

Common Composting Materials

Material	Source	Comments
Coffee grounds	Restaurants, offices	Good N source
Corncoobs & stalks	Farms, canneries, garden refuse	Best when ground or used as a mulch texturizer, high in C
Cowpeas (Green stalks)	Farms, gardens	N and K source
Eggshells	Egg farms, restaurants	Calcium and N source. May attract pests if not buried
Fruit wastes	Canneries, restaurants, market dumps	Banana peels are rich in K. Fruit wastes may attract pests if not buried
Grass clippings	Lawn mowing, lawn services, neighbors' bags set at curbside	Use only herbicide-free clippings; high in N; decompose rapidly and help heat up compost pile; smelly unless blended with C-rich materials
Hair (animal & human)	Barber & beauty shops, pet groomers	Good N source but slow to break down; avoid dyed human hair
Hay	Farms	Bulky, high in C; alfalfa highest in N
Leaves	Woods, yards, curbside	Leaf mold (decomposed leaves) an excellent soil texturizer; contain growth inhibitors if not first composted; shred before adding to pile
Manure	Farms, stables, poultry houses, feed lots	From high to low N: pigeon, chicken, duck, horse, rabbit, pig, cow, sheep
Peanut shells	Farms, gardens, peanut butter processors, restaurants	Good soil texturizer with moderate humus potential; slow to break down; high in C and K
Pine needles	Woods, evergreen plantings	Highly acid N source use on acid-loving crops or with neutralizer

Material	Source	Comments
Sawdust, shavings, wood chips	Lumberyards, tree surgeons, sawmills, carpentry shops	High in N, P and C; exceedingly slow to break down; never add fresh sawdust directly to soil
Seaweed	Beaches, ponds	High in N and K but smelly
Stable bedding, sweepings	Stables, farms	Better nutrient balance than manure alone
Vegetable waste	Canneries, restaurants, sorted garbage, food stores, farm markets	Pea pods very high in N
Weeds	Gardens, fields, pond dredgings	Cut before seeds set, or use in hot compost pile; purslane is high in N
Wheat straw, oat straw	Farms	High in C; slow to break down
Wood ash	Fireplaces, wood stoves, wood furnaces, bonfires	K and P but no N; use sparingly (strongly alkaline); don't use ashes from fires started with charcoal or painted wood

N = Nitrogen; P = Phosphorus; K = Potassium; C = Carbon

Materials to Avoid

Material	Reason to avoid
Meat or animal products, fish scraps, any dairy product	May attract pest, create odor
Fats, oils or foods cooked with oil, peanut butter, salad dressings	May attract pests
Dog or cat feces	May contain disease-causing parasites (to humans)
Glossy colored paper	May contain toxic inks
Coal or charcoal ashes	Contain sulfur oxides and compounds toxic to the soil
Plants recently treated with pesticides or long-lived chemicals like Arsenic	May add toxic substances to the pile and finished compost
Diseased plants	May spread disease to other plants where compost is applied
Invasive weeds and seeds	Buttercup, morning glory and quack grass may overrun compost area. Weed seeds such as Burclover and cheeseweed may survive hot composting process

Additives to Boost the Decomposition Rate

Material	Reason to add	Comments	Amount to add to 4 cubic ft. leaf pile
Ammonium nitrate	Adds Nitrogen source		7.0 ounces
Beer	Adds Nitrogen source	Expensive	16 ounces
Calcium nitrate	Adds Nitrogen source		16 ounces
Commercial activators	Adds Nitrogen source		Follow package directions
Commercial inoculants	Adds bacteria	Generally not needed, since bacteria already exists in food waste and soil	None
Compost	Adds microorganisms	Too much can slow down decomposition rate	1/2 shovelful
Dried blood	Adds Nitrogen source		20 ounces
Fertilizer	No reason to add	No long-term benefits	None
Fish meal	Adds Nitrogen source		24 ounces
Garden soil	Adds microorganisms	Too much can slow down decomposition rate	1/2 shovelful
Lime	Not needed	pH adjustments are not necessary; lime may cause odor from release of ammonia	None
Urea	Adds Nitrogen source		5.2 ounces
Wood Ash	Adds Potash and Nitrogen	Use sparingly; may cause odors (see Lime); very alkaline	Sprinkle handfuls

Can I Compost This?

