

# BACKYARD COMPOSTING

to reduce  
organic waste



*Managing waste  
is everyone's  
business and  
the best place  
to begin is in*



*your own backyard.*

# What is Composting?

Composting is a controlled process that turns kitchen, leaf and yard waste into a humus-like material called compost. Compost is a soil conditioner and growing medium.



*In nature, organic materials such as leaves, grass and other plant material naturally decompose or break down to become humus. Humus is the top organic layer of soil.*

Compost improves plant growth by:

- helping to break down clay soils, making digging easier;
- improving water and nutrient-holding capacity of soil;
- adding essential nutrients to soil.

## Composting Makes \$ense

- Compost provides many of the benefits found in peat moss, bark mulch and bagged manure, and therefore, will save you from buying these soil enhancers.
- Compost is rich in nutrients, which will reduce or eliminate your need to use chemical fertilizers. With the added benefit of releasing nutrients slowly over a long period of time, this natural fertilizer need only be applied once or twice per season.
- When you apply compost to your lawn or garden, its water-holding capacities reduce your need to water.
- Composting reduces landfill costs and space requirements, and also reduces the build-up and release of methane gas (a greenhouse gas) in landfills.
- Composting saves on buying bags for leaf and yard wastes.
- It doesn't take much time to have a big impact on waste reduction.

# Compost in Colour

## Brown material (source of carbon)

- paper egg cartons
- coffee filters
- dry, brown leaves
- woody materials like cabbage cores & sunflower stalks
- dried lawn clippings that have turned brown
- sawdust, straw
- fireplace wood ashes
- mulched tree clippings

## Green material (source of nitrogen)

- tea leaves & bags
- disease-free leaf and yard waste
- fresh lawn clippings and leaves
- uncooked vegetable and fruit scraps and peelings
- coffee grounds

## Materials Not Recommended for Compost

- meat, fish, bones, dairy, fats and oils will rot slowly, create odours and attract animals
- cooked foods attract animals
- corn cobs attract cutworms and do not easily decompose
- inert materials such as glass and plastic
- charcoal, chemical logs and coal ashes
- diseased plant material and plant foliage with any chemical residue
- ripened weed seeds and quack grass segments or roots
- pet waste and kitty litter
- any toxic material

## Composting is Simple, Here's How

First, find a suitable location that is easy for you to access. A well-drained, sunny area is best. You may locate it directly on soil, grass, gravel or concrete. While a handmade or store-bought bin will help to contain your materials in one spot, a container is not necessary for composting to be successful.

1. Make a layer of coarse material, such as twigs, for drainage and aeration. Cover with leaves or other brown material. Wet the pile so it is as moist as a wrung-out sponge.
2. Add a layer of green material, followed by a shovelful of garden soil. Garden soil will introduce enough microorganisms to decompose materials in your compost. It eliminates your need to purchase commercial compost starter or activator.
3. Add more brown material, followed by more water to moisten.
4. Add more green material and more garden soil, and keep layering your compost until you've reached the top of the container or have run out of materials to add. For best results, the pile should be approximately one cubic meter in volume (1m x 1m x 1m).



## The Cubic Metre Compost

Add kitchen and yard wastes as they accumulate. Dig green materials into the pile or cover them with a thin layer of brown material to balance the nitrogen (greens) with carbon (browns). Both nitrogen and carbon are needed to build a balanced compost pile. When you add green, add twice as much brown. Fine materials such as fresh grass clippings should be added in thin layers so they do not compact. If a compost is too compacted, it might smell like rotten eggs.

After two or three weeks, begin turning the pile and continue to do so every couple of weeks or whenever it becomes compacted, too wet or develops an odour. Turning the pile aerates it with oxygen, which will solve many problems. A pitchfork, commercial aerator or shovel can be used to keep the pile properly turned and aerated. Turn the material from the edges of the pile into the middle for even decomposition. Turning the pie will mix the layers, but that's fine. If it seems like it is no longer decomposing and feels heavy to turn, you may have to add more browns to keep it balanced and ensure decomposition continues.

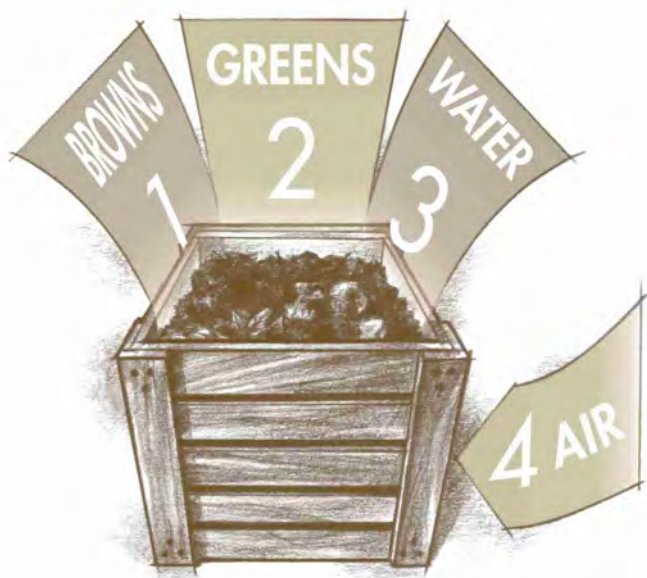
Covering the pile with a plastic sheet or with the lid that comes with a commercial composter will enable you to control moisture. Keep the pile as moist as a wrung-out sponge.

