

Compost is the gardener's best friend!



Definition of aerobic composting

Composting is a method of producing a nutrient-rich soil amendment (plant food) by using naturally occurring fungi and bacteria [in an oxygenated environment] to break down organic waste. As bacteria, yeast and fungi digest the waste, they make nutrients such as nitrogen more available. When compost is added to soil, the nutrients are slowly released over time, allowing for easy up-take by plants. Basically, the simple process of composting allows large amounts of household, yard and/or animal waste to be transformed into smaller piles of natural soil conditioner. —California Seagrant Extension UC Cooperative Extension, https://caseagrant.ucsd.edu/sites/default/files/GS5_Composting_7-29-09.pdf

The benefits of aerobic composting

How aerobic composting benefits the environment

A healthy alternative to burn pile pollution and greenhouse gases

When we chip brush and branches for use as mulch or as a compost ingredient, we reduce the amount of air pollution and particulate matter being sent into the atmosphere when wood is burned.

Diverts organic material from landfill where it emits greenhouse gases

When we compost organic materials aerobically instead of sending them to a landfill, we reduce the amount of harmful gases emitted by landfills and instead turn these valuable materials into a potent soil amendment.

In landfills, organic materials decompose anaerobically (in the absence of oxygen). This releases methane and carbon dioxide into the atmosphere. Methane is 20 times more harmful than carbon dioxide as a greenhouse gas and is a significant contributor to global greenhouse gas emissions.

Anaerobic decomposition also occurs in unmanaged large, overly dense or wet stockyard manure piles where oxygen cannot get in.

Increases carbon sequestration

Compost-amended soil that is rich in microbial and fungal life contributes significantly to the ability of plant life to remove global-warming gases from the atmosphere and safely store (sequester) them.

When food scraps, grass clippings, and manure are composted and applied to grasslands—as opposed to dumped in a landfill—they become important tools for lowering carbon dioxide and other greenhouse gas emissions.

For information on compost and carbon sequestration do a Google search or read “Soil as Carbon Storehouse: New Weapon in Climate Fight?” Yale Environment360 and epa.gov's “Global Greenhouse Gas Emissions Data”

Reduces use of chemical fertilizers

Healthy, compost-amended soil reduces our reliance on chemical fertilizers which can pollute the air and contaminate our groundwater and waterways. These fertilizers can also leave our soils depleted, unhealthy and potentially toxic. Many commercial fertilizers (petroleum-based) contain toxic metals such as arsenic, mercury, lead, dioxin, chromium and cadmium. They can produce fast, lanky growth that makes plants weaker and more vulnerable to pests and diseases.

Reduces the need to use potentially toxic products

Studies have shown that gardens with healthy, compost-enriched soil attract fewer pests and suffer from fewer diseases. This results in the use of fewer pesticides, herbicides, fungicides and other potentially toxic products.

Conserves water

Compost reduces water use because it dramatically increases the soil's ability to retain moisture.

How compost benefits your soil

Supplies stabilized, slow-release nutrients and micronutrients

Composting mimics how nature returns valuable organic matter, nutrients and micronutrients to soil.

When you amend your soil with compost, the nutrients are slowly released to the soil and are available for use by the plants.

Improves both drainage and water retention

In clay soils, compost improves aeration and drainage. It reduces erosion and runoff by increasing the permeability of heavy soils.

In sandy soils, compost increases water-holding capacity.

The addition of compost increases soil aggregation, improves soil structure and reduces soil compaction.



Soil with good structure has stable pore spaces that allow water penetration, root growth, earthworm movement and air storage.

Compost also reduces fluctuations in soil moisture—especially valuable for soils found here in the foothills.

Composting neutralizes pH

Mature compost generally has a pH between 6 and 8.



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or submit your questions on our website: ncmg.ucanr.org



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How composting benefits YOU

Fun, healthy and free!

Composting is fun, satisfying and a free way to improve the health of your soil—while helping the planet at the same time.

Compost allows you to grow your own organic food to improve your health and gastronomical enjoyment! Growing and eating healthy food can reduce your expenditures on vitamins, minerals, doctors and drugs!

When you have a good compost system going, you can obtain raw materials from friends, coworkers and neighbors. You'll be diverting more organic materials from the landfill and building more healthy soil.

Composting can change your life!

