It's Alive! A Special Halloween Soil-Building Workshop

Compost is the Garden's Best Friend!

Whether you have enough material for a larger/hotter pile or a smaller/cooler pile, the recipe is the same—equal volumes of greens to browns that you layer and keep damp like a wrung-out sponge. You can also go as high as 2-to-1 greens to browns.

Start your pile with about a 5" layer of browns, then keep adding layers about 3" deep of greens and browns. Keep alternating the layers. Sprinkle with water as you go if needed. Top the pile with at least 5" of browns to exclude flies and other flying insects. Plentiful in many parts of the foothills, pine needles are an excellent top layer.

Larger batch pile
= hotter/faster

A batch pile is when you add materials all at once to form a large pile that heats up and composts faster than a smaller pile.

Large populations of the fastest decomposers—thermophyllic bacteria—only occur in **larger compost piles**. Compost heat is the by-product of the respiration of this category of bacteria. The bigger the pile the hotter and the higher population of heat-producing bacteria—the smaller the cooler. Most commercial bins and tumblers are too small for significant heat. If a pile is big but not moist/aerobic and properly made of equal volumes of browns and greens, it won't support a high population of heat-generating bacteria and hence won't heat up as much.

The very minimum size for a batch pile is 3x3x3'—4x4x4'or larger is better. If you can't do a large pile, it's fine—your compost will just be slower and not get as hot.

If you make a large batch pile, sit back and let these naturally occurring microorganisms go to work. After about 3 days you will have heat—there is nothing tricky about it. You don't have to do anything but enjoy it by monitoring with a thermometer. The temperature will peak and sustain for a week to weeks, then slowly start to decline.

As the temperature drops, the mesophyllic bacteria come into play. These decomposers operate at 68-113F. Later mesofauna decomposers go to work. These includes slugs, sow bugs and worms (worms, like humans, are most productive 55-77F). All these decomposers work in concert and set the stage for each other. Teaming with Microbes is a great book to read about this.

After temperatures decline, you have the OPTION of turning your pile to get the cooler outside areas to the inner hotter area. If you turn it, the pile will heat up again, but a little less each additional time you turn it. When the pile stops heating up, let it sit for at least 6 weeks. As the compost cures, particles will shrink, organic acids will dissipate, and pH will stabilize and move closer to neutral. Compost is "done" when the original materials are unrecognizable, the pile temperature is less than 10 degrees warmer than ambient, it is dark brown and smells earthy.

Two reasons to turn your compost pile

1. To aerate your pile if it has become dense, soggy and stinky or to add water if it has dried out and is not damp like a wrung-out sponge.

2. To move the material on the outside edges to the center to heat up/compost more quickly

After temperatures decline—you also can choose NOT to turn your pile—and instead let the low-temp. decomposers finish it off slowly. If you had a large enough batch to begin with and your compost pile has had one good round of heat—that may be good enough for you.

Two reasons NOT to turn your compost pile

1. Less wear and tear on your body, less sweating and think of all the time you will save!

2. You see the advantages of letting nature work for you!

Two main benefits of making a larger batch pile instead of a slower, cooler pile

1. Sustained temps of 135-155F kill pathogens and weed seeds.

2. Batch composting is faster and a larger scale approach, so you produce a lot more compost.

If you want to kill weed seeds/pathogens and you want to produce a lot more compost—at least one round of hot composting is the way to go.

As your pile decomposes continue to monitor it to keep it moist but not soggy. You can add a little fresh material when you turn the pile or you can keep adding on to one end of the pile. At some point, however, you will want to stop adding material and let the pile cure to completion.

An unturned batch pile in fall will supply you with compost for your spring garden, and another pile started in spring will take care of your fall needs.

Creative ways to use the heat generated by a batch pile

• In spring use the top of your hot pile as bottom heat to germinate seeds outdoors or propagate plants instead of a greenhouse or bottom heat pad. One bonus is that the plants are already "hardened off."

• Use HEAT as a weapon—locate a new pile on top of something you want to kill/smother—such as an area with annual weeds (such as foxtails or star thistle) that you want to transform into a vegetable bed with pathways around it.

Smaller continuous pile = cooler/slower

Not everyone can get enough greens for a nice big batch pile that supports heat-generating bacteria. If a smaller, continuous pile makes more sense for you, follow the same layering recipe as for a batch pile and keep adding materials as they become available. Keep your cold pile damp like a wrung-out sponge and covered with a generous mulch layer. Do not turn cold piles because low-temperature decomposers (fungi, slugs, sow bugs and worms, etc.) operate better if they aren't disturbed.

A smaller, continuous pile, where you keep adding organic materials as they become available, will not heat up like a larger pile, but will eventually create beautiful compost.

Ways to avoid attracting rodents and unwanted critters with kitchen waste

• Convert your kitchen scraps to chicken, turkey or duck manure before composting—then compost the manure

• Collect kitchen waste in a secure sealed container until so slimy it's no longer attractive to rodents, then layer this mucky mess into your compost pile with stockpiled browns

• Dig a hole in the hottest part of your compost pile using a pitchfork and bury kitchen waste at least 12" deep

• Use a rodent-resistant barrel/tumbler

• Compost kitchen waste with worms in an indoor bin

It's important not to feed the rodent population because they not only carry diseases such as hantavirus, the plague and others, but they also attract rattlesnakes!

How to deal with other common problems

1. Bugs, yellow jackets, flies/maggots—The solution is to cover your pile with a thick layer of mulch. Pine needles are ideal because they are easy to pull back so you can keep adding to your pile. As in nature, this top layer will also protect the decomposers as they work.

2. It stinks = too wet: mix in dry leaves as you go and cover with mulch and UV-resistant material to keep rain out.

How long does it take?

A batch compost pile that is turned each time it cools down can be ready in as fast as 2–4 months. A pile that heats up once and then kept covered and damp like a wrung-out sponge will be ready within 6 months. A smaller cold pile can take a year or longer and produces much less compost.

Once completed, your compost pile will be about half its original height. "Done" compost will have a pleasant, earthy smell and be dark brown.

How to use compost?

As a general rule top dress your soil with 2" of compost every year. Or use a digging fork to work into soil gently without inverting soil layers and disturbing soil life.

The best location for each compost pile is within reach of water, convenient to where you plan to use the compost, and accessible to a vehicle if you plan to import a large volume of materials such as manure, wasted hay or cattails.

The type of enclosure you choose is whatever works best in your situation. Your compost can be in a pile, against a hillside or enclosed in straw bales, wood pallets or a bin system. An enclosure that is modular or easily movable allows you more flexibility and functionality.

Recommended reading

Worms Eat My Garbage! Mary Applehof
Teaming with Microbes Jeff Lowenfels and Wayne Lewis
Mike McGrath's Book of Compost Mike McGrath
Lasagna Gardening: A New Layering System for Bountiful Gardens: No Digging, No Tilling, No Weeding, No Kidding… Patricia Lanza

Compost http://web.extension.illinois.edu/homecompost/

Sheet mulching http://ucanr.edu/sites/sacmg/files/163135.Pdf

Nevada County Master Gardeners composting resources and YouTube channel
http://ncmg.ucanr.org/Composting_Resources/