

CARBON:NITROGEN RATIOS – tips on composting

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All organic matter is made up of substantial amounts of carbon (C) combined with lesser amounts of nitrogen (N). The balance of these two elements in an organism is called the carbon-to-nitrogen ratio (C:N ratio). For best performance, the compost pile, or more to the point the composting micro-organisms require the correct proportion of carbon for energy and nitrogen for protein production. Scientists (yes, there are compost scientists) have determined that the fastest way to produce fertile, sweet-smelling compost is to maintain a C:N ratio somewhere around 25 to 30 parts carbon to 1 part nitrogen, or 25-30:1. If the C:N ratio is too high (excess carbon), decomposition slows down. If the C:N ratio is too low (excess nitrogen) you will end up with a stinky pile.

Below are the average C:N ratios for some common organic materials found in the compost bin. For our purposes, the materials containing high amounts of carbon are considered “browns,” and materials containing high amounts of nitrogen are considered “greens.”

Estimated Carbon-to-Nitrogen Ratios

Browns = High Carbon	C:N
Ashes, wood	25:1
Cardboard, shredded	350:1
Corn stalks	75:1
Fruit waste	35:1
Leaves	60:1
Newspaper, shredded	175:1
Peanut shells	35:1
Pine needles	80:1
Sawdust	325:1
Straw	75:1
Wood chips	400:1

Greens = High Nitrogen	C:N
Alfalfa	12:1
Clover	23:1
Coffee grounds	20:1
Food waste	20:1
Garden waste	30:1
Grass clippings	20:1
Hay	25:1
Manures	15:1
Seaweed	19:1
Vegetable scraps	25:1
Weeds	30:1

Note: Many ingredients used for composting do not have the ideal ratio of 25-30:1. As a result, most must be mixed to create a good compost heap.” High C:N ratios may be lowered by adding grass clippings or manures. Low C:N ratios may be raised by adding paper, dry leaves or wood chips.

Many home gardeners prefer to put up with a slight odor and keep some excess nitrogen in the pile, just to make sure there is always enough around to keep the pile “cooking!”