You'll blossom as a gardener. As you start helping compost materials for others, you'll want to share your knowledge and experience with them. Maybe you'll become a Nevada County Master Gardener and help us to give compost and soil-building workshops!

Why not let GreenWaste (WM compostable pickup) do your composting?

- Huge amounts of fuel are expended on transporting and composting your kitchen waste, yard trimmings and fall leaves in Roseville—when it could easily be processed at home.
- GreenWaste compost may contain other peoples' herbicides, pesticides or other toxic materials you do not want in your vegetable garden soil.
- When you make your own compost it is a living, vibrant material. You can make as much of it as you need. And, it's free!



Tools for composting

- Any wheelbarrow OR a **dream garden cart with 2 wheels**—a good one costs about \$275 but you can

push it with your little finger! It is easy to dump but doesn't tip sideways.

- Your basic pitchfork and shovel
- *Optional:* a long-stemmed compost thermometer—costs about \$25, or attach an old meat thermometer to a string. Record temperatures on a temperature chart downloadable from our website: ncmg.ucanr.org
- *Optional:* a compost sifter
- *For the true compost nerd:* pH paper or pH test kit to follow the process of decomposition. During the initial stages, organic acids are formed, which are favorable for growth of fungi and breakdown of lignin and cellulose. As composting proceeds, these acids become neutralized until compost is "done" and has a pH between 6 and 8. Learn more about monitoring pH at <http://compost.css.cornell.edu/monitor/monitorph.html>

Easiest way to use your leaves and pine needles—practice LEAVE IT!

Using raw materials directly—without composting

The easiest way to compost your pine needles and oak leaves is a technique we call LEAVE IT! In this method designed by nature, the tree drops its leaves or needles, which decompose naturally and eventually turn into compost to feed itself!

The top layer creates a protective skin or mulch for the decomposing leaves below, feeds the universe of decomposer organisms in the soil and eventually becomes compost. The top layer protects these organisms from birds, soil from rain/wind erosion/the elements and prevents competing plants from growing.

With LEAVE IT we abstain from raking. We let nature feed itself—unless the leaves are in your gutters, in the driveway or are a fire hazard.



You can also think of LEAVE IT as RIP—or rot In place.



When you must rake dry leaves for fire safety...

During fire season—in the "lean & green" areas surrounding your structures—rake the very top dry layer only, leaving the already decomposing, rich material below to feed your trees and plants. Use the top layer to mulch bare soil and pathways to prevent water or wind erosion, compaction and to suppress weeds. Or stockpile as a material for composting. For fire safety information visit <http://www.oneyoufiresafe.com>

No need to rake fire safety areas during the wet season

Practice LEAVE IT to prevent erosion/loss of topsoil and protect soil microbiology so it can feed the trees as Mother Nature intended. When everything dries out, and fire safety becomes a concern, rake the top dry layer off only.

Trees and plants aren't ambulatory or money-based like we are so can't just go to the store to buy their food. So—when we have to rake up their food—it's up to us to mimic nature by returning it in the form of compost. In this day and age, when so much of our planet's soil has been covered by concrete, structures or roads, it's even more important to do our best to nurture what is left.

Read on to learn how leaves and wood chips are an important part of the basic "recipe" for composting...

Don't burn branch piles!

Consequences of burning wood



Open burning pollutes the air, adds greenhouse gases, damages the surface of soil and wastes materials that could otherwise be composted. The heat from brush piles burned in a forested or timbered setting can top-kill many of the surrounding trees.

In addition, burning freshly cut wood creates more pollution, toxins and

greenhouse gases than burning seasoned wood.

Smoke contains fine particles (also called particle pollution, particulate matter, or PM2.5), along with carbon monoxide and toxic air pollutants including benzene, formaldehyde, acrolein and polycyclic aromatic hydrocarbons and others.

These microscopic particles in smoke can cause burning eyes, runny nose, and illnesses such as bronchitis. Fine particles can make asthma symptoms worse and trigger attacks. Children under 18, older adults, people with heart disease, people with asthma or other lung diseases, and people with diabetes are the most vulnerable. More information at www.epa.gov/burnwise/

When burning seasoned firewood in an EPA-certified wood stove, most of the smoke is burned, resulting in more heat for your home from the same amount of wood (up to one-third less firewood than an older, less efficient stove). The visible smoke emitted from older wood stoves, fireplaces or open fires is not only pollution but lost energy.

