



# COMPOST GUIDE 2019

For St. Louis Residents,  
Community Gardens and  
Urban Farmers



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## Introduction

Compost is a soil additive that provides nutrients for plant growth and other benefits for the land. The purpose of this guide is to teach what is composting, how compost is beneficial to the environment and communities, laws surrounding composting, and additional resources. This is for individual residential use.

Composting can help heal damaged soil and create rich grounds for gardening and growing food, which is needed in the City of St Louis. 56% of residents in the City of St. Louis are low income and have low food access within a half mile (LILA ½).

(1) Urban agriculture and community gardens can increase food access for these communities.

Food waste produced at home makes up 43% of all food waste in America. (2)

Source reduction is one of the biggest ways to reduce these numbers. For tips from the EPA on reducing food waste at home, click [here](#).

Waste and food scraps will happen even with prevention methods. Instead of throwing excess waste into landfills, those nutrients can be recycled into the soil through composting.

## Benefits of Composting

- Saves water reducing runoff (3)
- Compost helps reduce soil toxicity by reducing the bio-availability of toxins and metals which is an issue in St. Louis. (4)
- Reduces methane emissions from landfills and lowers your carbon footprint.
- Enriches soil, suppresses plant diseases and pests.
- Encourages the production of beneficial bacteria and fungi that break down organic matter to create humus, a rich nutrient-filled material.
- Saves money by reducing the need for chemical fertilizers that are bad for our health and can runoff the land into nearby streams. (5)

## Hierarchy to Reduce Food Waste and Grow Community



Source: L. Bilsens Brolis, B. Platt, Community Composting Done Right: A Guide to Best Management Practices, Institute for Local Self-Reliance, 2019 ([www.ilsr.org/composting-bmp-guide](http://www.ilsr.org/composting-bmp-guide)). Reprinted with permission.

## Community Engagement and Composting

Talk with surrounding neighbors when starting a compost pile in a residential area. They may have concerns about the pile. The conversation may alleviate issues down the road and neighbors may be willing to help or provide browns/greens for the pile. (See page 5)

A properly managed compost pile should not smell or attract pests. Inform residents about the plans and what steps will be taken to prevent odors or the attraction of pests. Small and large scale projects should develop and practice community engagement principles before during and after a project . Check out [Core Principles for Public Engagement](#) to help guide the process. For large scale projects or looking to start a community composting project check [Community Composting Done Right](#) by the Institute for Self Reliance.

# How to Report an Issue

Be aware of the legal issues that can occur when composting. There are no laws against composting in the City of St. Louis: however, there are nuisance laws. The public nuisance definition in the City of St. Louis includes ***"maintaining or permitting a condition or engaging in an activity which unreasonably annoys, injures, or endangers the safety, health, morals, or repose of any inhabitants of the City of St. Louis or a part thereof."*** (6) If cited for public nuisance, take care of it right away. Track what, when and how much material is added to the pile for records. This will help with troubleshooting compost piles.

## What about St. Louis County?

The St. Louis County Waste Code requires backyard compost piles to comply with the following:

- It must be managed to prevent the harborage of rodents and pests.
- It must be maintained to prevent odors.
- Meat scraps, bones, fatty foods, and pet feces are not permitted in a residential compost pile.
- It must be located at least three (3) feet behind the front of the main residential structure.
- It must be located to prevent leachate (the water that has come in contact with the compost) from flowing onto adjacent property or into natural or human-made storm channels.
- Compost piles abutting adjacent properties must not be visible from adjacent property (shielded from view by shrubbery or an enclosure).
- Composting enclosures must comply with all local zoning regulations. (7)

Residents have the right to enjoy their property. An ill maintained pile may disrupt that. If residents cannot approach the composter directly or the composter refuses to take care of it, report the nuisance. For full directions, follow these [steps](#) from the City of St. Louis Neighborhood Stabilization Team. Report nuisances when they happen and if they are not taken care of within a reasonable time period.

Another way to report is to contact the [Missouri Department of Natural Resources](#) and report it as an environmental concern.