Ashes	<i>Maybe</i>	From untreated wood or paper, yes, in small amounts; but not from barbecues, plywood, colored or glossy paper
Banana Skins	<i>Yes</i>	Decompose rapidly; can help to activate a slow compost; loaded with plant nutrients
Cardboard	<i>Yes</i>	Shred, soak, and mix with "greens"; but try first to reuse or recycle it
Citrus Fruits	<i>Yes</i>	Shred rinds; bury in compost to discourage fruit flies
Coffee Grounds	<i>Yes</i>	Good earthworm food; use directly on many plants; compost shredded filters, too
Corn Cobs	<i>Yes</i>	Shred; adds both fiber and nutrients to compost; good mulch; slow to break down
Dairy Products	<i>No</i>	Fats seal off air from compost; odors attract pests
Diseased Plants	<i>No</i>	Compost heat may not destroy disease; destroy or discard to avoid spreading
Dishwater	<i>Maybe</i>	If water doesn't contain grease or chemical cleansers, use it to wet pile
Dust and Lint	<i>Maybe</i>	Use vacuum cleaner debris and lint from clothes dryer, if mostly natural fibers
Eggshells	<i>Yes</i>	Dry and crush first; good earthworm food; slow to break down; help neutralize acidity; as mulch, may discourage slugs
Evergreen Needles	<i>Maybe</i>	Highly acidic; better yet, use as mulch
Fabrics	<i>Maybe</i>	Small scraps of wool, cotton, felt and silk; not synthetic fibers or blends
Feathers	<i>Yes</i>	Keep somewhat wetter than usual; extremely high in nitrogen
Fish	<i>Maybe</i>	Odors and pests are problems with fresh or smoked fish, but dried fishmeal is fine
Grass Clippings	<i>Yes</i>	Available and valuable; mix well to avoid clumps; leave some clippings to feed lawn
Hair	<i>Yes</i>	Both human and pet hair; keep quite damp; avoid using if colored with chemicals

Hay and Straw	<i>Yes</i>	Very good fiber, nutrients usually low
Leaves	<i>Yes</i>	Shred and soak; add both nutrients and fiber; tend to be slightly acidic
Manure	<i>Yes</i>	Cow, horse, pig, rabbit, poultry -- the fresher the better -- helps any compost
Meat and Bones	<i>No</i>	Odors and pests are problems; but dried, ground bonemeal is fine source of nitrogen
Soil	<i>Yes</i>	Adds decomposer soil organisms; scatter lightly through pile to avoid compacting
Nutshells	<i>Maybe</i>	Crush delicate shells like peanuts; heavier shells are better used as decorative mulch
Paper	<i>Maybe</i>	Shred; not glossy/colored which contain chemicals; better to recycle if possible
Pet Wastes	<i>No</i>	Risk of pathogens and parasites; use only barnyard manure (horse, cow, sheep, etc.)
Rhubarb	<i>Maybe</i>	Raw leaves poisonous to humans; composted leaves may harm insects and other plants; stems are fine; roots may continue to grow
Sawdust	<i>Maybe</i>	Hardwood sawdust, yes, in very small quantities; softwoods may inhibit composting; plywood may contain chemicals
Seafood Shells	<i>Yes</i>	Crush or grind very finely; break down very slowly; reduce acidity; good mulch
Seaweed	<i>Yes</i>	Rinse off salt so it won't contaminate soil; great fertilizer
Sod	<i>Yes</i>	Knock off excess soil; pile upside down; cover to prevent rooting; compost separately to avoid compaction
Soup	<i>Maybe</i>	Vegetable, yes; do not use soups with cream or meat-based broths to avoid odors and pests; read labels on canned soups.
Tea Leaves	<i>Yes</i>	High in nitrogen; can be applied directly to some plants; compost tea bags too
Toadstools	<i>Yes</i>	Decompose quickly; excellent source of many minerals
Weeds	<i>Yes</i>	Discard mature seeds, persistent roots, weeds treated with herbicides/pesticides
Wood Chips	<i>Yes</i>	Shred if possible and soak; use big pieces as mulch first, compost when weathered

