Composting and organics recycling 101

Composting is a microbial process that converts waste from your kitchen and yard into a nutrient-rich soil amendment or mulch. Gardeners have used compost for centuries to improve their soil and to supply essential nutrients to help plants grow.

Hennepin County residents have two main options for turning food waste into compost - backyard composting and organics recycling. Depending on program availability and personal preference, some people use one method, while others use both. Since you can include different materials in each, choose what works for your household!

Backyard composting

Backyard composting involves creating a pile of organic materials that break down into compost in your yard. The pile usually needs to be contained in some way, so check your city's ordinances or ask your city recycling coordinator.

Pros:

- ✓ Great way to recycle yard waste such as plant trimmings and leaves as well as fruit and vegetable scraps right at home.
- ✓ Provides the biggest environmental benefit because you're managing waste at home and avoiding all of the energy that goes into picking up and processing waste.
- ✓ Get free compost to use in your garden.
- ✓ Can be used as a learning activity for kids.

Cons

- – Cannot include meat, oils, dairy products, or certain compostable items (such as certified compostable cups, bags, take-out containers and utensils).
- – Requires maintenance that some people find burdensome.

Organics recycling

Organics recycling involves collecting food scraps, non-recyclable paper, and certified compostable products in compostable bags and placing your bagged organics out for pick up as part of your waste service, similar to recycling and trash, or taking them to a drop-off location. Your organics are brought to a commercial composting facility and turned into nutrient-rich compost.

Pros:

- ✓ Can include all food waste, including bones and dairy, as well as compostable paper and compostable plastics.
- ✓ Good for people who don't have the outdoor space or ability to do backyard composting.

Cons:

- – You do not get the finished product for use in your yard or garden.
- – Organic materials are collected separately from yard waste due to regulations about invasive species.
- – Requires bagging either in paper or certified compostable plastic bags.

Indoor collection containers

For either method of composting, you will need to collect your organics in some kind of a container inside. Covers on collection containers can be more problematic than helpful because bacteria decomposing your food waste without air create the stinky smells you might associate with garbage. If you do want to use a bin with a cover, it should have vents or a carbon filter to allow air flow. If you are having a problem with odor or flies, you can keep your collected organics in the fridge or freezer until it's time to take it to your backyard pile or organics cart.

Backyard composting basics

What to compost (and what to leave out)

Many of us understand what we should compost, but we sometimes get confusing information about what we should NOT compost. Composting is a microbial process and microbes – also called microorganisms – will not decompose synthetic products such as plastics or glass. Home composting systems typically don't reach high enough temperatures to break down meat, dairy, grease and oil. These materials can also attract critters to your compost bin and cause foul odors. Feces from pets may carry pathogens that could cause health problems. Large pieces of wood do not compost quickly, so wood should be chipped or shredded and used minimally. Organic materials that can be added to enhance the nutritive value of compost include blood and bone meal, cotton seed meal and aquatic plants.

Compost:		DO NOT compost:	
✔	• **Yard waste:** plant trimmings, leaves, weeds without seeds, pine needles	✖	• **Meat and dairy:** meat pieces, dairy products, bones, fish scraps, raw eggs
✔	• **Kitchen waste:** fruit and vegetable scraps, coffee grounds, paper tea bags, egg shells	✖	• **Fats:** cooking oil, drippings and grease
✔	• **Materials that add nutritive value:** blood and bone meal, cotton seed meal, aquatic plants	✖	• **Synthetics:** motor oil, glass, plastic, styrofoam, polyester
✔	• **Small amounts of:** sawdust, wood chips, small sticks	✖	• **Feces:** from dogs, cats, and humans
✔	• **Wood ashes:** add in small amounts. Ashes act as lime source and affect the pH of your compost.	✖	• **Weeds:** with seeds
		✖	• **Large pieces of wood**

What about cuttings treated with herbicides?

Although studies have shown that low levels of herbicides are detectable even in well-decomposed yard trimmings, these levels are less than 1 percent of the level found in trimmings prior to composting and are not considered a risk for using in the garden. Ideally, grass clippings from lawns treated with herbicides should be left on the lawn to decompose, which allows the herbicides to degrade.

