Got Compost? Learn about carbon and nitrogen suppliers

Get to know the basics about greens and browns as you cultivate your compost.

(Compost Basics by Jessica Walliser, page 2 of 5)

The Right Stuff
The first step in building a compost pile is choosing the proper ingredients. It's important to understand that different materials provide different things.

There are two basic classes of ingredients constituting a well-balanced compost blend: the carbon suppliers and the nitrogen suppliers.

Photo by Karen Keb Acevedo

Your compost bin--even as simple as one crafted out of chicken wire--will help you give back to the earth and grow better, heathier plants.Carbon suppliers are materials added to the compost pile in a non-living state. They are usually brown in color and have low moisture content. Carbon suppliers are generally high in lignin and other slow-to-decompose, plant components, so they take longer to fully break down into available nutrients.

Nitrogen suppliers are ingredients used in a fresh state. Nitrogen suppliers are often green in color (except in the case of manures) and have a high moisture content. Because they contain many sugars and starches, they are quick to decompose.

The relative proportion of carbon-containing materials to those materials higher in nitrogen (the C:N ratio) is a decidedly important factor in determining how well a compost pile breaks down.

Basically, the pile should contain about 30 times more carbon than nitrogen (a C:N ratio of 30:1). This ideal ratio is accomplished by building a pile that contains two to three times more carbon materials than nitrogen materials (by volume).

Imagine having rich compost to add to your gardens this year and into the future.

So for every five-gallon bucket of fresh, green grass clippings, three five-gallon buckets of straw or leaves will also have to be added.

Here's why the C:N ratio is so important:
First and foremost, the microbes and other organisms that process the ingredients of your compost pile use carbon materials as a source of energy.

They need a lot of it to work efficiently and quickly (more on these decomposing organisms later). If the ideal C:N ratio is created, the days to finished compost are reduced because these organisms are working at the fastest pace possible.

In addition, piles with a C:N ratio of 30:1 reach up to 160 degrees F, while those with a C:N ratio of 60:1 will seldom rise above 110 degrees F. Decomposition occurs faster at the ideal temperature of 160 degrees F.

If the model C:N ratio is not achieved when the pile is started, the finished product will not have it either. This can lead to some unfavorable situations. For example, if finished compost with a C:N ratio much above 45:1 is added to fields, any continued decomposition will actually rob nitrogen from the soil. The microbes need to get nitrogen from somewhere and, since it isn't in the compost, they take it from the surrounding soil.

On the other hand, if the C:N ratio is too low (below 20:1), the microbes use all the available carbon and release the extra,

unused nitrogen into the atmosphere, depleting the finished compost of this essential nutrient.

Finished compost used on Certified Organic farms must have a C:N ratio between 25:1 and 40:1. Home gardeners who grow organically, but aren't interested in certification, don't necessarily need their C:N ratio to fall exactly within this range. However, if it does, they will discover the pile finishes faster and the resulting compost is of exceptional quality.

The appropriate ratio will also prevent the need for additional supplies of water.

However, if the pile ever appears dry, don't hesitate to add extra water. The pile should consistently feel like a wrung out sponge. If it gets too wet, add more brown ingredients to soak up some of the excess.

Pay close attention to the initial blend of ingredients—aim for 2 to 3 times more "browns" than "greens" by volume. See "Recipe for Success" for examples of carbon and nitrogen sources.

Carbon Sources or "browns"Autumn leaves Straw Hay Newspaper (no shiny insert pages) Sawdust (only in limited quantities—acidic) Unbleached paper towels and napkins Chopped cornstalks and cobs Shredded cardboard Pine needles (only in limited quantities—acidic) Grass clippings

Nitrogen Sources or "Greens"Weeds (before going to seed if possible) Plant trimmings Animal manures Kitchen scraps Coffee grounds and filters Grass clippings Seaweed (rinsed of salt water) Spent garden plants Pond algae (freshwater ponds only)