## It Doesn't Take Much Time

Success is not measured by the amount of time you spend composting, but by following the **Rule of 4** (browns, greens, water, air). By turning your compost once or twice a week, you can have finished compost in as little as three months. Some composters prefer to pay little attention to their compost pile and still produce compost within a year or two.



*Both green and brown materials will compost more quickly when chipped, chopped or crushed into smaller pieces. If you are not in a hurry to produce finished compost, there is no need to chop it up.*



## That's Hot!

An active compost pile will become hot in the centre, indicating that microorganisms are actively decomposing materials. When the heat dissipates after a week or two, turn the pile so other materials are moved to the centre to decompose.



*By following the Rule of 4, a balanced compost can reach a core temperature of between 40 C and 50 C within the first three days.*

## You know compost is done when it looks like dirt, smells like dirt and feels like dirt.

- The compost should look and feel like topsoil and be dark brown or grayish black.
- A sweet, earthy smell should persist and the material should be a loose, crumbly texture.
- Much, if not all, of the identity of the original material should be lost. Pieces of some materials, such as eggshells, nut shells and woody plant material might remain when the rest of the material has decomposed.
- Finished compost will be found at the bottom of the pile.



It is important to give the decomposition process time to run its course. Even though your compost looks ready, it might not be. Microbes may still be active. If unfinished compost is applied to a garden, it will take nitrogen from the soil, compromising plant growth.





## Testing for Finished Compost

There are two reliable tests to ensure that the decomposition process is complete and your compost is finished and ready for use:

1. Fill a bag with compost, squeeze out all of the air and seal it. After 24 hours, examine the bag. If the bag has expanded, it is a good indication that the compost is still active and therefore it should not be used yet. Open the bag and smell it. If it has a foul odour, it is not done. Keep turning the pile a couple times per week until it is finished. Do not add new material to it during this period.

2. Fill a jar half full of compost and add enough water to make it soggy. Seal the jar and let it sit for a week. When you open the jar and smell wet earth, the compost is ready but if it smells foul, it is not finished.

## Compost Has Many Uses

### Mulch

Spread compost around annual plantings, trees, shrubs and exposed slopes. This will inhibit weeds, protect the soil and keep roots moist.



*Compost Caution! Adding unsterilized compost to your indoor plants could introduce insect pests into your home.*

### Soil Enricher

Mix several inches of compost into garden beds or soil surrounding new trees and shrubs. When planting, use a mixture of 1/3 compost and 2/3 soil. **Do not plant directly into compost;** too much nutrient-rich compost could harm your plants.



*Protect Watersheds! Apply compost to retain moisture and reduce run-off into local wetlands and waterbodies. Compost can hold twice its weight in water.*

1 kg of  
compost

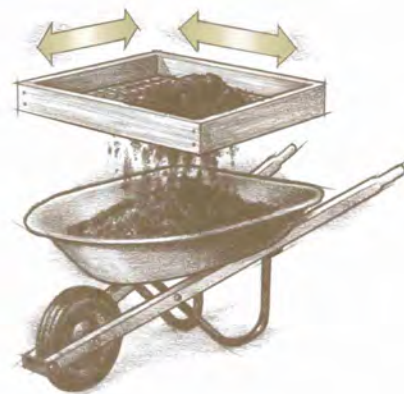


...can hold  
2 kg of water!

### Top-dressing on Lawns

Use a framed screen to sift finer compost from finished compost. Sprinkle the fine compost lightly over the lawn to add nutrients.

It also enables your lawn to hold more moisture and prevents erosion and run-off.



### Tea, Anyone?

You can make a compost tea to water flowers and vegetables, trouble spots on lawns or indoor plants. Cover the bottom of a watering can with finished compost and fill with water. Stir the mixture and allow it to stand for a few hours. Another method is to make a giant tea bag. Put a shovelful of finished compost in a burlap bag or an old pillow case, and submerge it in a container of water. The tea is ready when the liquid has turned a pale yellow. The same scoop of compost can be used a couple of times to make compost tea. Put the used compost back into the composter.

