BACKYARD COMPOSTING

Because a Rind is a Terrible Thing to Waste

Highlights:

- Decomposition Overview - The Big 4
- Types of Composting - Hot, Cold, Vermipost
- Feedstocks - Browns and Greens
- Build the Pile
- Tools and Accessories
- Troubleshooting - Pests, Odors, Temperature
- Uses and Final Preparation of Compost

Tehama County
Solid Waste Management Agency
www.tehamacountylandfill.com

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TEHAMA COUNTY

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WHAT IS COMPOST?

DEFINITION

Compost is the finely decomposed remains of animals and plants commonly used as a soil amendment or fertilizer. It is a natural product of great value. It can be used as mulch, but not all mulches are compost. Mulches can be rocks, cloth, plastic, or almost any material that helps suppress weeds and retain moisture.

DECOMPOSITION

Call it what you want– rot, decomposition, decay, if it came from an animal or a plant it can be composted. PLEASE NOTE, IT IS NOT RECOMMENDED TO PLACE ANIMAL REMAINS OR WASTE IN BACKYARD COMPOST. Huge populations of bacteria, fungi, and invertebrates all act together to decompose plant and animal remains and use the nutrients to build their own cells. Without this process agriculture and food productions would abruptly cease.

Aerobic compost contains many species of bacteria. A number of them have cousins that can cause disease. The bacteria in soil do not cause disease in normal cases. Individuals with immune system disorders or severe allergies should use care when gardening or composting because they can become infected by organisms that are usually harmless. Some genera of bacteria in compost are Staphylococcus, Streptococcus, Clostridium, Azobacter, E. coli, and Botulinus. Remember, these are the FRIENDLY COUSINS !

Fungi are organisms that build close relationships with plants in the soil. They once were thought to be part of the root system, but better microscopes have shown that they are busy symbiants with plants, breaking down and ingesting debris in the soil and delivering nutrients to their plant hosts. Among the important fungi are yeasts, molds, actinomycetes.

Invertebrates are the largest decomposers. Earthworms, ants, beetles, flies, springtails, symphylans and others ingest both detritus and smaller decomposers. Invertebrate manure provides large quantities of nutrients in finished compost.

The Big 4

CARBON

Energy source & cellular building element for all life.

NITROGEN

Element essential for proteins.

AIR

Electron donor in biological reactions. Think of it as the energizer.

WATER

Habitat for soil microbes. Source of electron donors and receivers in cells.

BROWNS AND GREENS

In composter jargon, Brown is the term applied to materials that are rich in Carbon. Such materials have lost their natural color, are usually of plant origin, and tend to be dry. In simple terms, Browns are dead things. It is very beneficial to reduce the size of very dry Brown Matter, in order to increase the surface area for the culture.

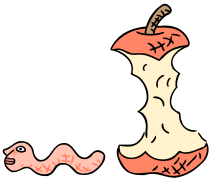
Green is the term applied to Nitrogen rich materials. These tend to be fresher and have more of their original color (pigments are proteins). Greens are also animal residues such as manure. *Please note, it is not recommended to place animal remains or waste in backyard compost.*

BROWNS - CARBON RICH MATERIAL

- Dried leaves
- Dead plant parts
- Sawdust
- Bark
- Paper, shredded
- Pine needles

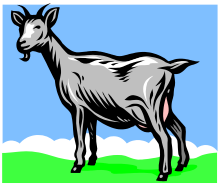
CROP & GARDEN RESOURCES

Any plant material that is dried and lost its color can be used as a Brown ingredient. Hay is cured, and will usually have more nitrogen than most other dried plant material.



GREENS - NITROGENOUS MATERIAL PLANT NITROGEN

- Fresh lawn clippings
- Kitchen waste;
  - vegetables
  - fruit
  - bread, cereal
  - coffee grounds
  - and more!



Meat, bones, pet droppings and manures can also be used, but are not recommended for backyard composters. Don't place diseased plants in the compost.

Types of Composting

HOT, AEROBIC

There are a lot of advantages to hot composting. It is easy to do, with a little bit of planning. Hot composts are made in batches. If turned and moistened at least monthly, expect finished compost in 8-20 weeks.

To build a pile that will heat, you will need at least a full cubic yard of material. The material should be roughly equal amounts of Brown and Green ingredients. The pile should be uniformly moist throughout. Build the pile in layers so that each bit of brown touches a bit of green and is damp, but not soaking. The final, top layer should be brown, to discourage pests and odors. A bin is not necessary, but it is convenient. Within 24 hours the core temperature will be 140° or more. At 135° plant and animal diseases are killed, as are weed seeds and roots.

COOL, AEROBIC

This style is for smaller yards or people who have a hard time gathering enough material to build a pile large enough to heat up. It is less effort, but there are a few downsides. First, you will need a bin. Then you will need to learn not to include diseased plants or invasive weeds. Just keep adding material. Turn the pile and water it now and then. Eventually useable compost will become available at the bottom of the bin.

BUILDING A HOT PILE

ASSEMBLE INGREDIENTS

Locate your bin or pile anywhere it will be convenient. You will need roughly four big feed sacks of grass clippings and other greens, and a roughly equal volume of dead leaves, sawdust, wood chips, chopped garden prunings, etc. Think equal parts Green and Brown. Also have a water source ready. Set a hose nozzle to mist and arrange the mist to fall into the bin as the pile is layered. Have a pitchfork and a shovel.

BEGIN LAYERING

Start with the woodiest, biggest materials on the bottom. Their structure will help air reach the deep parts of the bin, and all the juice from the material above will help soften bigger branches and tougher items. Add a layer of green material. If you have food wastes, use them in the deeper areas of the pile. Be sure the layer gets uniformly moist. Remember, the compost organisms live in the thin film of water attached to each particle. Break up any large clumps.