Composting Tips

1	Old shipping pallets make great compost bins. Begin with one flat on the ground. Drive two metal support poles into the ground on each side. Slide other pallets over each support and your bin is complete.
2	Stinky compost pile? This is probably due to an overabundance of anaerobic microbes, enthusiastically breaking down your compost, but creating quite a funk the process. To cut down on the overabundance, fluff the pile regularly, creating air spaces and limiting the anaerobic microbes while stimulating the less smelly aerobic microbes.
3	To keep your compost pile cooking during the winter, keep it in a black bin in the direct sunlight, or insulate with hay bales.
4	For a simple compost pile, simply rake the contents into a pile and let it sit for several months.
5	Place your compost pile or bin in full sun for faster composting.
6	Finished compost usually ends up at less than half the volume of the materials you started with, but it is usually quite a bit denser.
7	Introduce the microbes necessary to begin "cooking" your compost by adding some aged manure or good topsoil to the raw materials.
8	Newspaper or plain white computer paper is an excellent addition to your compost pile - just remember to shred it first to encourage for faster composting.
9	Grass clippings are a great addition to your compost pile, but be sure to mix them thoroughly with dried leaves, straw, hay, sawdust, or shredded newspaper to balance the mixture. A pile consisting of only grass will compact, mat, start to smell, and won't compost quickly.
10	Anything that has been alive is great for <u>compost bins</u> . Think of leaves, vegetable wastes, and grass clippings.
11	Use a <u>compost turner</u> every two weeks for faster results.
12	Finished compost should look and smell like rich, dark soil.
13	Nutrients leach quickly out of a cooking compost pile in rainy climates. Protect your pile from the elements with a tarp or small roof to keep the nutrients in the pile. Too much water in the pile will also slow the composting process.
14	Do not compost fat, cat and dog droppings, or dairy or meat products.
15	Avoid composting plants that have been treated with chemicals including lawn clippings, human waste, bones, and weeds with seed.

16	When planning a compost pile, remember it needs to be no smaller than 3' x 3' x 3'. This is the perfect size, retaining heat while still allowing air flow. It is also manageable to turn regularly.
17	Algae, seaweed, and lake weed make excellent additions to your compost pile. Be sure to rinse off any salt water before adding.
18	Keep your compost pile lightly moist, like a wrung-out sponge. When constructing the pile, be sure to wet each layer as you add it. Keep the surface damp, especially during dry periods.
19	Add ashes from a wood-burning stove to your compost pile sparingly, as they are alkaline and affect the pH. They are most useful when you have also added acidic materials such as pine needles or oak leaves.
20	Help start a new compost pile with aged manure, alfalfa meal, cottonseed meal, blood meal, or <u>compost starter</u> . They are rich in nitrogen and help jump-start the microbes responsible for breaking down organic matter into compost.
21	Grass clippings add necessary nitrogen to a compost pile, but be sure to mix with the "brown" materials that add carbon. Both are required for a balanced, quickly decomposing pile.
22	Don't allow your kitchen vegetable waste to go in the trash in the winter - try an indoor composter.
23	Microorganisms breaking down your compost need a balance of carbon and nitrogen. Carbon comes from brown materials such as dead leaves, dry hay, wood chips and shredded newspaper. Nitrogen comes from green materials such as grass clippings, food scraps and manure.
24	Worms love to decompose coffee grounds!
25	When possible, cover any kitchen scraps you add to the compost pile immediately with leaves or grass clippings to cover up any smells that might attract critters.
26	When is your compost finished? It should look, feel and smell like rich soil. You should not be able to recognize any of the items you put in there.
27	Straw is excellent source of carbon material for your compost pile when leaves are not available. It may contain weed seeds, however, so be sure the pile heated enough to kill the seeds
28	Compost decomposes fastest between 120 and 160 F. Decomposition occurs at a lower temperature, but it takes longer.
29	Compost piles can either be layered - thin layers of alternating greens and browns, or they can all be thrown in together and mixed well. Either way works well.
30	Do not use pet waste in compost. It can spread disease.

Common Composting Questions & Answers

Does compost have any value as a fertilizer?

Yes, because decomposed materials have some nitrogen, phosphorous, and potassium content even though in small amounts. The addition of garden fertilizers to speed up decomposition supplies some of the nutrients as well.

Can compost be used as a substitute for fertilizer in the garden?

It can be used as a source of nutrients, however, there are not enough nutrients present in the compost to supply the needs of vegetable crops and ornamental plants.

Is it necessary to add lime (calcium) to the compost pile?

It is not necessary, nor is it recommended. Too much lime may cause a loss of nitrogen from the pile. Most finished compost will have a near neutral pH without the addition of lime.

Is it necessary to add inoculum to the compost pile to activate the composting process?

Inoculation with prepared microbes may hasten the process. However, there are enough microbes present on the material being composted to initiate the process.

Can newspaper be composted?

Yes, if shredded and mixed well with other materials. Newspaper is also a good mulching material and be placed beneath wood chips for a path. The inks used today are generally non-toxic.