# Composting Basics

The Institute for Self Reliance defines compost as a dark, crumbly, earthy-smelling and humus-rich material produced by the natural aerobic decomposition of organic materials such as garden residuals and food scraps. When added to soil, compost improves its biological, chemical, and physical characteristics, making the soil a better home for plants and beneficial soil organisms. (8)

How to use Compost:

- Compost does not replace soil or fertilizer; it is an additive.
- Compost can be added to vegetable, flower gardens or degraded soil.
- Small amounts can be used on indoor plants as well.

## Bin & Location Tips

- Keep it away from wet areas and standing water
- The pile will heat up faster if kept in full sun, but also may dry out faster and become a fire hazard
- Keep it close to water access for ease
- For hot composting, (See page 7) the recommended minimum size should be 3x3x3 cubic feet and maximum 5x5x5 cubic feet. Too small or large the pile may not heat up properly
- Bins can be store bought or homemade. For more information on building your own bin see *Further Reading & Resources* Section.



# Elements of a Good Compost

## Greens

- Fresh Vegetable and Fruit scraps (Remove produce stickers)
- Cut flowers & green leaves
- Most garden waste
- Eggshells
- Coffee grounds & filters & tea bags (no staples)
- Grass clippings (not treated with pesticides)

## Browns

- Dry leaves
- Wood chips/shavings (untreated)
- Straw (untreated)
- Shredded newspaper
- Plant stalks, twigs & branches
- Cardboard (shredded)
- Corn cobs, stalks
- 100% Natural fibers
- Tree bark
- Wood ashes
- Compostable items make sure they are certified. (See *Further Readings and Resources* Section)

## Don't include

- Cooked food
- Cheese/dairy
- Meat & bones
- Grains, breads or beans
- Black walnut tree leaves or twigs
- Oils & grease
- Diseased plants
- Poisonous plants
- Glossy or coated paper
- Produce stickers
- Treated or painted wood
- Pet waste
- Aggressive weeds & grasses
- Plastics

## Air

Air flow is necessary in composting. The microbes breaking down the materials need oxygen. If the pile is not turned often enough the microbes will die and the pile will start to smell. This is also where the balance of materials plays a part. Brown materials can help with air flow.

## Water

Water helps break down materials. The microbes need water to do their job of breaking down material. The pile should feel like a wrung out sponge. Too much or too little water will be harmful.

# How to Store Materials Before Compost

<b>Leaves</b>	Store in a covered pile or bagged	<b>Other Yard Waste</b>	Store in a holding bin or under a tarp
<b>Weeds &amp; Manure</b>	Store in a holding bin or under a tarp	<b>Food Scraps</b>	Store in a 4-5 gallon bucket with a secure lid
<b>Grass Clippings</b>	Store in a holding bin (not in plastic bags) with good air circulation		

(10)

Compost needs the right proportion of materials for it to turn out correctly. A general rule for composting is a 3 brown to 1 green ratio. This provides balance of nitrogen and carbon for the microbes to do their job breaking down the materials. Cut or break down browns and greens into small pieces for faster composting. If there is not enough brown material to do a 3 to 1 ratio, try a 2 to 1 ratio.

Normal compost methods do not encourage meat and dairy because it is hard to keep pests and odor away.

A food waste digester can handle meats and bones. It is a sealed container for food scraps and nothing else. This process does not produce compost. The nutrients are broken down and drain into the soil out of the bottom of the bin. To learn more about this process, check out Compost Education Centre's [Fact sheet](#).



# Types of Compost

## Hot Composting

Hot composting is one of the most popular methods. It gets the fastest results when done correctly. It requires more effort and work than the other types.

