

# COMPOSTING

## INTRODUCTION

Composting is the art of turning organic waste into a rich soil amendment called humus. Compost benefits the gardener and the environment. It can be used for fertilizing flower beds, vegetable gardens or lawns, or for mulching. By using compost, you can improve your garden soil and reduce the use of fertilizer and water. Well-rotted compost can be used in pots.

There are many ways to make compost, and it is often a case of trial and error for any given location. This Fact Sheet will set out the basics.

## GETTING STARTED

Compost can be made in bins or in open or contained piles. For the best results, a partially sunny area with good drainage is preferable. However, there may be good reasons to hide the bin or pile, and compost can be made in relatively shady areas, although it may take longer.

Prefabricated bins (Figure 1) and drum-turning units are available at gardening centers or hardware stores. These are normally used for smaller composting volumes. Where larger volumes are expected, it is often preferable to build a bin (Figure 2), which can be tailored to fit a particular space.

For large volumes, consideration should be given to using two or three medium-sized bins (Figure 3) rather than one large one. These are easier to manage, and keeping one empty can be useful when turning the compost.

## Compost Bins

An individual bin should be between 1 x 1 x 1 m and 1.5 x 1.5 x 1.5 m (3 x 3 x 3 ft and 5 x 5 x 5 ft). This will provide sufficient volume to create the thermal mass necessary for the pile to heat up to the required temperature, approximately 38°C (100°F). A bin that is too small cannot retain enough heat. If it is too large, not enough air will get to the center of the pile.

There are many possible designs for compost bins, and reference can be made to the internet for examples. Building a bin is not difficult, and the type of structure or method chosen is a matter of personal preference. Wood, welded wire, concrete blocks or wooden pallets may be used. To discourage rats and other pests, it can be useful to surround the bin with small mesh wire netting.

Front cover:  
Well-rotted friable  
compost  
PHOTO:  
Janet Sawatsky



Figure 1.



Figure 2.

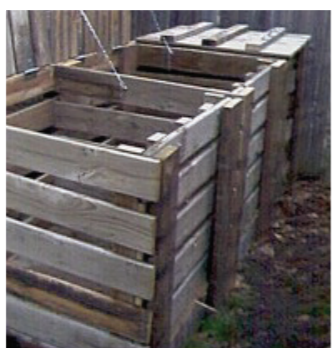


Figure 3.



Figure 4.

## Compost Piles

Compost piles are open or closed 'heaps' of composting material which can be made anywhere in the garden, and can be as effective as bins.

Open piles have no support. For a closed pile, stakes can be driven into the ground as supporting uprights and then wire net fencing, snow fencing or other material tied to the stakes to contain the material (Figure 4). The size guidelines noted above should be maintained.

### A recipe for successful composting

There are five essential elements for successful composting: food (composition of the waste material), water, air, surface area of the waste material, and the volume of the bin or pile.

**Food:** 50/50 mixture by weight (NOT volume) of green (nitrogen-based) and brown (carbon-based) composting material.

**Water:** The pile should be damp to the touch, not wet. Green material is high in moisture so adding greens automatically adds water. Avoid overwatering as the organisms in the pile may die.

**Air:** Oxygen must get to the bottom and center of the pile. Provide aeration periodically by turning and thoroughly mixing the compost.

**Surface area of waste material:** Cut up or shred the composting materials (especially hard items) before composting. This increases the surface area and speeds up decomposition.

**Bin volume:** As indicated, a cube of from 1 x 1 x 1 m to 1.5 x 1.5 x 1.5 m (3 x 3x 3 ft to 5 x 5 x 5 ft) is recommended.

It must be noted that the compost bin or container will not "do" the composting.

The gardener controls the environmental conditions in the bin, and therefore controls the process.

## WHAT TO PUT IN THE COMPOST

The following is a guide on what may be put in the compost and an indication of whether it is considered 'green' or 'brown' (this will require some judgement on the part of the gardener).