How do you know when compost is finished?

When it has become dark, loose and crumbly; and if in a hot pile, when it doesn't re-heat upon turning. Sifting out unfinished materials is helpful if the aesthetics are a problem.

Are slugs a problem? What is their role in composting?

They are not a problem for the composting process - they actually contribute to the process by feeding on decaying and fresh wastes. Their proximity to the garden can, of course, be a problem.

What is the easiest way to compost?

A holding unit or bin is the easiest way to compost.

Can fruit waste be composted?

Yes. With citrus, it is best to chop the rinds as much as possible to aid decomposition. Compost them like other food wastes.

Should diseased materials be used to make compost?

As a general rule, it would be best to not compost diseased plant materials because of the chance of re-infecting your garden.

Should I wear gloves to handle compost?

If you haven't composted pet manures, which contain bacteria harmful to humans, there is no need to wear gloves. Finished compost can be handled just as you would garden soil.

Should I add ground limestone? Soil? Fertilizer?

A perfectly good compost pile can be built out of nothing fancier than leaves and grass clippings. Lime will balance out the pH of a pile of highly acidic materials, like pine needles. However, most compost is naturally close to neutral in pH by the time it is ready for use. A scattering of soil should be added if your compost isn't in contact with the ground, because it is the soil organisms that do the decomposing work. With a variety of ingredients, fertilizer is seldom necessary.

Does compost need to be sterilized? Screened?

Compost doesn't need to be sterilized or screened for the garden. For use indoors, it should be put through a strainer or quarter-inch screen and sterilized in the oven for 1 hour at 200° F. You will probably want to screen the compost you use to top-dress the lawn as well.

What if I make too much compost?

It's hard to imagine such a situation! The earth can use all the organic matter you can give it, and you can apply compost at any time of year. Dig it into flower beds, layer it over a vegetable garden, or spread it under a tree to feed the roots. Finely screened compost can be scattered over a lawn, or sterilized and mixed with potting soil for house plants. And you can store compost in a bag or holding pen, as long as it is well protected from rain, wind and sun.

Troubleshooting a Compost Pile

Problem	Possible Causes	Solutions
Rotten Odor.	Excess moisture (anaerobic conditions).	Turn pile, or add dry, porous material, such as sawdust, wood chips, or straw.
	Compaction (anaerobic conditions).	Turn pile, or make pile smaller, do not use fine particles, add coarser material.
Ammonia Odor.	Excess moisture.	Turn pile daily until correct moisture level is reached.
	Too much nitrogen (lack of carbon).	Add high carbon material, such as sawdust, wood chips, or straw. Mix in dry browns such as leaves, weeds, straw, shredded paper.
The compost is moist and sweet smelling but still won't heat up.	Not enough greens.	Add a nitrogen source like grass clippings, manure.
Low Pile Temperature.	Pile too small.	Make pile bigger or insulate sides – compost pile should be 3'x3'x3' to 5'x5'x5'.
	Insufficient moisture.	Add water while turning pile.
	Poor aeration.	Turn pile.
	Lack of nitrogen.	Mix in nitrogen sources such as grass clippings or manure (C:N of 30:1).
	Cold weather.	Increase pile size, or insulate pile with an extra layer of material, such as straw.
High Pile Temperature. (greater than 140° F)	Pile too large.	Reduce pile size - compost pile should be 3'x3'x3' to 5'x5'x5'.
	Insufficient ventilation.	Turn pile.
	Too much nitrogen.	Mix in dry browns.

Problem	Possible Causes	Solutions
Pests (rats, raccoons, insects).	Meat and other animal products have been included.	Keep meat and other animal products out of the pile; enclose pile in 1/4-inch hardware cloth.
	Food scraps are not well covered.	Cover all food with brown materials such as leaves, wood chips, or finished compost.
Maggots in my compost pile.	Presence of meat scraps.	Some fly species lay eggs on decomposing plant material. Try adding a layer of hay to the pile, cover with screening, or add a light layer up to 2 inches of soil spread over the surface.
	Presence of food waste.	Bury kitchen scraps in the pile 6-12 inches deep.
Slow composting.	Pile too dry.	Water layers every 6"-12" when first building pile. Water when turning pile until it is as wet as a wrung out sponge.
	Pile lacks nitrogen.	Mix in green materials such as grass clippings, kitchen scraps, manure.
	Pile too small.	Build larger, balanced, aerated pile.
	Pile lacks oxygen.	Turn to aerate.
	Materials compacted.	Mix small particles with larger pieces.
	Particles too large.	Reduce particle size to improve heat retention in pile.
Large, undecomposed items are still in the mix.	Low surface area.	Remove items, and chop or shred large items.