### Materials and Supplies Needed:

- A small bin can be kept on the kitchen counter to collect food scraps.
  - Make sure it has a tight fitting lid to avoid flies and pests.
- Bin/area to compost
- Garden Tools: Shovel and pitchfork (Do not use the same tools used in a garden)
- Safety Equipment: Eye protection & gloves
- Water Source: Garden hose with spray nozzle
- Activator (If desired)
- Temperature probe
- Notebook or binder to keep a record of materials and temperatures ([Template](#) from the Institute for Self Reliance)

### Pros:

- Speed
- The high temperatures kill weeds and harmful bacteria
- Few to no pests. Most insects and rodents will leave a hot compost pile alone. A poorly made compost pile will still attract every type of pest from ants to raccoons

### Cons:

- High difficulty level as well as time and effort commitment
- Need to stockpile resources before starting
- If the pile overheats it will kill helpful bacteria fungi and nutrients
- Fire hazard. Make sure the pile does not overheat by aeration and moisture

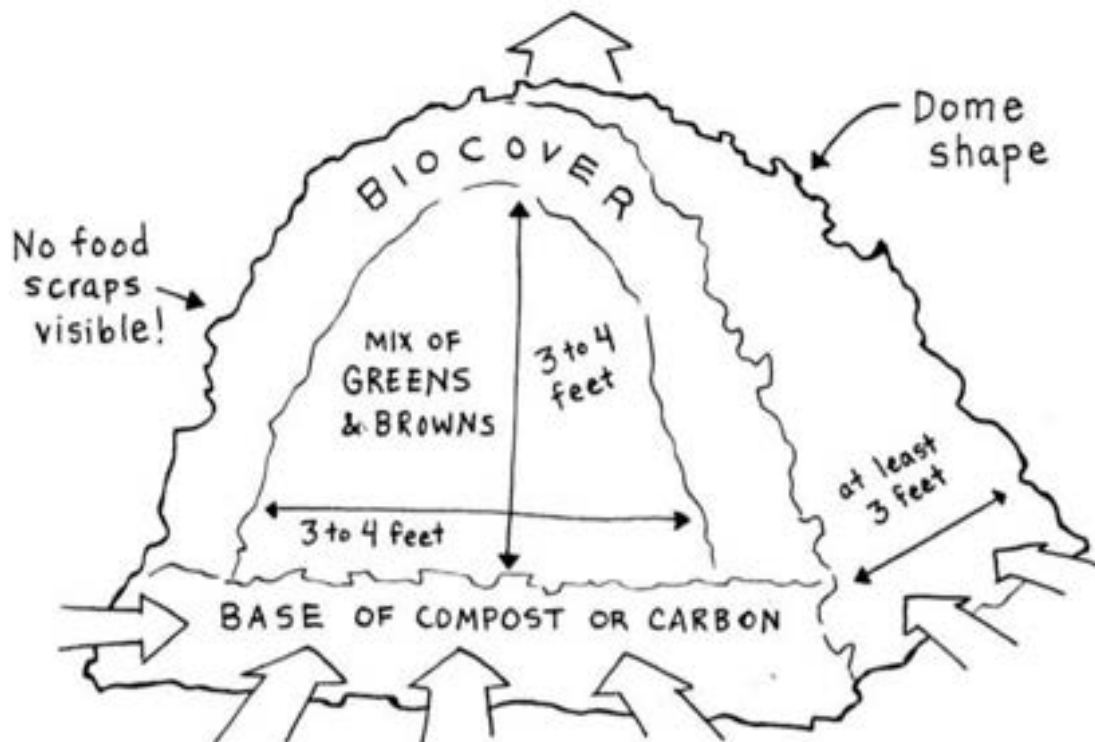
(11)



# Hot Composting Steps

1. Pick an area or bin (See *Further Readings and Resources* Section)
2. Build pile
  - a. Start with a base of compost or brown materials
  - b. Mix or layer brown and green materials. Mixing materials will help decomposition to move faster, however, make sure they are not all small clumped materials. Different sizes will help get air flow in the pile.
  - c. Cover with a final layer of browns, make sure no food scraps are showing
3. Check and record temperature daily
4. Turn the pile when temperatures starts to drop to reintroduce oxygen and begin the heating process again. Make sure no food scraps are exposed.
5. In 2 weeks the materials should be unrecognizable
6. In a few months the compost should be done. Let the compost cure (sit undisturbed) one week before use.

