

## **Composting, the 3 R's: Reduce, Reuse, and Recycle**

Cameron County, Texas cities have at one time or another experienced landfills that became full. Reducing the amount of refuse placed into our landfills, not only conserves space, but also conserves your tax dollars that are spent on closing one landfill and opening another. The "3 R's" have become the rallying cry for the garbage reduction, and composting fits into each of the R's. By composting, you reduce the amount of garbage you throw out, you reuse the materials, and you recycle the nutrients back into the soil. Before throwing anything away, ask yourself, "Is one use enough" and "Can I compost this material"?

Composting is as old as the soil itself. It is nature's way of recycling nutrients and organic matter back into the soil for use by new and growing plants. In this natural cycle, nothing is wasted. Dead materials actually become food for living matter. When plants die and fall to the ground, microorganisms feed on them, breaking them down into smaller and smaller components. When fully decomposed, the material is called humus, and is full of nutrients from the original plants. Thus, the nutrients are returned to the soil, available for the living plants, and soil fertility is maintained. In nature, the process of de-composition can take a long time. Home composting speeds this process, provided ideal conditions are met. By digging, turning, layering, and watering, your compost heap you may feel as if you've done the composting. But the work is actually done by decomposer organisms that form a lively community in your heap. The process is started by bacteria and fungi, which break down organic matter for their own food. Bacteria and fungi immediately get to work on organic matter, breaking down the tissue, using its carbon for their source of energy (so they can keep on eating), and using nitrogen to build protein in their bodies (so they can keep on growing and reproducing). It's a short, simple life, but a very important one, if it did not exist the earth would be miles deep in dead plant and animal material.

**The Composting Process.** The process of making compost generates a high temperature, 160 degrees F., that encourages the natural breakdown of organic matter to operate quickly and also helps to kill weed seeds, pests and diseases. To heat up sufficiently, a compost heap should be at least one cubic yard in size, but two cubic yards is preferable. Compost reaches its maximum temperature in two or three weeks and matures in about three months. Turning the heap speeds the process and ensures complete breakdown. An ammonia odor indicates that the compost is too rich in nitrogen and an odor of rotten eggs means that the heap lacks air.

### **The A B C's of Composting**

Start with the two basic classes of organic material **A** (carbon) and **B** (nitrogen), mix approximately 30 parts carbon with one part nitrogen. Blend the materials from lists **A** and **B** (see below) BEFORE placing them in to your composting bin. This premixing ensures the microbes a uniform diet in your composting mass.

#### **A. Carbon Materials**

Carbon materials are high in cellulose fiber, and low in nitrogen.

Plant materials, which are great sources of carbon, are:

- dried weeds and vegetable plants
- dried leaves and grass
- shredded shrub or shrub clippings
- tree pruning and Christmas tree branches
- straw
- sawdust, wood shavings and other dry wood wastes

## **B. Nitrogen Materials**

Nitrogen materials are needed for nitrogen and for producing heat.

Plant materials, which are great sources of nitrogen, are:

- fresh grass clippings
- manure (chicken, horse, and rabbit do not use dog or cat)
- blood meal
- cotton seed meal
- leguminous plants (peas, beans, soybeans, alfalfa)
- kitchen scraps (non-animal)

**After premixing your carbon and nitrogen materials and placing them in your composting bin cover with a thin layer of soil.**

**C Soil** can be a mixture of soil and grass. It absorbs odors and excess ammonia gas produced by the breakdown of high nitrogen organic materials and supplies inoculating bacteria and fungi to the organic mixture.

**After mixing the soil into your carbon and nitrogen heap apply a little moisture.**

**D Moisture** is essential, but organic materials should only be the dampness of a wrung-out sponge. Keep materials moist to balance temperature and aeration. A cover protects from drying winds and or excess rain.

**After applying moisture turn your heap again. This supplies oxygen.**

**E Oxygen (air).** Odorless composting requires lots of oxygen to burn cellulose and to heat the mass to an optimum temperature of 135 to 150 degrees F.

Turning the heap is required unless air tubes are provided to ventilate the mass.

**Within two or three months, with two or three periodic turnings, the materials will be composted and ready to apply as a soil amendment to your garden or as mulch.**

Note: An ongoing compost heap is one where you add fresh materials to the top, in a layered manner as described, and you remove compost from the bottom. A compost bin with removable boards, or a sliding door, from the front-side is ideal for maintaining a continuous compost heap.

(Information sources: Russell Wold, organic gardener and *The Urban/Suburban Composter* by Mark Cullen and Lorraine Johnson)  
Article written by the Cameron County Horticulture Education Committee.  
Questions or Comments write to: Cameron County Master Gardeners Association,  
1390 W. Expressway 83, San Benito, TX 78586-3869.  
Phone: 956-361-8236 or Fax: 956-361-8289 or email:  
[cameroncountymastergardeners@gmail.com](mailto:cameroncountymastergardeners@gmail.com)