



New York State Department of Environmental Conservation

# EVERYTHING YOU HAVE ALWAYS WANTED TO KNOW ABOUT HOME COMPOSTING...



## But Were Afraid to Ask!

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Recycling makes a difference in our environment, in the wise use of our natural resources and in the economic well-being of our state. It's everyone's responsibility to do their part and recycling is easy. Don't forget to ask about recycled products when you shop. Every small effort combines with others to make a big difference.

## What Is Compost?

Compost is a dark, crumbly, earthy-smelling mixture that consists mostly of decayed organic matter. Composting is a simple way to recycle nutrients and return them to the soil to be used again. **By composting your yard trimmings and food scraps, you can help lighten the load of waste that would otherwise go to a landfill.** Compost is often mixed into the soil to make it richer for growing plants. It can also be used as a mulch around plants and trees.

## What Can I Compost?

- Yard trimmings, such as fallen leaves, grass clippings, small branches, weeds and the remains of garden plants.
- Kitchen scraps **EXCEPT FOR** meat, fish, bones and fatty foods (such as cheese, salad dressing and leftover cooking oil). Egg shells are fine to add.
- Large woody branches that are cut, chipped or shredded into pieces can be added to a compost system to create air spaces in the pile. Woody material can be chipped into smaller pieces and used as a mulch or for paths, where they will eventually decompose.

## How Do I Start Composting?

Begin by collecting yard trimmings and throwing them in your pile or bin. You can then add yard trimmings and food scraps anytime but it is best to bury the food scraps in your pile. Chopping or mowing your materials makes the process go faster.

Food scraps should be added to the center of the waste layers where heat will be the greatest. This also reduces unwanted critters coming to your compost pile.

Pile material loosely in the bin. Too much compaction inhibits the flow of air through the pile. Wood chips or coarse weeds will create air pockets which help provide oxygen to the microorganisms.

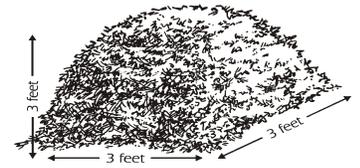
Water is key to successful composting. A compost pile should be kept damp - but not soggy - especially during dry spells.

**Be patient!** It will take six months to a year before the compost is ready for use.

## How Do I Build A Compost Pile?

It's easy! Follow these simple steps, and in just a few hours, you'll be in business.

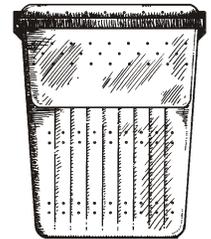
**Compost Mound** - This is the cheapest and easiest way to compost. Yard trimmings can be composted without a bin if you do not mind the appearance of an uncontained compost mound in your yard.



**What To Do** - Find a good location and loosen the soil where your pile will be. Pile your yard trimmings in a mound about 3 feet high and at least 3 feet by 3 feet in area. Alternate wet (green) and dry (brown) materials and add materials as they become available. If you mix your compost pile with a pitchfork or other tool, it speeds up the process. This is called 'turning'.

**What You Need** - All you need is a pitchfork or shovel and work gloves.

**Compost Can** - Another cheap and easy way to compost small amounts of yard and food waste.

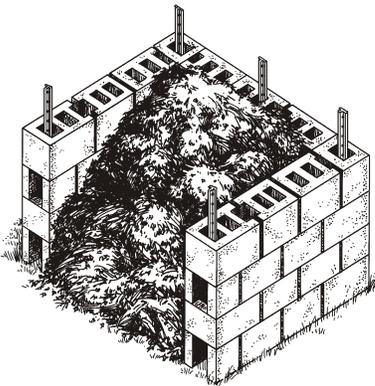


**What to Do** - Drill holes 4 to 6 inches apart all around your garbage can. You also need to drill holes into the bottom. (This allows for air movement and for excess water to drain off.) It is best to put 2 to 3 inches of straw or wood chips in the bottom to help it drain. Since a limited amount of air gets in, this system tends to work slower and the compost is wetter.

Turn the compost with a shovel or pitch fork. Keep the garbage can cover on, it helps keep out the critters.

**What You Need** - A garbage can with cover, straw or wood chips and a drill for making the holes.

**Compost Bins** - Can be made out of many types of materials - blocks or bricks, snow fence, used pallets, wire mesh, etc.



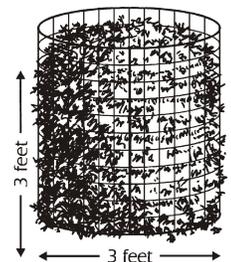
**Blocks or Bricks** - Just lay out the blocks or bricks without mortar. Leave spaces between the blocks or bricks to permit air to circulate. The best size is approximately 5 to 8 feet on a side and 3 to 4 feet high.

**Snow Fence** - Used snow fence is a simple way to build a bin. Just drive four corner posts into the ground and attach the snow fence.

**Used Pallets** - Find four clean pallets and fasten the corners together, and start filling. You may want to keep one corner loose, so the bin can be opened for turning and removing compost.



**Small-Mesh Wire Fencing** - Buy or find wire mesh, form into a circle or square and add your compost materials.

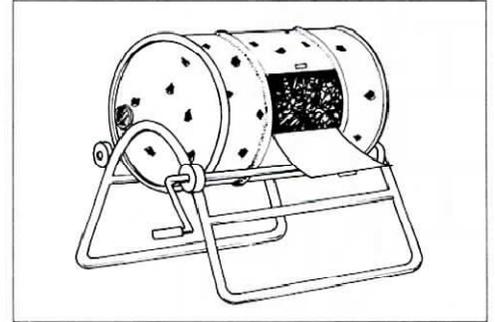


Bins do not have to be square, they can be rectangular or cylindrical, it's your choice. Remember, for a typical home garden, a bin 3 to 4 feet in height and 5 to 8 feet per side will do.

