REEMS CREEK NURSERY

Composting

A Garden Guide

The indescribable joy of making your own compost! Composting allows you to turn waste products into a living, healthy soil amendment that does absolute wonders for soils. It also keeps waste out of landfills and is less effort than bagging things and dragging them to your curb. Take advantage of the **potential goldmine in your garbage**. It is estimated that 25% of a household's waste could be composted. It adds up quickly - waste food, paper, yard trimmings, cardboard packaging, etc.

There are several methods for composting. The fastest and most popular method is **hot composting**, where piles are regularly turned. They may be turned by hand using forks or shovels or in mounted barrel systems that can be spun around. All of this turning brings in air to help speed up decomposition. With a hot composting method you can have rich, finished compost in ~3-6 months.

Cold composting is much less effort - no turning - but since it does not get hot, it will not kill off diseases or weed seeds. You just leave it in a pile and walk away. Cold composting takes 1-2 years to get finished compost.

Worm composting, or **vermicomposting**, is another type of composting system. They can be used indoors (for the daring) or outdoors. **Bokashi** is an unusual anaerobic composting method from Japan, often done indoors. This document will focus on hot and cold composting, but we wanted to mention these other types.

The most convenient locations for a composting system are near your kitchen (but not right up against the house) or garden. A flat location that is naturally a bit moist is helpful, alternatively you can always put a protective tarp overhead.

You can compost in a pile on the ground, but bins and containers are neater and easier to manage. You can make your compost in single batches (one container) or in continual batches (two or three containers). There are many products and designs available. Once you decide on which system that you like, you can add your Compost Starter (available in our Garden Shop) and get to adding materials!

Things you CAN compost:

- Aquarium water, algae, plants
- Autumn leaves, twigs
- Bamboo skewers
- Beer and wine-making leftovers
- Bread, tortillas, pitas
- Cereal and crackers
- Cereal boxes
- Chips (tortilla, potato, etc.)
- Coffee grounds and filters
- Cooked pasta, rice, other grains
- Cork
- Corrugated cardboard with all tape, labels, and staples removed
- Cotton balls and swabs
- Cotton, wool, linen, silk, hemp, burlap, felt fabrics
- Dead blossoms
- Dregs from juice, beer, wine
- Dryer lint (from natural materials)
- Dryer sheets manufactured by Seventh Generation or Method
- Eggshells and crustacean shells
- Evergreen garlands and wreaths from live plants
- Freezer-burned vegetables and fruits
- Fruit and their peels
- Grass clippings (though these are best left in the yard to build the soil there)
- Hair and fur
- Houseplant leaves
- Jack-o-lanterns
- Loofahs
- Nail clippings
- Newspaper
- Nut shells (except no walnut shells—they can be toxic to plants)
- Office paper, junk mail, envelopes (no plastic)
- Paper (not shiny or coated)
- Paper bags
- Paper baking cups
- Paper egg cartons
- Paper napkins
- Paper plates
- Paper rolls (towel, toilet paper, wrapping paper)
- Paper table cloths
- Pencil shavings
- Pizza boxes free of meat or dairy
- Potpourri
- Sawdust from untreated wood
- Seaweed
- Soiled paper
- Soy, rice, almond, coconut milk
- Spent potting soil
- Spoiled tomato sauce, paste
- Straw and hay (that hasn't been treated with herbicides)
- Stale herbs and spices
- Tea leaves and bags
- Toothpicks
- Used matches
- Vacuum contents & floor sweepings (assuming they are all biodegradable)
- Vegetables and their trimmings
- Wine corks
- Wood chips and bark
- Yard trimmings
- Yarn, thread, string, rope, twine that are made from natural materials

Things to AVOID composting:

- Black walnut tree leaves or twigs (release Juglone that can harm plants)
- Charcoal ash or coal (resists decay and may contain substances harmful to plants)
- Dog or cat feces and litter, and dirty diapers (may contain parasites and pathogens). Carnivore waste is not suitable for composting.
- Diseased or insect-infested plants (diseases and insects may survive and be transferred to other plants)
- Glossy, heavily coated paper (e.g., catalogs, greeting cards with metallic inks, magazines, photographs, wrapping paper, etc.)
- Meat, fish, bones, fats, grease, lard, oils, eggs, or dairy products, such as butter, milk, yogurt, and sour cream (may create odors, attract coyotes, dogs, flies, raccoons, rodents, bears, etc.)
- Pressure-treated lumber, pressed wood, plywood (contain toxic chemicals)
- Used facial or toilet tissue (may contain pathogens)
- Weeds that have gone to seed
- Weeds with invasive roots, such as dock weed (*Rumex*), Japanese Knotweed (*Fallopia japonica*), Miscanthus grass (*Miscanthus sinensis*), etc.
- Wood ash (a handful or two may be added, but too much may harm microbes, slow the composting process, cause smelly ammonia gas releases, and reduce nitrogen)
- Yard trimmings treated with chemical pesticides (residual chemicals may kill beneficial composting organisms and/or affect plants where compost is placed)

In the ideal compost system, there is a **balance of Carbon to Nitrogen**, the optimal ratio ranges from 25:1 to 35:1. Too much Carbon and decomposition will slow down; too much Nitrogen and you can have unpleasant odors.

The ideal **moisture level** is between 40-60%. Too little moisture can slow down decomposition, too much and you can also have unpleasant odors. Most composts tend to be a bit dry. Be prepared to supply water as needed.

When adding things to your compost bin / container / pile, breaking them into smaller pieces can be helpful to help speed up the process (ex: torn up cardboard box vs. intact cardboard box). However, avoid breaking them up too finely; avoid adding too much of one thing at once.

There is a lot that happens during the composting process, especially with hot composting. Temperatures can get very hot, the pH can swing about wildly, various helpful microbial communities have population explosions and declines. Keeping the pile sufficiently moist (via watering) and aerated (by turning) is key to helping this process along. If you can get it to 130˚F for a week you can destroy most seeds, 145˚F for a month to kill the toughest seeds. 160˚F is too hot and can start destroying the good microbes. It can be difficult for home composting systems to reach these temperatures.

A little biology: 80-90% of the microbes in a compost pile are bacteria. They secrete enzymes that break down many different types of material, and are present during the hotter phases. Once the pile cools down to 105˚F, fungi start to show up and get busy. Fungi decompose materials that are too acidic, dry, or low in nitrogen for bacteria to process. As it continues to cool, small fungi-eating creatures show up to eat the fungi.

In the composting process, your pile may shrink by 20-70%.

Compost is ready when you cannot recognize the original materials, the pile temperature is no longer warm and steaming (only 10F above the outdoor temperature), it is dark brown or black, and it smells deliciously earthy (not like ammonia or rotten eggs). To make sure the compost is fully mature, you can always test it on radish seeds to make sure it does not prevent germination.

Troubleshooting Composting Issues:

Symptom	Problem	Solution
The pile smells like rancid butter, vinegar, or rotten eggs.	The pile is too wet, or there is not enough air, or there is too much nitrogen.	Turn the pile; mix in leaves, straw, sawdust, or wood chips.
The pile is not heating up.	The pile is too small, too dry, or does not contain enough nitrogen.	Make the pile larger, provide insulation, add water while turning, and add nitrogen sources.
The pile is attracting animals.	Food scraps are not well covered or meat and/or dairy or meat products were added.	Cover food with brown leaves, wood chips, or finished compost; keep meat and/or dairy out of the pile; enclose the pile in 1/4" hardware cloth.
The pile is damp but won't heat up.	There is not enough nitrogen.	Mix in grass clippings, food scraps, and other sources of nitrogen.
The pile is dry.	There is not enough moisture or too much airflow.	Water and mix well; cover loosely with a tarp or landscape fabric to help hold in moisture.
The pile is damp and warm in the middle but nowhere else.	The pile is too small.	Add more material and moisten.

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