Benefits of using compost

As a soil amendment:

Compost loosens and aerates soil and improves water and nutrient retention. Adding 1 to 2 inches of compost to the top 6 to 8 inches of your garden improves soil structure over time, making the soil easer to work while creating a better environment for plant growth. Compost is beneficial to a variety of soil types. It improves drainage and aeration in heavy clay soils and increases the moisture- holding capacity of sandy soils.

Adding compost to your soil will attract beneficial organisms such as earthworms and microorganisms that break down organic matter naturally. Compost also improves seeding, plant emergence, and water infiltration by reducing the potential for soil crusting.

As a mulch:

Adding 6 to 8 inches of compost to garden beds suppresses weeds by blocking light to the soil surface. The mulch will decompose and add organic matter to the soil. Compost also reduces the potential for erosion by protecting the soil surface from wind and hard rain.

Using compost as mulch reduces moisture loss. Top-dress your lawn with compost to conserve moisture and add organic matter. Use compost in window boxes and container gardens where rapid moisture loss is an issue. Compost may also keep soils cooler in the summer and warmer in the winter.

Steps to backyard composting

✔ Assemble your compost bin

Many lawn and garden stores also sell compost bins that require minimal assembly. You can also search for options online to make a compost bin yourself with a few materials and tools. A good compost bin allows for air flow and moisture to enter the pile while also preventing pests from accessing your compost material.

✔ Find a place for your compost bin

Choose a place in your yard where your bin is easily accessible year-round so you can continue composting in the winter. Some people incorporate their bin into the design of their landscape and plant their garden right around the bin!

Your compost will break down in the sun or shade. The heat in your compost pile mostly comes from the organisms living in the pile.

Good drainage and accessibility is important for your compost bin. You should have enough room around the bin to allow you to turn the compost and a water source nearby in case you need to add moisture.

Each city has its own ordinances about composting. Check with your city recycling coordinator for details concerning your l ocal laws.

✔ Layer your materials

Start your pile with a 6-inch layer of brown materials, such as twigs and/or dry leaves. This will help elevate your pile and allow air to circulate at the base of the pile. Then alternate layers of brown materials and green materials. Add a few layers of garden soil or finished compost, which contain the microorganisms required to speed up decomposition. Add a little water to dampen the pile, and you are on your way!

✔ Maintain your compost pile

As your compost pile begins the decomposition process, the temperature of the pile will begin to rise, especially in the center. A well-built pile may reach temperatures of 130° F to 160° F in just a few days. The pile will begin to cool in four to five days, and a depression may appear in the middle of the pile. At this point, it is time to turn the pile.

Use a garden fork and turn the outside of the pile inward. Steam may rise from the pile – this is a sign that the decomposition process is working! If the pile is dry, add a small amount of water. If it is too wet, add some dry materials such as dry leaves or paper towels. Cover the pile with a layer of brown materials, soil, or compost (to ensure any food scraps are buried), and it will start to re-heat.

Turning your pile on a regular basis will speed up the decomposition process. Turn your pile weekly or monthly to get finished compost sooner.

✔ Identify when your compost is finished

Under warm conditions, a well-tended compost pile will be finished and ready for use in about two to four months. Left untended, a bin may take a year to decompose. A finished compost pile is about half its original size, is loose, dark and crumbly, and smells good – like fresh soil. Most of the materials that went into the compost pile should not be identifiable. Another sign that your pile is fully composted and ready for use is when it no longer heats up.

The recipe for a successful compost pile

There are four basic ingredients for good compost: carbon, nitrogen, oxygen and moisture.

Carbon and nitrogen: In the composting process, microorganisms use carbon for energy and nitrogen to make proteins. For home composting, this translates to a proportion of three parts carbon (brown materials) to one part nitrogen (green materials). Given this "diet," microorganisms can make short work of your materials.

Browns (carbon)	3 to 1	Greens (nitrogen)
Dried grasses		Coffee grounds
Dry leaves		Fruit and vegetable peelings
Straw		Grass clippings
Sawdust		Green leaves
Twigs		Plant trimmings

Oxygen and moisture are important for the health and activity of the microorganisms. An active compost pile – one in which microorganisms are actively converting organic materials to compost – has good air circulation and the moisture consistency of a wrung-out sponge. If a pile is compacted or too wet or too dry, microorganisms will cease their work and the pile will become passive.