Chip and compost or mulch instead!

Instead of polluting and contributing to greenhouse gas emissions, you can have branches chipped to use as mulch or as a “brown” in your compost pile.

In an area inaccessible to a chipper and away from your house, you can pile up branches and leave them to provide a habitat for toads, birds and other beneficials. It will eventually RIP (rot in place). Or try [hugelkultur](http://hugelkultur.com).

Use leaves, wood chips and pine needles as mulch

Use these most hard-to-break-down “browns” on permanent pathways and pathways between vegetable garden beds. Thick hardwood chips are slow to break down and excellent for pathways.

Pine needles have a waxy coating so are very slow to break down—best used on flat ground or where you won’t be slipping as much. They are also excellent as an easy-to-move top layer for your compost pile.

Mulch for weed suppression and moisture retention

General rule: mulch is an insulator, so—when your soil is cold and you want the sun to warm it up, pull back your mulch to expose it to sun.

Do add mulch in summer to keep soil cool and to keep it from drying out as quickly.

Use wood chips as bedding...

Get creative and use your wood chips or fallen leaves as bedding for chickens or other animals, then later compost the coop or stall waste. At the county fair, many livestock people use wood chips as stall bedding.

Or you can stockpile your fallen leaves and wood chips as “browns” for later use in composting. Keep them, they are valuable!!!

Grasscycling—another way to practice LEAVE IT!

When you mow, take off the bag and let it fly. The clippings will feed your lawn naturally and reduce your need for fertilizers. By leaving your clippings on the lawn and allowing them to work their way back into soil, you will improve soil health and reduce pesticide and fertilizer use.



A hundred pounds of grass clippings can generate and recycle as much as 3–4 pounds of nitrogen, one-half to one pound of phosphorus, and 2–3 pounds of potassium back to the lawn. These are the three most important nutrients needed by lawns, and are commonly supplied in lawn fertilizers.

Also, Grasscycling does not contribute to thatch (an organic debris layer between the soil and live grass) since grass clippings are 75–85% water and

decompose readily.

If you have a neighbor who is not open to Grasscycling, convince him or her to give the bagged clippings to you for your compost pile. Just make sure they aren’t using any herbicides or pesticides you don’t want in your compost.

Later you can share some of the bounty from your vegetable garden with them!

Save your energy—and do not blow!

Using a blower to remove leaves and debris damages the foraging space that the birds count on for food. Especially avoid using a blower in your garden March–July when the birds are nesting and raising their young. Also, any disturbance can force birds to abandon their nests. Be on the lookout for areas with bird activity and avoid walking there.