Continue layering brown and green materials and mist until the bin is heaping full. Toss and stir as you build to ensure thorough mixing and distribution of water. Make the final layer thick, about 4”-6” of Brown. Sawdust is ideal for the top layer as it seals the pile from intruding flies.

You do not need to add soil to the pile. It doesn’t decompose, and you will be turning the pile at least three times before it is completely decomposed.

PROTECT YOURSELF

When working with compost materials , you can be exposed to dust, thorns, slivers, and water. Wear gloves! Wear sturdy shoes! If you have allergies, medicate yourself BEFORE you begin. Wear a facemask if the material is dusty or moldy. Use a pitch fork to lift plant materials. Always cut long or large items to about 12” before you add them to the pile. It will save your back later.

TOOLS AND ACCESSORIES

CUTTING TOOLS

Most yards will produce materials that need more size reduction before they compost well. Prunings from shrubs and trees should not be longer than about one foot when you put them in the pile. It is helpful to use a large cleaver and a tall stump to chop items. With a good cleaver, an armload of cornstalks or squash vines can be chopped in a few moments. Woodier items should be cut with a hatchet or machete. Some people use a power chipper/shredder. These are wonderful, but expensive. A good rule is always to use the largest tool you feel safe handling.

FORKS AND SHOVELS

Do this test. Shove a shovel into a pile of plant trimmings and see how much you can pick up. How easy was it? Next, push a pitchfork into the pile. That worked a lot better, right? A pitchfork may be the only tool you need to compost. It will have round pointed tines, not flat tines as does a spading fork. Get a pitchfork, and never, ever, forget to stand it up when you pause in your work.

A grain shovel is a good tool too. It is great for handling fine sized material such as sawdust or dry manure, and it is perfect for removing finished compost. It is large and square and will quickly move a large amount of material.

BINS, HOSES,

For hot or cold composting, some structure is a good thing. Use your imagination! A simple wire hoop or a makeshift pallet enclosure works just as well as an expensive tumbling barrel .

It is helpful to use a hose nozzle that adjusts from flood to mist. You can use a watering wand, though isn't necessary.

GADGETS

The only other item that is useful is a compost thermometer. It has a long stem and gives you important information. Do not invest in aerating devices, because they just don't work as well as a pitchfork.

PROBLEM	POSSIBLE CAUSE	REMEDY
PILE DOESN'T GET HOT	Not enough material	Add enough to make a cubic yard
	Not enough nitrogen (Green)	Turn the pile and add more manure or grass clippings
	Pile is too dry	Turn the pile and add water
	Pile is too wet	Turn the pile and add sawdust or leaves or dry matter
FLIES	Nitrogen layer on or close to top	Turn the pile and place dry, brown layer on top
PILE STINKS	Pile is too wet	Turn the pile. If you can squeeze water out, add dry matter. Keep tuning the pile for a day or two until odors subside.
PILE IS HOTTER THAN 160° F	Excessive Nitrogen and possibly a large mass	Turn the pile. Add small amounts of Brown material. You should be able to reduce the temperature by turning the pile every other day for a week.
PILE IS NOT DECOMPOSING	Poor mix of materials	Balance the ingredients evenly between carbon and nitrogen.
	Too dry	Turn the pile and add water
	Not enough air	Turn the pile.
WEEDS ON PILE	Pile did not heat enough to kill weed seeds	Turn the pile, moisten. Repeat until nothing sprouts for two weeks.
ANTS, SOWBUGS	Normal.	Turn the pile
Mammals, reptiles, amphibians	Attractive food source or shelter	Turn the pile

TROUBLESHOOTING

Turn the Pile

The table describes possible causes and remedies for common compost complaints. There is no compost problem whose remedy does not include turning the pile. So, be sure you have a good pitchfork and water to aid you. Put the pile wherever you will be comfortable working. It does not need to be in the sun to work. Better to locate the pile under the tree that drops the most leaves.

WHEN IS THE COMPOST DONE?

There are several tests you may apply to determine if the compost is ready to use. First, the volume will be reduced by about 2/3. The material will be dark and crumbly with no obviously recognizable material. You will see some fragments of sticks or leaves, but nothing large. It will smell earthy.

If you are using grasses or other weedy materials, you should take a sample of compost that you think is ready, set it in the sun and water it. If nothing sprouts it is ready to use.

If you want to use compost as a potting soil ingredient, set it in a shallow container in the sun and keep it dry for a week or two. This will drive off sowbugs and other compost invertebrates.

USES FOR COMPOST

Compost is a superior soil amendment for vegetable gardens, lawns, flowers or shrubs, trees, or any type of in-ground planting. It may be incorporated during soil preparation or added as a side dressing during the growing season. Well decomposed compost works better on the surface -you may use less decomposed compost when tilling it into the soil.

Compost may be used as a mulch, but take care that it does not come into contact with the plant stems. Remember, it is nutrient rich, so don't expect it to suppress weeds.

Very well decomposed compost may be used as a potting mix ingredient. For large pots, use two parts compost, one part bark or small lava rock (not fines), and one part perolite. Add one cup of bone meal per wheelbarrow full of mix. Compost that is very well aged may be used as a seedling mix. Use equal parts of compost and perolite. Add a small amount of bone meal, roughly one cup per two bushels of mix. Be sure to only use well aged compost for seedlings.

You can make a compost tea by steeping a feed sack of compost in a barrel of water. Let it brew for two or three days, then water your plants with it. You may also use the tea as a foliar spray.

For more information, please contact the Tehama County Recycling Coordinator at 528-1103 or visit www.tehamacountylandfill.com.

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