Problem	Possible Causes	Solutions
Grass clippings do not seem to be breaking down.	Grass clippings in a thick layer.	Grass clippings in a thick layer will take a very long time to decompose. Mix with other types of garden and kitchen waste or add brown materials.
I've got millions of tiny flies.	Presence of food waste.	The tiny flies are vinegar flies, which look just like fruit flies. To control them, or common black flies, cover your food scraps with a light layer of soil, then a layer (2 – 4 inches) of brown material (leaves, straw or shredded newspaper).
There are ants in my compost pile.	Large numbers of ants are usually an indication that the pile is too dry.	To encourage them to leave the pile, moisten and turn it or stir it with a pitchfork to disrupt their colonies. Put a sticky barrier (household glue, sticky tape) on the handle of the pitch fork or shovel you are using to make it more difficult for the ants to crawl up the handle. After stirring the pile, leave it alone for a time to give the ants a chance to leave.
		If there are many ants in your yard, they may return to the compost pile. But take heart! Ants may actually benefit the composting process by bringing fungi and other organisms into their nests. The work of ants can make compost richer in phosphorus and potassium by moving minerals from one place to another.

Problem	Possible Causes	Solutions
Compost pile contains earwigs, slugs and/or other insects.	Pile is composting correctly.	Insects are a good sign of a productive compost pile. Note: slugs live happily in compost piles. If the pile is next to a garden, barriers can be placed between the pile and nearby garden with traps, metal flashing, etc.
My compost pile keeps getting smaller.	HOORAY!!!	As organic material goes through the composting process, it takes up less space.
Neighbors keep asking why your garden looks so great.	They don't compost.	Show them your compost bin, your compost, and share your knowledge with them.

How do you make Compost Tea?

There are two ways to make compost tea:

- Active (with aeration)
- Passive (steeping)

ACTIVE METHOD (Bucket-Bubbler Method)

You will need:

Five gallon pail

2 tablespoons of molasses (contains several different kinds of sugars)

2 tablespoons of seaweed emulsion or fish emulsion for the micronutrients

1 teaspoon of citric acid for the bacteria (or a couple of 500 mg Vitamin C tablets or several tablespoons of lemon juice)

Compost – put into a small cotton bag or use nylons to make a tea bag. A mesh bag can be made out of old door screen. The trick is to contain the compost but allow water to flow freely through it.

Aquarium pump

Aquarium air bubbler (1 to 3 can be used)

Place the compost bag in the pail with other ingredients and fill with water.

Turn on the aquarium pump and air bubbler.

Let “brew” for 12 – 24 hours – no longer!

Use immediately and do not store!

PASSIVE METHOD (Bucket-Fermentation Method)

Simply stated, “passive” compost tea is prepared by immersing a porous sack filled with compost into a bucket or tank, stirring occasionally. Usually the brew time is 14 days or longer. This is the method that dates back hundreds of years in Europe, and is technically a watery compost extract as opposed to a “brewed” and aerated compost tea.

You will need:

1 large container with lid (plastic trash can works well)

Enough aged, completed compost to fill an old pillow case 1/2-3/4 full

Sufficient water to fill the container

Fill the container with the water. Place the compost into an old pillowcase (cheese cloth bag or pantyhose also work well), tie off the top and submerge in the container of water. Cover (to prevent odor and insect problems) and let steep for a minimum of 2 weeks. This steeping time is crucial to the formation of beneficial bacteria and the required fermentation process.

Vermicomposting

Materials To Use and Avoid

Add to Worm Bins

Fruits and peels **except** →
Vegetables and peels
Bread and cereal
Pasta and grains
Eggshells
Coffee grounds
Tea leaves and bags
Shredded leaves of most trees
Peat moss
Shredded newspaper and cardboard
Human and animal hair
Dried grass clippings
Fine sawdust

Keep Out of Worm Bins

Oranges, Lemons, Limes*
Meat, poultry, fish
Animal bones
All types of eggs
Cheese and other dairy products
Butter, margarine, and oils
Mayonnaise and salad dressing
Peanut butter
Oak leaves
Colored or glossy paper products
Pine needles and bark
Fresh grass clippings
Wood chips
Potato Chips, Candy

* citrus has a chemical substance (limonene) that is toxic to worms