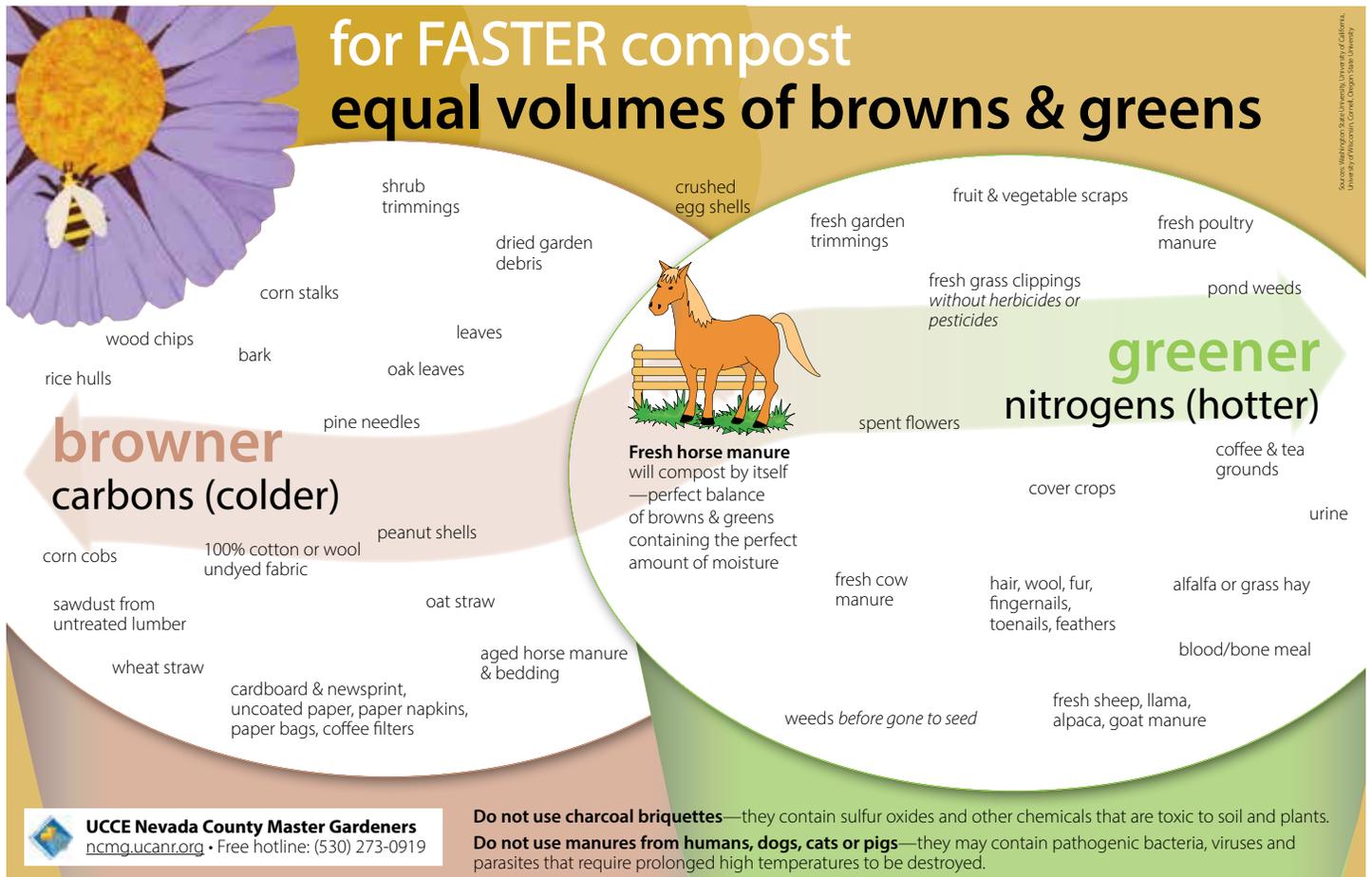
The biggest benefit of composting with respect to Global Climate Change comes from avoiding the production of methane.

Good composting practices minimize greenhouse gas emissions.

The use of compost provides numerous greenhouse gas benefits, both directly through carbon sequestration and indirectly through improved soil health, reduced soil loss, increased water infiltration and storage, and reduction in other inputs.

—US Composting Council

For more information visit
compostingcouncil.org



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How to compost

The same recipe applies, whether for a SMALL (cold/slow) or LARGE (hot/faster) pile. This chart shows browner browns to the left and greener greens to the right. If you have ingredients on one side, balance with the same volume of ingredients from the other side. Layer browns and greens, adding water to keep it damp like a wrung-out sponge as you layer. Browns are usually lighter in weight than greens—but we want layers in roughly equal amounts rather than by weight (i. e. 3” of browns, 3” of greens)

Readily available browns/carbons

- Trees, woody, stemmy, branchy plants—ideal woody particle is size 1/4” to 1-1/2” so that a larger surface area is accessible to decomposers.
- Fall leaves are easy to stockpile/store all winter until you can score a bunch of greens to make a batch.

Common greens/nitrogens

- Leafy, tender parts of plants
- Pond weed, kitchen waste/coffee grounds

- Lawn clippings (make sure they contain no pesticides/herbicides)
- Greens plentiful year round: manure from equines, bovines, ducks/chickens, alpacas/llamas/sheep/goats



Keep your pile damp like a wrung-out sponge and covered!

- Keep your pile moist—but not dripping wet.
- Cover your pile in summer to keep it from drying out. Cover it in winter to prevent it from getting too soggy. Use a UV-resistant material or a heavy-duty plastic tarp that you replace before it starts to deteriorate.
- **Fresh horse manure** is the perfect combination of browns, greens and moisture for composting. So—if you have JUST horse manure—you don’t need anything else. A horse produces approximately 50 lbs. of manure per day. The inclusion of urine-soaked stall bedding is excellent because urine adds nitrogen. As a bonus, the bedding adds air to the manure to keep it from becoming too dense.

