The Composting Process

What is compost?

Compost is decomposed organic material. Compost is made with material such as leaves, shredded twigs, and kitchen scraps from plants.

To gardeners, compost is considered "black gold" because of its many benefits in the garden. Compost is a great material for garden soil. Adding compost to clay soils makes them easier to work and plant. In sandy soils, the addition of compost improves the water holding capacity of the soil. By adding organic matter to the soil, compost can help improve plant growth and health.

Composting is also a good way to recycle leaves and other yard waste. Instead of paying a company to haul away leaves, you can compost the leaves and return the nutrients to your garden. Instead of buying peat moss, save money and make your own compost!

The composting process

The composting process involves four main components: organic matter, moisture, oxygen, and bacteria.

Organic matter includes plant materials and some animal manures. Organic materials used for compost should include a mixture of brown organic material (dead leaves, twigs, manure) and green organic material (lawn clippings, fruit rinds, etc.). Brown materials supply carbon, while green materials supply nitrogen. The best ratio is 1 part green to 1 part brown material. Shredding, chopping or mowing these materials into smaller pieces will help speed the composting process by increasing the surface area.

For piles that have mostly brown material (dead leaves), try adding a handful of commercial 10-10-10 fertilizer to supply nitrogen and speed the compost process.

Moisture is important to support the composting process. Compost should be comparable to the wetness of a wrung-out sponge. If the pile is too dry, materials will decompose very slowly. Add water during dry periods or when adding large amounts of brown organic material.

If the pile is too wet, turn the pile and mix the materials. Another option is to add dry, brown organic materials.

Oxygen is needed to support the breakdown of plant material by bacteria. To supply oxygen, you will need to turn the compost pile so that materials at the edges are brought to the center of the pile. Turning the pile is important for complete composting and for controlling odor.

Wait at least two weeks before turning the pile, to allow the center of the pile to "heat up" and decompose. Once the pile has cooled in the center, decomposition of the materials has taken place. Frequent turning will help speed the composting process.

Bacteria and other microorganisms are the real workers in the compost process. By supplying organic materials, water, and oxygen, the already present bacteria will break down the plant material into useful compost for the garden. As the bacteria decompose the materials, they release heat, which is concentrated in the center of the pile.

You may also add layers of soil or finished compost to supply more bacteria and speed the composting process. Commercial starters are

available but should not be necessary for compost piles that have a proper carbon to nitrogen ratio (1 part green organic material to 1 part brown organic material).

In addition to bacteria, larger organisms including insects and earthworms are active composters. These organisms break down large materials in the compost pile.

How long does it take?

The amount of time needed to produce compost depends on several factors, including the size of the compost pile, the types of materials, the surface area of the materials, and the number of times the pile is turned.

For most efficient composting, use a pile that is between 3 feet cubed and 5 feet cubed (27-125 cu. ft.). This allows the center of the pile to heat up sufficiently to break down materials. Smaller piles can be made but will take longer to produce finished compost. Larger piles can be made by increasing the length of the pile but limiting the height and the depth to 5 feet tall by 5 feet deep; however, large piles are limited by a person's ability to turn the materials. You may also want to have two piles, one for finished compost ready to use in the garden, and the other for unfinished compost.

If the pile has more brown organic materials, it may take longer to compost. You can speed up the process by adding more green materials or a fertilizer with nitrogen (use one cup per 25 square feet).

The surface area of the materials effects the time needed for composting. By breaking materials down into smaller parts (chipping, shredding, mulching leaves), the surface area of the materials will increase. This helps the bacteria to more quickly break down materials into compost.

Finally, the number of times the pile is turned influences composting speed. By turning more frequently (about every 2-4 weeks), you will produce compost more quickly. Waiting at least two weeks allows the center of the pile to heat up and promotes maximum bacterial activity. The average composter turns the pile every 4-5 weeks.

When turning the compost pile, make sure that materials in the center are brought to the outsides, and that materials from the outside edges are brought to the center.

With frequent turning, compost can be ready in about 3 months, depending on the time of year. In winter, the activity of the bacteria slows, and it is recommended that you stop turning the pile after November to keep heat from escaping the pileís center. In summer, warm temperatures encourage bacterial activity and the composting process is quicker.

Using compost in the yard

Incorporate compost into your garden as you prepare the soil in the spring. Cover the area with 3-4 inches of soil and till it in to at least the upper 6 inches of soil. Add compost to soil in vegetable gardens, annual flower beds, and around new perennials as they are planted.

You may also use compost as mulch around flower beds, vegetable gardens, or around trees or shrubs in landscape beds. Apply a 3 inch layer. Be careful not to apply mulch close to the main stem or trunk of the plant.

Article from University of Illinois Extension Web Site http://www.urbanest.uiuc.edu/compost/process.html