## Compost Bins

You don't have to use a bin to be successful at composting. Compost bins, however, are recommended to keep the pile neat, efficient and manageable. Commercial bins come with lids, making it easier to control moisture. Bins can be purchased from garden supply stores or can be made from a variety of materials. Single unit and multi unit designs are available. The size and type of bin you purchase or build will depend on the amount of compostable material you generate. One cubic metre is an ideal size to generate enough heat for materials to actively decompose.

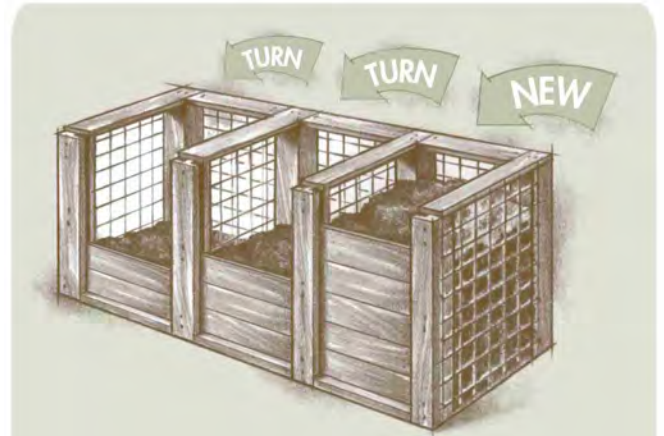
### Single-unit Bins

Single unit containers are the simplest way to compost. Finished compost will drop to the bottom of the container and can be removed periodically.

If you like a challenge, build a rotating barrel composter from a 45-gallon drum on a wooden support. Turning the barrel mixes the material and produces finished compost quicker. For instructions, see pp. 16-19, *Composting Bins You Can Build* from the City of Edmonton. Download on the internet from: [www.edmonton.ca/Environment/WasteManagement/PDF/compost\\_bins\\_build.pdf](http://www.edmonton.ca/Environment/WasteManagement/PDF/compost_bins_build.pdf)

### Multi-unit Bins

Bins with two or more sections can accommodate larger quantities of waste and make turning easier. When one section is full and heat dissipates after a couple of weeks, the material can be turned into the next section to decompose further. Transferring the material mixes and aerates it at the same time.



*With a three-unit bin, you have one additional section to move materials into. Once in the third bin, most of the decomposition is complete. Compost should be left to cure for another month before using in your garden.*



*Fact: Backyard composting is not the same as municipal composting; and not all municipal composting programs are created equally. Due to the sheer size and ability to manage municipal composting sites, some municipalities compost all organic materials, including food scraps, while other municipalities collect only leaf and yard waste.*

# What Do I Do With Leaf and Yard Waste?

## Grass Clippings

Large volumes of grass clippings in the spring and summer can overwhelm a composter and slow or stop the decomposition process. Excess clippings can be dried briefly in the sun before being added to the compost pile. Fresh, green grass clippings are a source of nitrogen for your compost pile. Dry, brown clippings are a source of carbon for your compost pile. Fresh clippings can be mixed with last year's decaying leaves in a ratio of one-part grass to two-parts leaves.

## Grasscycling

Ideally, grass clippings should be left on the lawn after cutting; this is known as *grasscycling*. Cut grass will disappear naturally in three days.

Benefits of Grasscycling:

- returns valuable nutrients, including nitrogen, to the soil and reduces the need for fertilizer;
- can help to trap moisture on your lawn, reducing the need for watering; and
- provides shade to the growing grass beneath it, protecting your lawn from the hot sun.

Grass should be cut frequently (every 5 to 6 days during fast growing periods), or when it is 6 to 8 cm so that grass clippings left on the lawn will rapidly decompose. No more than one-third of the blade (2.5 cm) should be cut at any one time in order to maintain healthy roots and shoots. The taller the grass is above ground, the deeper the roots below, reducing the need to water frequently.

## Leaves

In the fall, rake and save your leaves in a dry location and add them to grass clippings in summer, or use them as a source of browns year-round. A simple way to keep a pile of browns is to store them in a bin next to your compost. People often find they have too much

green material and not enough brown material for their compost to work properly. By having a good supply of dry leaves on hand, you will be able to build a well-balanced compost pile year-round. Leaves can also be used as mulch around plants and shrubs or worked into the soil.



*Over 30 per cent of your household is kitchen, leaf and yard waste, most of which can be composted at home.*

## Compost for a Better Planet



### Combat Climate Change

Over 60 per cent of waste in municipal landfills is organic. This includes compostables (kitchen, leaf and yard waste); recyclables (paper and cardboard); and reusables (wood). Although landfills are designed to be as air and water tight as possible to prevent materials from decomposing, organic materials still break down. When decomposition occurs in the absence of oxygen, methane gas is released. Methane gas is a significant greenhouse gas that contributes to climate change.