- It’s hard to know whether **aged manure** is more brown or more green. Rain may have leached it out to the point where you may have to treat it as a brown. Also once manure has dried out, it’s hard to get it moist again. If you have a choice—FRESH horse manure is BEST.
- You’re in luck if you have fruit trees and know someone with **donkeys**. Donkeys LOVE to eat prunings from apple and pear trees, olive trees, fig trees, pineapple guavas (Feijoa sellowiana)—and will promptly turn it into beautiful donkey manure for your compost pile!
- **Weeds** not yet gone to seed are an excellent green layer for the compost pile. Thistle plants are especially plentiful in spring and are easy to pull out—wear thick gloves!
- **Cattails** around ponds are a plentiful green. They are easy to cut, lightweight and easy to transport. Don’t worry if they’ve gone to seed—they require really WET soil so won’t grow in your garden.

- Grow your own greens by planting a [cover crop](#). Cut them down before they go to seed and use them in your compost pile or compost in place.
- Adding **human urine** to your compost is a wonderful, completely free, environmentally friendly way to recycle nitrogen that would otherwise be flushed down the toilet. If the urine contains pharmaceutical residues, it is best to add it to a batch pile that will become hot enough to burn off any potentially harmful residues.
- **Unusual items** you can compost include: human hair, toenails/ fingernails, pet fur, feathers, wool, 100% wool or cotton fabric, dead insects from nontoxic traps, toothpicks/wooden skewers, old spices, freezer-burned food, aquarium water, cobwebs, old flowers from hospitals, funerals, weddings, etc.
- Yes you can compost invasive

Himalayan Blackberry plants—*before* they get berries full of seeds! Let the sun dry out and kill them thoroughly first before adding blackberries or other weeds that are hard to kill to your compost pile. Before adding to your pile, make sure they are so brittle and dead they will never come back to life!

- You need a very hot pile to compost **meat, bones, grease, whole eggs, and dairy products** to avoid attracting rodents. GreenWaste compost gets hot enough to decompose these materials safely.
- Using **wood ash** in small quantities in a cooking compost pile may or may not be problematic. Since ash can combine with water to produce a caustic chemical—lye—we do not recommend putting wood ash in a hot, moist pile. Instead, add small amounts to finished compost—roughly two handfuls per

wheelbarrow load. Do not use on alkaline soil.

What NOT to include in your compost pile

Do not include oxalis, burr clover, bermuda grass or star thistle gone to seed in your main compost pile. They will come back to haunt you. (Consider a “maximum security” separate pile ONLY for weeds gone to seed.)

Do not include pig, dog, cat or human feces in your main compost pile because they contain pathogens/viruses/parasites that require prolonged high temperatures to be destroyed.

Do not include charcoal briquettes—they contain sulphur oxides and other toxic chemicals.

Do not include plywood, particle board, treated or painted wood or sawdust from any of these.

Do not include diseased plants.

	 Mother Nature	 Chemical fertilizers	 Organic fertilizers	 Commercial compost	 Homemade compost
ingredients	whatever grows and dies/falls “leave it” grasscycling cold compost pile	specific nutrients single or combinations derived from chemically manufactured materials	specific nutrients single or combinations derived from rock, mined natural deposits, agricultural byproducts, ocean products	municipal sources from “green waste” other producers use manures forest waste and/or agricultural waste read the label!	browns & greens you choose micro and macroorganisms from your site
pros	no cost, low effort feeds soil/organisms mulch benefits	low effort rapid results addresses specific nutrient needs or soil deficits	low effort rapid or slow results addresses specific nutrient needs or soil deficits feeds soil/organisms	low effort adds organic material slow-release nutrients over long period, can’t “burn” plants can have truckloads delivered	 bin free to low \$ high quality with slow-release nutrients micro nutrients can’t “burn” plants feeds soil/organisms
cons	slooooooow process low quantity possible plant pathogens and noxious weeds nutrients: status quo	 salt build up alters/decreases soil microbial populations rapid growth = more vulnerable to insect attack toxic trace elements toxic runoff	more expensive than chemical fertilizers hard to time nutrient release high carbon footprint (transport)	high carbon footprint (transport & processing) possible herbicide/pesticide contaminants, plant pathogens and noxious weeds	compost thermometer approx. \$20 higher effort requires space 

The BASIC RECIPE for any compost pile

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.



