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Composting for Backyard Gardeners

Compost is defined as "the controlled decomposition (break down) of organic materials into a carbon-rich soil-like end product."

Compost happens easily, naturally, and almost anywhere! Microbes, such as bacteria and fungi, feed on all kinds of dead plant material to get energy and make proteins to build their bodies. And the broken-down plant debris they leave behind makes fantastic garden soil.

To make good compost, you need to combine the following four ingredients in the right amounts:

- **Green wastes** (moist, nitrogen-rich materials, like food scraps or animal manure),
- **Brown wastes** (dry, carbon-rich material, like leaves, newspaper, straw, chipped brush, or dry grass clippings from unsprayed lawns*),
- **Water**,
- **Air**.

Most of us have plenty of these four items on-hand, and the bacteria and fungi you need are everywhere! So if you have an empty trash can or an extra 25 square feet of space on your property, then you can make compost!

Easy Tips for Composting Success

1. Make sure you have the right mix of brown stuff and green stuff
Really good compost has a carbon-to-nitrogen ratio (C:N) of between 25:1 and 40:1. But don't let the "technical talk" scare you; getting a good C:N ratio is easy. As a rule of thumb, if you mix one part green wastes (listed above) with three parts of brown materials (also listed above) by volume, then your C:N ratio should be fine.

This list gives you an idea of what materials are higher or lower in C (first, higher number) relative to N (second number).

*If you spray your lawn with chemical herbicides, don't use your grass clippings in your compost. The chemical residues that remain on the clippings don't break down during the composting process and can kill plants you try to grow in the compost you've made.

Carbon:Nitrogen Ratios

Food wastes	15:1
Sawdust, wood, paper	400:1
Straw	80:1
Grass clippings*	15:1
Leaves	50:1
Fruit wastes	35:1
Rotted manures	20:1
Cornstalks	60:1
Alfalfa hay	12:1

2. Not too wet and not too dry!
Keeping your pile at the right moisture level is also quite simple. To test your pile's moisture, pick up a handful of your mixture and squeeze it. If water drips out when you squeeze, your pile is too wet and you might want to add some more carbon-rich ingredients. If the mix in your hand falls apart in your palm after you squeeze it, then the pile is too dry and you may want to wet it down a bit. If the materials in your hand form a ball without dripping water, then the pile moisture is just right!

3. If the pile gets smelly, mix in more dry brown stuff.
When your pile gets smelly, that means you've created unhealthy anaerobic (low-oxygen) conditions for the microbes in your pile. Mixing in some dry brown materials, like more leaves or straw, helps by adding air into the pile and absorbing some of the excess water, recreating the high-oxygen aerobic conditions that microbes like best.

4. The more you mix your pile, the faster it will compost.
If your pile has the right balance of ingredients and moisture, it will heat up in the middle as the microbes digest the materials. Even in winter you may see some steam rise if you dig into the center of your pile! Mixing helps the microbes break down the pile materials faster by regularly incorporating air and redistributing the "un-eaten" materials that remain, moving the microbes closer to their "lunch". Mixing once every two to four weeks is usually plenty, but do it every week if you want your compost finished faster.

5. But compost will eventually happen, even if you don't mix your pile at all!
The beauty of compost is that, no matter what you mix, or where you mix it, it will eventually break down into compost (as long as it's not too wet or nitrogen-rich). So if you pile your yard waste in the corner and just let it sit, it WILL turn into compost over a matter of years (longer if there's lots of wood in it; sooner if it's more leaves and grass). So don't fret over pile management too much. As long as it's not smelly, you're doing just fine, especially if you're not in a hurry for the finished compost.

Compost is "finished" when it smells sweet and earthy and looks like soil. To test if it's finished, seal a small amount of the compost in a zip-lock bag and let it sit at room-temperature for several days: If the stuff in the bag still smells good, then the compost is ready for use!

Where to compost: Container or pile?

The answer to this question depends on where you live, what materials you have around, and how much you want to manage your pile.

If you have a lot of yard space and a lot of materials to mix up, then you may want to compost in an **open pile**. Turning an open pile can be easy (if you like using a shovel or pitch fork) and you have no limit to the amount of material you can add to the pile (other than what you can turn with that shovel or fork!).

If you have a smaller space, or want to manage your compost more closely, you can make a compost bin out of **wooden pallets (nailed together to make a 3- or 4-sided box), a ring of fencing wire, a trash can with lots of holes in it for air-flow, or some sort of store-bought composting bin**. These piles can be a little harder to turn, unless your bin is designed for turning, but if you mix the ingredients well at the beginning and aren't in a hurry for finished compost, you don't have to turn it at all unless you want to.
If you have NO space, you can compost in a worm bin right inside your house! This is called "vermicomposting", which is a subject large enough for its own fact sheet!

For more information:
Composting: An Easy Household Guide – Nicky Scott (Chelsea Green Press)
The Rodale Book of Composting – Grace Gershuny and Deborah Martin (Rodale Press)
Let it Rot! – Stu Campbell (Story Book)
Composting at Home - http://ohioline.osu.edu/com-fact/0001.html
Composting 101 - http://www.composting101.com/