home may not heat to high enough temperatures for a sufficient period of time to

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kill the disease organisms. In addition, it is best to avoid composting weeds with many seeds, since the seeds may not be killed during composting in a home situation.

Kitchen wastes such as coffee grounds, washed eggshells, and vegetable scraps may be added. However, meat, bones, whole eggs, and dairy products should not be used since they may attract rodents and other animals.

Woody materials such as branches and twigs may be used, but chip them into one-quarter inch or shorter pieces to make these materials break down faster in the compost pile.

Feces of pets and humans should not be included in the compost pile because diseases from these feces can be transmitted to humans.

Layer the materials to compost with a thin layer of soil included to serve as a source of microbes that will decompose the organic material. Purchasing a compost starter is not required. In the backyard, the minimum size of the pile is 3 feet by 3 feet by 3 feet or 1 cubic yard, otherwise, the pile will not reach the appropriate temperature range.

Aerate the compost pile by turning it with a garden fork or shovel. Aeration adds oxygen, which is essential for the microbes. Frequently turning the pile during the initial stages of decomposition increases the activity of the microbes, thus reducing the time and space required for composting. If the pile is turned infrequently, the composting process takes longer, goes without oxygen, and may start to smell.

Turning the pile also helps it reach a higher temperature. Heat, ideally between 90 and 140 degrees F, helps destroy some weed seeds and diseases but not the desirable microbes. Check the interior temperature of the pile with a thermometer or with your hand. The

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temperature of 90 degrees F feels comfortably warm in the hand as compared to 140 degrees F which is too hot to touch for more than ten seconds.

Moisture is required for microbial activity. Water the layers as added to the pile. The pile has the right amount of moisture if about two drops of water come from tightly squeezing a handful of the compost pile. Add water while turning the pile if it is dry. Cover the pile with a tarp to prevent it from becoming too wet during heavy rain events.

If the pile is too wet, turn the pile frequently or add more organic material. Excessive moisture replaces air spaces causing a lack of oxygen in the pile.

Another point to remember is that the smaller the particle size in the pile, the faster the material will turn into compost. Smaller particles have a larger surface area that microbes can attack. Shredding materials before adding to the compost pile also reduces the initial volume of the pile.

In a compost pile, the ideal carbon to nitrogen ratio (C:N) is 30 parts carbon to 1 part nitrogen (30:1). Carbon serves as an energy source for the microbes while nitrogen is required for growth. Materials such as straw and woody material are high in carbon; grass clippings are high in nitrogen. An ideal C:N ratio is achieved by mixing high nitrogen material with high carbon materials.

If the pile is not composting, the amount of nitrogen in your pile is low. Add blood meal as an organic source of nitrogen or a fertilizer with a high nitrogen content. Rabbit or chicken manure can be added as a nitrogen source, but there is a greater chance of an objectionable odor coming from the pile with these manures.

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Lime does not have to be added to the pile. The addition of lime to the pile converts ammonium nitrogen to ammonia gas, which leads to the loss of nitrogen. Finished compost usually is slightly alkaline without the addition of lime.

Finished compost has an earthy smell and looks like dark-colored soil. It can be produced in three months or more, depending on the amount of time spent meeting the needs of the bacteria and fungi that break down the organic materials.

For more information about composting, contact the Daviess County Cooperative Extension Service at 270-685-8480 or annette.heisdorffer@uky.edu.

Annette's Tip of the Week:

Collect dry leaves in the fall in garbage bags and store them in a dry location. In the spring when grass clippings are abundant, the leaves serve as a carbon source to add to the grass clippings from an herbicide-free yard as a nitrogen source to start a compost pile.

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