### From the Garden

**Green** - fruit, vegetables, yard trimmings, dead plants, flowers, fresh grass clippings, annual weeds (without seeds)

**Brown** – small branches and twigs, straw, sawdust and wood ash (NOT from treated wood), dry leaves, needles from evergreens, dry grass clippings, plant roots, soil

*Note 1: Ideally, grass clippings should be left on the lawn to provide a 'nitrogen fix' (grasscycling). However, if used in the compost, they should be thoroughly mixed with the other ingredients as decomposing grass may become anaerobic, overheat and start to smell.*

*Note 2: Plants infected with insects such as aphids or spider mites may be added to the compost.*

### From the House

**Green** – fruit and vegetables, coffee grounds and filters, tea bags and tea leaves, old house plants.

**Brown** – grains, corn, pasta, rice, nuts, bread, eggshells.

**Other** – egg cartons, shredded newspaper, paper towels, dryer lint.

## WHAT NOT TO PUT IN THE COMPOST

### From the Garden

Plants with major diseases (phytophthora, rose black spot or rose rust), perennial weeds (horse tail, dandelion, morning glory), weeds with seeds or rhizomatous roots (such as crabgrass), unshredded woody shrubs, plants sprayed with pesticide, cat and dog droppings, sawdust or ashes from treated or glued wood.

*Note: If the pile is working properly, at 38°C (100°F) or greater, plants with minor diseases (such as powdery mildew) may be composted. If in doubt, play safe and put diseased plants in the garbage.*

### From the House

Dairy products, meat, chicken, fish, bones, grease and oil, cooked foods with oil, butter, salt.

## ADDING THE COMPOST MATERIAL

If using an open bin or a compost pile, first loosen the underlying soil. If drainage is questionable, put down a layer of small branches. Next, add some garden soil or finished compost to the bottom of the bin to help initiate the process. In subsequent years, leave a few inches of compost in the bottom of the bin which should ensure that the worm population will multiply quickly.

Begin with a layer of brown material, then add a layer of green. Continue alternating in this manner throughout the season. **REMEMBER**, balance by weight. If in doubt, use layers 10-15 cm (4-6 in) thick.

Note: Leaves, especially the larger ones, and larger trimmings take time to decompose. Shredding them with a lawn mower before composting is effective.

Do not leave food waste on the top of the compost; bury the scraps in the pile.

Bury all plants infested by insects in the center of the pile where they will be eaten or killed by the heat.

Always finish with a brown layer on top, preferably a layer of soil. Add water if necessary.

## MAINTAINING THE PILE

Most problems in composting are related to water and aeration (lack of mixing).

Make sure the compost pile remains damp. If it is too dry, add water; if too wet, add brown material.

Turn the pile as material is added. This will accelerate the composting process and also reduce fruit flies. Otherwise, mix or turn the pile three to five times per season.

If the pile seems to be too hot, add green material and mix; if it is not heating, add some grass clippings, manure or organic fertilizer to provide nitrogen. The temperature can be checked by pushing a soil thermometer into the center of the pile.

If the pile is giving off odors, add brown material and mix.

If the pile attracts pests, keep the pile well aerated, and make sure that the food scraps are turned into the pile. Cover the bin or pile, or use small-mesh wire netting on the sides.

## YEAR-ROUND COMPOSTING

Composting is possible year round, regardless of climate. In more severe climates, the composting process will slow down or stop in winter but will start up as soon as the weather improves.

### Summer

Proceed as described above.

### Fall

Try to use any material which has finished composting, but hold back any material which has not properly decomposed.

Add material from the fall yard clean-up.

Shred leaves gathered in the clean-up and use as a brown layering material.

### Winter

Continue to add materials to the bin.

In an area where there is a severe winter, leaves may be added to help soak up moisture during the spring thaw.

### Spring

Start turning the pile as soon as it thaws (if there is frost).

Add leaves to soak up excess moisture.

Dig finished compost into garden.

## WHEN TO USE THE FINISHED COMPOST MATERIAL

The composting process can take from a few months to two years, depending on the materials used, the degree of shredding and the efficiency of the pile.