**Cross-section of a Composting Pile**



Source: L. Bilsens Brolis, B. Platt, *Community Composting Done Right: A Guide to Best Management Practices*, Institute for Local Self-Reliance, 2019 ([www.ilsr.org/composting-bmp-guide](http://www.ilsr.org/composting-bmp-guide)). Reprinted with permission.

# Cold Composting

Cold composting is a natural less time consuming process. It is mostly used for yard waste, but if done carefully can take minimal approved food scraps. It is also known as the, "add as you go" method. There is very little need to stockpile materials required like hot composting.

## Materials and Supplies Needed:

- If using food scraps, use a bin to prevent pests, otherwise, it could be done in a pile
- Storage for browns (Stockpile just enough to cover the layer of greens added and to continue composting in winter)
- Garden Tools: Shovel and pitchfork (Do not use the same tools used in the garden)
- Safety Equipment: Eye protection & gloves
- Water Source: Garden hose with spray nozzle
- Activator (If desired)

## Steps:

1. Pick a bin or area (See *Further Readings and Resources* Section)
2. Start with a layer of coarse material to help with aeration
3. Then pile materials, when available, alternating layers of browns and greens
4. Always cover with browns
5. Use an activator if desired
6. The usable compost will be at the bottom of the bin or pile
  - a. Some store bought bins have a separate bin underneath to reach the finished compost easier
  - b. If using the pile method, move the unfinished compost to another spot and remove the finished compost. Then moved compost back into place

## Pros:

- Ease and flexibility. The pile will need to be turned at least once a week.
- Materials do not need to be stockpiled.
- Cold composting can be done all year round.
- A more natural process. Leaves the helpful bacteria and organisms to do their jobs.

## Cons:

- If not kept in a bin, the pile may be an eyesore
- Will take time (+1 year) and uneven decomposition.
- Prone to odor and pests.
- Does not get rid of chemicals, weeds or diseases.
- Nutrients may disperse to the surrounding area.

# Troubleshooting the Compost

Pile not  
Composting

**Too dry:** Add water until slightly moist and turn (mix)

**Too much brown matter:** Add fresh green matter or organic nitrogen fertilizer and turn (mix)

Pile smells  
rotten/attracts flies

**Too wet, too many food scraps or lawn clippings:** Turn (mix) and add browns (dry woody materials) or dry soil

**Food Scraps or lawn clippings exposed:** Bury and mix food scraps and lawn clippings in the pile

(13)

For more solutions, see this [comprehensive guide](#) by Institute for Self Reliance

## Vermicompost

Another way to compost is vermicompost or worm composting. Worms eat fruit and veggie scraps and does not require a lot of brown material. Red wigglers are the preferred worms for this process. Vermicompost is not as labor intensive to maintain compared to hot composting. The bin is usually kept inside, so if there is no outdoors space, composting can still occur. There are options to buy a worm bin or make one yourself. To learn more about vermicompost and how to DIY the bin, click [here](#).



## Health and Safety

Use the proper materials and steps when composting to keep everyone safe and healthy. Compost may irritate those with food allergies or environmental allergies. Always use gloves. Consider eye protection and a mask to prevent breathing in particles when turning the pile.

### Ways to Avoid Pests

- Use fully enclosed bins with a solid bottom and secure lid
  - Put heavy object on lid to limit entrance of pests or accidental opening
  - Hardware cloth ( $\frac{1}{4}$  in) can help keep rodents out of the pile
  - Avoid holes and patch any that are noticed
- Keeping the area surrounding the compost clear
- Pay attention to tracks or any nesting of pests
- Use proper green and brown materials (No meat and dairy)
- Do not leave uncovered food scraps

# Further Readings and Resources

L. Bilsens Brolis, B. Platt, "Community Composting Done Right: A Guide to Best Management Practices." Institute for Local Self-Reliance, 2019, [www.ilsr.org/composting-bmp-guide](http://www.ilsr.org/composting-bmp-guide)

"Chicago Home Composting Program." Garfield Park Conservatory Alliance, 2009  
<https://garfieldconservatory.org/wp-content/uploads/2018/02/CompostBrochure2009.pdf>

"Compost Fact Sheets." Compost Education Centre,  
<https://www.compost.bc.ca/education/factsheets/>

"Composting At Home." EPA. Environmental Protection Agency, October 16, 2018.  
<https://www.epa.gov/recycle/composting-home#basics>.