Air circulation can be accomplished though turning your pile with a garden fork. Do not allow the pile to become soggy as this causes anaerobic conditions (meaning no air) and usually produces a foul smell. A pile can become too wet due to excess water from rain or from too much green material. This can be corrected by adding carbon (brown) material and by turning the pile to increase the oxygen level.

Tips for home composting

- Keep your compost pile at the right moisture level. If your compost pile has a bad odor, it lacks air circulation or it may be too wet. Try turning the pile and/or adding dry material.
- If your compost pile is not heating up, it may need more nitrogen or "green" material. Add more fruit/vegetable scraps or grass clippings and stir the pile
- Bury kitchen scraps at least 8 Inches deep in the compost to discourage critters.
- You can keep adding to your compost pile as it is composting; however, you want to start a second pile if you have enough materials.
- The smaller the pieces of compost material, the faster the pile will decompose.

Vermicomposting: composting with worms

A third option for composting food waste is called vermicomposting, which involves using worms to decompose food scraps. A worm composting bin is kept indoors to protect the worms from freezing in the winter and overheating in the summer.

You can make your own bin or purchase one. You'll need shredded paper to create bedding material. Plan to feed the worms your kitchen scraps once a week.

Vermicomposting produces worm castings and worm "tea," both of which are nutrient-rich soil amendments.

Find a detailed tutorial at **epa.gov/recycle/how-create-and-maintain-indoor-worm-composting-bin.**

Organics recycling

Hennepin County requires cities to make organics recycling service available to all households with curbside recycling service. The ordinance offers flexibility in how cities meet the requirement, so they can develop an approach based on the needs of their community. For example, cities may contract for citywide service or require haulers to provide the service. Smaller cities (with a population of 10,000 or less) can choose to provide an organics recycling drop-off option instead of making curbside organics recycling service available.

Because organics recycling service and drop-offs vary by city, it's best to check with your city or waste hauler for details. More information about organics recycling requirements and options is available at **hennepin.us/organics**.

Tips for collecting organics at home

Use a kitchen pail lined with a compostable bag. Consider a vented container that allows moisture toevaporate, which will reduce odors and help your ompostable bags last longer.

If you have issues with smells or flies, keep "wet" organics in the refrigerator or freezer. You can also create a fruit fly trap using vinegar and a few drops of dish soap.

Keep non-compostable materials out. Receiving organics free of contamination allows local composters to produce clean, nutrient-rich compost that people want to purchase and use. If you aren't sure if an item is compostable, put it in the trash.

Focus on collecting food. Food scraps are the most common material in the trash and the most nutrient-rich material in the composting process.

Accepted for organics recycling

All food

- Fruits and vegetables
- Meat, fish and bones
- Dairy products
- Eggs and egg shells
- Pasta, beans and rice
- Bread and cereal
- Nuts and shells

Food-soiled paper

- Pizza boxes from delivery (remove any sauce cups or other plastic items)
- Napkins and paper towels (do not include napkins with metallic print or foil)
- Paper egg cartons

Other compostable household items

- Coffee grounds and filters
- Hair and nail clippings
- Cotton balls and swabs with paper stems (do not include if they were used for makeup or chemical cleaners)
- Houseplants and flowers (do not include soil)
- Wooden items such as chopsticks, popsicle sticks and toothpicks

Certified compostable products

- Compostable paper and plastic cups, plates, bowls, utensils and containers

Look for the BPI logo or the term "compostable" on certified products.

Not accepted

Animal and pet waste, litter, or bedding

Bandages

Cleaning or baby wipes

Diapers

Dryer lint and dryer sheets

Fast food wrappers and deli paper

Frozen food boxes

Grease or oil

Gum

Menstrual products

Microwave popcorn bags

Plastic-lined paper products. which includes many take-out boxes, plates, paper cups

Products labeled "biodegradable" with no additional certification

Recyclable items (cartons, glass, metal, paper, plastic)

Styrofoam™

Yard waste

Certified compostable products

Paper and plastic plates, bowls, cups, containers, and utensils must be certified compostable to be accepted. Look for the BPI logo or the term "compostable" on certified products. Visit **products.bpiworld.org** to check if a product has current certification.

If an item is not certified compostable, it is not accepted for organics recycling and should go in the trash. Examples of items that must be certified compostable include: coffee cups, utensils, to-go containers, plastic cups, compost bin liners, and more.