

## Determining Feedstock Volumes for Your Compost Pile

I want to make a compost pile,  
 recycled green-waste makes me smile.  
 But, how much "Greens" and how much "Browns"?  
 Those calculations make me frown.  
 I wish there was an easy way.  
 See **Table 1**. Hip-hip hooray!

-Ted Radovich (2010)

You want your pile C:N ratio to start at 25:1-30:1. This generally requires mixing of Greens and Browns. "Greens" refer to nitrogenous materials with a C:N <30:1. "Browns" refer to carbonaceous materials with a C:N >30. Most people use a rule of thumb for mixing by volume, e.g. 3 parts "Browns" to 2 parts "Greens" by volume. But the correct proportions will actually depend on many factors. The most accurate way to establish a pile with a correct C:N ratio is to determine how much carbon and nitrogen is in each material and adjust for several factors (see below). Table 1 is derived from a Klickitat County, WA website as a quick guide for how many parts "brown" to add to each part "green".

**Table 1.** Add the following parts "Browns" for each part of corresponding "Greens" by volume. **For example, use ten buckets of dry leaves for every bucket of vegetable waste.** The ratio of carbon to nitrogen (C:N) is listed in parentheses.

| GREENS                 | BROWNS               |                     |                         |                            |                      |
|------------------------|----------------------|---------------------|-------------------------|----------------------------|----------------------|
|                        | Dry leaves<br>(50:1) | Newspaper<br>(55:1) | Office Paper<br>(130:1) | Soft Wood chips<br>(225:1) | Cardboard<br>(380:1) |
| Chicken Manure (6:1)   | 72                   | 52                  | 21                      | 22                         | 11                   |
| Vegetable waste (11:1) | 10                   | 7.5                 | 2.8                     | 3.0                        | 1.6                  |
| Food Waste (15:1)      | 15                   | 10                  | 3.8                     | 4.4                        | 2.2                  |
| Packed Grass (15:1)    | 4.6                  | 3.5                 | 1.3                     | 1.4                        | 0.8                  |
| Cattle manure (17:1)   | 7.0                  | 5.0                 | 1.9                     | 2.1                        | 1.1                  |
| Horse Manure (27:1)    | 2                    | 1.5                 | 0.5                     | 0.6                        | 0.3                  |

Factors incorporated into the calculations include:

- Bulk Density of Wet Material (average pounds per cubic foot or yard)
- Percent Moisture (average)
- Percent Nitrogen (average, dry weight basis)
- C:N Ratio (average, dry weight basis)
- Percent Cell Wall (average, van Soest Test for Neutral Detergent Fiber)
- Percent Lignin (average, van Soest Test for Acid Detergent Lignin)

For more details and to calculate more complex mixtures, please see:

<http://www.klickitatcounty.org/solidwaste/fileshtml/organics/compostcalc.htm>