### Protect Watersheds and Conserve Water

When you apply compost to lawns and gardens, more water will be retained in your yard, and less will run off. When water runs off the land, it picks up tiny particles of soil and debris along the way. These particles eventually make their way into streams, rivers, and lakes, either directly or through sewers and drains. Muddied run-off is erosion in action, and contributes to poor water quality. The more water you can hold on the landscape, the less you have to run sprinklers and hoses. Composting conserves water.





## Use Land Wisely

Landfills are purposely designed so that when materials are dumped in, they stay there forever, pretty much intact. Storing unsorted materials underground not only wastes land space, but has the potential to contaminate the soil and groundwater. Instead, sort materials for reuse, recycle or compost and turn them into valuable, usable resources.

## Frequently Asked Questions

### ***Where is the best location for a composter?***

Your composter is best located in a convenient, level, well-drained and sunny area of your yard. Composters can be located on soil, grass, gravel or concrete.

### ***Is pet waste compostable?***

No, you should not compost pet waste. Dog, cat, gerbil, rabbit and other animal feces may contain organisms that can cause disease in humans. Animal hair from brushes or shedding can be composted.

### ***Are wood ashes compostable?***

Yes, wood ashes from the wood fireplace or stove are a good source of potash, a known fertilizer, and can be composted. Just spread it in thin layers. Do not compost barbecue, chemical log or coal ashes, as they are highly resistant to decomposition and contain excessive amounts of sulphur and other chemicals.

### ***Are weeds compostable?***

If the weeds are green and the seeds are not mature, they may be added. Otherwise, mature seeds could contaminate your compost. Avoid adding quack grass rhizomes or roots to the heap. Avoid putting in any material that is diseased or has recently been sprayed with chemicals. Remember, you will be applying finished compost to your lawn and gardens, so you want to watch what you add to it. If your finished compost contains weed seeds that are not destroyed by heat during the composting process, you will end up spreading them with the finished compost.

### ***Is it safe to compost in bear country?***

While it is possible to compost in bear country, you must take special precautions.

- Cover material in your composter with a 10 cm layer of soil.
- Stir or aerate your compost weekly.
- Do not put meat by-products, fish, cooking oil, grease, dairy products or cooked foods in your compost (which you wouldn't anyway!)
- Fruit is not recommended and eggshells must be rinsed.
- Sprinkle your compost with lime to aid the composting process and reduce any lingering odors, discouraging bears.
- Use a good, solid container with a lid.

Check with your municipality to ensure that they allow outdoor composting; some communities offer secure community compost services, while others recommend the use of indoor vermicomposters that use red wiggler worms.

### ***Will composting attract animals?***

If properly maintained, the composter should not attract unwanted visitors. However, if a problem occurs, immediately bury newly added food waste and/or check if unwanted meat scraps or fat have found their way into the pile. A troubleshooting guide is provided below.

### ***Will compost smell rotten and attract flies?***

A compost pile that is properly aerated and layered will not have an unpleasant odour. If it produces an unpleasant odour, the material may be too wet or compacted. Adding brown material will help absorb excess moisture. Turning the pile frequently will aerate it. Digging food wastes into the pile or covering them in a thin layer of soil will also help to prevent odors.

Fruit flies and soil gnats are decomposer organisms that help to produce compost. If you would rather not see them, discourage them by burying newly added food waste or covering it with soil or browns when adding to the pile.





## Four Common Problems

Symptom	Problem	Solution
<i>Smells like ammonia.</i>	Too much greens (nitrogen) in the pile.	Add brown material (carbon) such as dry leaves or dry (brown) grass clippings and aerate the pile by turning.
<i>Smells like rotten eggs.</i>	Not enough air (anaerobic) or too much moisture.	Aerate the pile. Add more browns to absorb excess moisture.
	Compaction.	Turn several times until the smell is gone.
<i>Center of the pile is dry; it doesn't seem to be doing anything.</i>	Not enough water.	Moisten the pile while turning materials.
<i>The pile is damp and sweet smelling, but still will not heat up.</i>	Lack of nitrogen (green materials).	Mix in a nitrogen (greens) source such as fresh grass clippings or more kitchen waste.

## For More Information

For more information on composting, see Alberta Environment's *Vermicomposting to Reduce Kitchen Waste* or visit our website at [www.environment.alberta.ca](http://www.environment.alberta.ca)

### Alberta Environment

Information Centre  
Main Floor, Oxbridge Place  
9820 - 106 Street  
Edmonton, AB T5K 2J6

Tel: 780-427-2700 Fax: 780-422-4086  
Toll Free by dialing 310-0000  
E-mail: [env.infocent@gov.ab.ca](mailto:env.infocent@gov.ab.ca)  
Website: [www.environment.alberta.ca](http://www.environment.alberta.ca)

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