The hot batch pile = bigger/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—thermophilic 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 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 3' x 3' x 3'; 4' x 4' x 4' 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 then remain hot for at least a week before it slowly starts to decline.

As the temperature drops, the mesophilic 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 at 55–77F). All these decomposers work in concert and set the stage for each other.

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.

3 reasons to turn your compost pile

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

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

After temperatures decline, you can choose **NOT** to turn your pile. It's fine to practice **LEAVE IT** at any point and let the other decomposers finish it off slowly. You can just let nature do the work. 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.

2 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 do the work for you!

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

1. Sustained temperatures 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. The bonus is that the plants are already “hardened off.”
- [Use compost to heat a hotbed.](#)
- Use HEAT as a weapon. Locate a new pile on top of something you want to kill, such as a weed-filled area you want to transform into a vegetable bed with pathways around it.

Smaller continuous pile = cooler/slower

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

Not everyone can get enough greens for a nice big batch pile. If a cold pile makes more sense for you, just layer kitchen waste with yard trimmings, old leaves and weeds. Eventually, after a year or 2, the part at the bottom will decompose—but three things can go wrong. These are all easy to fix!

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 fallen leaves as you go and cover with mulch and UV-resistant material to keep rain out.
3. Critters, rodent population exploding, attracting rattlesnakes—Turn edible waste into manure first—cooperate with neighbors—feed it to chickens/ducks, then add the manure to your compost pile (manure never attracted rodents!) OR look into an indoor worm composting system or use a rodent-resistant barrel system. A common problem with barrels is that it dries out—remember to keep the contents damp like a wrung-out sponge.

How to avoid attracting rodents and unwanted critters with kitchen waste

- Use a rodent-resistant bin such as a secure barrel/tumbler.
- Convert your kitchen scraps to chicken, turkey or duck manure before composting—then compost the manure.
- Collect kitchen waste inside in a sealed container until quite slimy and no longer attractive to rodents, then layer this mucky mess into your compost pile with stockpiled browns.
- OR dig a hole in the hottest part of your compost pile using a pitchfork and bury kitchen waste at least 12” deep.
- [Compost kitchen waste in a secure area with worms.](#)

How long does it take?

A well managed batch compost pile will be ready in 2–4 months, whereas a smaller untended pile will take a year or longer.

Whether large or small, once completed, your compost pile will be about half its original height and will have a pleasant, earthy smell.

Location and containers

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 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.

Compost is necessary for releasing soil minerals

The regular addition of 5% organic matter (compost) unlocks the fertility and minerals in depleted/compacted soils. Just 1 teaspoon of fertile soil with compost regularly added to it has 100 million bacteria and 400–800’ of fungal threads.

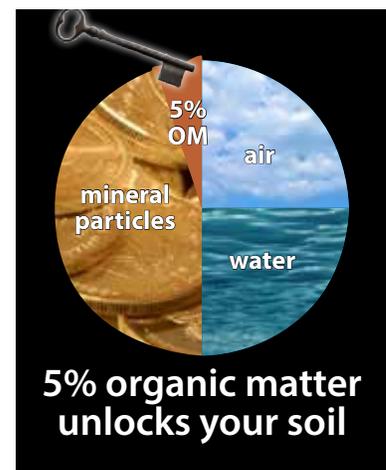
How much compost do you need?

As a general rule, you’ll want to top dress at least 2” of compost per season—so two big batch piles per year might be enough for your needs—and may be enough for your fruit trees and other areas as well.

Uses of compost

When compost is ready to use, it should be dark and crumbly, and you should not be able to recognize the original composted items. If compost is not used promptly, keep it covered to prevent loss of nutrients through leaching.

- Add compost each season you plant to build good soil. The best time to top dress or incorporate compost to the vegetable or flower garden is during fall or spring. You can also use it to top dress soil around trees, shrubs, annuals and perennials. Or use a digging fork to incorporate compost into soil without inverting the layers, thereby disrupting soil microbiology.
- To use compost in potting soil or for starting seeds, mix up to 30% compost with other materials such as potting soil, perlite and/or vermiculite. Research has shown that microorganisms found in mature compost can suppress plant diseases such as those causing “damping off.”
- Finished or unfinished compost can be applied as a mulch 3–4” thick on the soil surface. Keep compost mulch 2–3” away from plant stems/trunks. Nutrients will filter into soil without



robbing nitrogen from the root zone. Compost will increase soil moisture retention, insulate from extreme temperatures and provide nutrients and organic matter for soil structure. However, it will promote weed growth if not covered with mulch. Reapply compost or mulch yearly to replenish the decomposing layer.