Compost is ready to use when it looks dark and crumbly and none of the original ingredients are visible. To test if compost is finished, seal a small sample in a plastic bag for 24 to 48 hours. If no strong odors are released when the bag is opened, the compost is done.

If the compost is to be used in pots, it may be screened to produce a finer blend.

## WORM COMPOSTING

Worm composting (vermiculture) is becoming popular with apartment and townhouse dwellers who have limited space. A good source of information can be found at [www.cityfarmer.org/wormcomp61.html](http://www.cityfarmer.org/wormcomp61.html). Also, within the Metro Vancouver Regional District, gardeners can obtain copies of Guide to Composting with Worms.

### USEFUL REFERENCES AND WEBSITES

City Farmer: [www.cityfarmer.org](http://www.cityfarmer.org). Composting in Vancouver – 10 Years of Progress.  
Compost Education and Resources for Western Agriculture: [www2.aste.usu.edu/compost/](http://www2.aste.usu.edu/compost/).  
Environment Canada: [www.atl.ec.gc.ca](http://www.atl.ec.gc.ca). Composting – Getting Down to Pay Dirt.  
Garden Smart: [www.gardensmart.ca](http://www.gardensmart.ca). Gives useful information on compost bins.  
How to Compost: [www.howtocompost.org/](http://www.howtocompost.org/). Everything you need to know about composting.  
Montana State University Extension Service: [www.montana.edu/wwwpb/pubs/mt9204.html](http://www.montana.edu/wwwpb/pubs/mt9204.html).  
Building Bins and Boxes for Yard Waste Compost.  
Recycling and Composting Online: [www.recycle.cc/](http://www.recycle.cc/).  
The Composting Council of Canada: [www.compost.org](http://www.compost.org). Has many links on a variety of topics.

Figure 1. Euro Type Composter. Source: [www.europeangarden.com/composter.aspx](http://www.europeangarden.com/composter.aspx).

Figure 2. Single-compartment compost bin with removeable lid. Source: <http://canadianhomeworkshop.com/proj/composter.shtml>.

Figure 3. Three Compartment Compost Bin. Source: [www.bluegrassgardens.com](http://www.bluegrassgardens.com), link to "How to Build a Wooden Compost Bin".

Figure 4. Wire bin. Source: [www.marquisproject.com](http://www.marquisproject.com), link to Composting 101.



# Master Gardeners

## Association of British Columbia

The Master Gardeners Association of British Columbia is a volunteer organization providing information about gardening and horticulture to the community and educating people about environmentally responsible gardening practices.

Through its chapters in Vancouver, Victoria, Summerland, Vancouver Island and Prince George, the MGABC

- runs a series of clinics at garden centers and major garden events
- presents gardening programmes in schools, hospitals and seniors' homes
- works with community groups on various "greening" projects.

Most of the 700 Master Gardeners in BC are enthusiastic amateurs; some are experienced professionals — all of us have a passion for gardening. We share this passion with the public and promote the enjoyment of gardening through a variety of volunteer projects and activities.

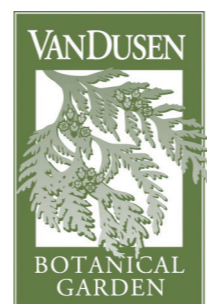
For further information, or for an application form to join one of our groups, go to our website: [www.bcmastergardeners.org](http://www.bcmastergardeners.org)

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Email: [gardener@bcmastergardeners.org](mailto:gardener@bcmastergardeners.org)

### Do you have a Gardening Question?

Call our Plant Information Line, 604-257-8662, and leave a message. A Master Gardener will return your call. Or send us an email at [plantinfo@bcmastergardeners.org](mailto:plantinfo@bcmastergardeners.org)

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Printed in China on acid-free, recyclable paper made from wood grown in well-managed forests. The manufacturing processes conform to the environmental regulations of Canada.

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## A Master Gardener Fact Sheet