"Composting." Missouri Department of Natural Resources, June 2017  
<https://dnr.mo.gov/env/swmp/composting/index.html>

## Information on Biodegradable Products

Biodegradable Products Institute, <https://bpiworld.org/>

## DIY Compost Bin Information

"Three-Bin Compost Bin Building Instructions." Gateway Greening, 2019,  
<http://www.gatewaygreening.org/wp-content/uploads/2019/02/3-Bin-Compost-How-To-Guide.pdf>

"Chicago Home Composting Program." Garfield Conservatory, 2009,  
<https://garfieldconservatory.org/wp-content/uploads/2018/02/CompostBrochure2009.pdf>

"How to Build a Compost Bin." Extension University of Missouri,  
<https://extension2.missouri.edu/g6957>

**Need more compost or wood chips for a project?**

The St. Louis City Forestry department will provide compost and wood chips free of charge available for pick up to any resident of the city. For more information click [here](#).

# Endnotes

- (1) "St. Louis Food Access Story Map." Missouri Coalition for the Environment, August 13, 2019. <https://moenvironment.org/northstlfood/>.
- (2) "Fighting Food Waste With Food Rescue." Feeding America. Accessed October 18, 2019. <https://www.feedingamerica.org/our-work/our-approach/reduce-food-waste>.
- (3) "Chicago Home Compost Program." Garfield Park Conservatory Alliance, 2009. <https://garfieldconservatory.org/wp-content/uploads/2018/02/CompostBrochure2009.pdf>.
- (4) "The Use of Soil Amendments for Remediation, Revitalization, and Reuse." EPA, Environmental Protection Agency, December 2007. <https://www.epa.gov/biosolids/use-soil-amendments-remediation-revitalization-and-reuse>.
- (5) "Composting At Home." EPA. Environmental Protection Agency, October 16, 2018. <https://www.epa.gov/recycle/composting-home#basics>.
- (6) "Chapter 15.42 - PUBLIC NUISANCES." Municode Library. City of St. Louis. Accessed October 18, 2019. [https://library.municode.com/mo/st.\\_louis/codes/code\\_of\\_ordinances?nodetid=TIT15PUPEMOWE\\_DIVIVOFAGPUPE\\_CH15.42PUNU\\_15.42.010DE](https://library.municode.com/mo/st._louis/codes/code_of_ordinances?nodetid=TIT15PUPEMOWE_DIVIVOFAGPUPE_CH15.42PUNU_15.42.010DE).
- (7) "Health and Wellness." St. Louis County Government. Accessed October 18, 2019. <https://www.stlouisco.com/HealthandWellness/RecyclingandWasteManagement/Composting>.
- (8) L. Bilsens Brolis, B. Platt, *Community Composting Done Right: A Guide to Best Management Practices*, Institute for Local Self-Reliance, 2019 [www.ilsr.org/composting-bmp-guide](http://www.ilsr.org/composting-bmp-guide).
- (9) "Composting At Home." EPA
- (10) McDowell, C. Forrest, Tricia Clark-McDowell, and Cortesia Sanctuary. "How to Stockpile Compost Material." *Stockpiling Compost Material*. Accessed October 18, 2019. <http://www.homecompostingmadeeasy.com/stockpiling.html>.
- (11) "Pros and Cons of Hot Composting." *Homestead on the Range*, December 9, 2018. <https://homesteadontherange.com/2017/06/13/pros-and-cons-of-hot-composting/>.
- (12) "Pros and Cons of Cold Composting." *Homestead on the Range*, December 9, 2018. <https://homesteadontherange.com/2017/06/20/pros-and-cons-of-cold-composting/>.
- (13) L. Bilsens Brolis, B. Platt, *Community Composting Done Right: A Guide to Best Management Practices*, Institute for Local Self-Reliance, 2019 [www.ilsr.org/composting-bmp-guide](http://www.ilsr.org/composting-bmp-guide).