- Compost may be used as a lawn or pasture top-dressing.

Get creative!

- Get organic waste from produce outlets, coffee shops, sheep shearers, friends, coworkers or neighbors (especially from your neighbors with horse or poultry manure).
- Dedicated compost piles: compost noxious weeds that have already gone to seed in a **dedicated pile**. When this compost is finished, water it to germinate the weed seeds in warm weather. Kill them with a hoe, water again and repeat. Once you are confident you have killed all the weeds, use your compost anywhere in the garden.

If you have dedicated compost piles for human, pig, cat or dog feces, do not use the resulting compost for growing vegetables or anything you plan to eat.

- [Smother weeds or a lawn by sheet mulching and restore large areas without herbicides.](#)
- [Plant a cover crop, then compost in place—lasagna gardening.](#)
- [Instead of burn piles, use logs and wood for hugelkultur](#)
- Insulate/contain your pile with straw bales.
- If your compost includes materials that have been treated with pesticides, set it aside for one year before using. However, compost made from weeds treated with Clopyralid (a component in many weed & feed products) should never be used on vegetable gardens.
- [If you have compost-plundering bears, keep kitchen waste out of your compost pile by composting indoors with worms.](#)

Home-made compost is best!

In composting, different bacteria/fungi microorganisms predominate at different temperatures, but each contributes value to the compost. The highest quality compost is the kind with the longest cool-down or curing period, when the low-temperature decomposers and worms have time to go to work.

Review of basic recipe

Layer greens and browns. Use small pieces, sprinkle with water as you layer to keep the pile damp like a wrung-out sponge with ample oxygen. Cover in summer AND winter.

Size matters: In batches larger than 3' x 3' x 3', bacteria will heat the pile to decompose it faster. For a hot pile, insulating with straw bales helps.

How Master Gardeners can help you

We want you to be able to make compost easily, efficiently—and without creating a fly or rat resort or alienating your neighbors!

- Call our hotline anytime for help, (530) 273-0919
- Come see how we are composting at the Master Gardener Demo Garden: chipping station, stockpiling browns, a 3-bin hot pile and a dedicated weed-seed cold pile. Behind NID offices, 1036 W. Main Street, Grass Valley (open NID business hours)
- Attend one of our compost or soil building workshops!
- Visit our website ncmg.ucanr.org, where you can view or download this handout and other useful gardening materials in color.

Recommended reading

Soil Biology Primer (free online) Elaine Ingham, Andrew Moldenke, Clive Edwards

<http://www.envirothonpa.org/wp-content/uploads/2014/04/7-Soil-Biology-Primer.pdf>

Home composting, sheet mulching & more extension.oregonstate.edu/gardening/techniques/do-rot-thing-choosing-using-composting-system

Compost tutorial & more sfyl.ifas.ufl.edu/sarasota/natural-resources/waste-reduction/composting/

The Complete Compost Gardening Guide Barbara Pleasant, Deborah Martin

Worms Eat My Garbage Mary Appelhof



Consequences of applying manure directly in your garden without first composting it!

- **Pathogens:** According University of Minnesota Extension Service, you should not eat crops grown in areas where manure was applied until at least 3 months after application. Prior to that, pathogens present in manure, such as E.coli, can contaminate the food. In contrast, the decomposition (composting) of manure encourages microorganisms which release beneficial nutrients into the soil.
- **Weed seeds:** Manure used alone can also cause more weeds to grow in your garden because of weed seeds in the manure.
- **Flies and parasites:** Fresh, uncovered manure makes an ideal home for maggots and parasites
- **Pollutants:** In raw manure nutrients such as nitrogen and phosphorous are unstabilized so run off into creeks and waterways as pollutants. They also “burn” plants. In compost these nutrients are stabilized by biological activity and released slowly at a rate ideal for plants to absorb them over time.
- **Salts:** Manure can contain high salt levels, which can cause stunted growth, germination failure and leaf burn.