**Store Bought Bins** - There are a variety of commercial bins that can be bought at your local hardware or garden store or you can find bins online.

### **Compost Tumblers (Rotating Drums)**

Compost tumblers also called rotating drums are increasing in popularity. Rather than turning the materials with a pitchfork, which can be labor intensive, users simply push the unit or turn a crank once or twice a day. Each rotation introduces more air into the system, and mixes the materials together. This helps speed the composting process. To harvest the finish compost, stop adding materials to the tumbler and keep rotating it daily until the compost is ready. To compost newly generated materials while you wait, either get another tumbler or create a pile or stationary bin to contain the materials until your compost is ready.



One challenge with tumblers is that most are not insulated and have difficulty retaining high enough temperatures throughout the winter to keep the composting process going. If you can keep a large sized tumbler mostly full throughout the winter it will likely retain enough heat. You can build your own system or buy one. There are many varieties sold online.

## **How Does Composting Work?**

Many organisms are involved in the composting process. They include bacteria, fungi, protozoans and centipedes, millipedes, beetles, ants and the most famous - earthworms! Composting is an aerobic process (requires oxygen), since these organisms use oxygen as they break down the materials and turn them into compost.

In addition to oxygen, compost organisms need water to thrive. That is why the compost pile must be kept moist. If there is too much water not enough air can get to the microorganisms. Use the squeeze test to find out if you have the right amount of moisture. Grab a handful of material and squeeze. If a few drops come out, you're doing great.

Compostable materials contain carbon and nitrogen. We refer to them as greens and browns. Greens are fruit and vegetable wastes, coffee grounds, grass clippings, manure. Browns are leaves, straw, wood chips, sawdust and shredded paper. The microorganisms use the carbon in leaves and other browns as an energy source. As the microbes breakdown this material, heat energy is released. Nitrogen helps the microbes build proteins to grow and multiply. The decomposing organisms need a certain amount of both carbon and nitrogen to work well. Approximately 1 part greens to 2 part browns is a good mix.

**HINT: ALWAYS HAVE A STOCKPILE OF BROWNS NEAR YOUR COMPOST SYSTEM, SO YOU HAVE BROWNS AT HAND TO ADD ON TOP OF YOUR GREENS.**

Chopping or mowing your compost materials speeds the process since it provides more surface area for the compost organisms. As the creatures decompose the materials into compost, the height of the pile will reduce by over 50%!

For optimum composting, the compost temperature should be around 90 to 140 degrees Fahrenheit. The pile will be hot soon after adding materials and then will cool down. Here in New York State, unless you have a big pile that keeps in the heat, composting will shut down for the winter as the microorganisms become inactive. This is not a problem, because the composting process will start up again when the weather gets warmer. However, if you want to add food scraps to your compost pile through the winter, you can insulate the pile.

## Insulating Your Compost Pile or Bin

The easiest way to insulate a compost pile is to build a large pile as the cold weather approaches. A pile at least 3 feet high and 5 feet on each side will normally retain temperatures above freezing in the center of the pile. The top of the pile should be covered with about 1 foot of leaves. When adding food scraps, scrape away the top layer of leaves, add your food scraps and cover it back up.

If you have a bin instead of a pile, you can insulate it by putting leaves, straw or other lightweight browns around the bin. A layer one foot thick around the bin will provide good insulation during the winter. Lightweight browns can be fenced in to keep them in place. Sturdier browns such as straw bales can simply be piled around the bin. When the warm weather arrives, these insulating materials can be added to your browns stockpile to be used after adding greens to the bin.

## Why Should I Make Compost?

- Composting is an easy, practical way to recycle your organic yard and kitchen waste.
- Compost is an excellent soil conditioner for even the smallest yard and garden - it's safe to use and it costs practically nothing to make.
- Compost grows healthy plants and healthy plants improve the air by removing carbon dioxide and making fresh oxygen.
- For serious gardeners, compost is an inexpensive alternative to peat and other soil enhancements.

## Uses for Compost

**Gardens and Lawns-** Mix it into the garden soil or sprinkle it on the lawn to improve moisture retention and soil texture and add beneficial microorganisms and nutrients. Prior to adding it to the lawn it is best to finely screen the compost.

**Landscaping** - Use it around garden beds, trees or shrubs as a mulch.

**House Plants** - Use 1/2 to 1/3 of your container volume instead of soil.

## Composting Do's And Don'ts

**DO** mix grass clippings with other wastes to loosen them up. They have a tendency to compact. The best way to manage grass clippings is to mulch them into the lawn.

**DO** keep the compost pile damp, especially during dry spells. Squeeze test.

**DON'T** use unfinished compost. It will rob your plants of nitrogen.

**DON'T** add dog and cat droppings. They can contain diseased organisms that may not be destroyed through the compost.

**DON'T** compost weeds that are heavily laden with seeds. Some seeds will not be killed during the heating process.

**DON'T** add diseased vegetable plants to the pile if the compost will be used on a vegetable garden. The disease organisms may reappear the following year.

**DON'T** add meat, fish, bones or fatty food scraps to the compost mixture. They will attract animals (dogs, cats, rats, etc.) and they do not decompose readily.

## Composting Summary

Composting is simple and easy! Now that you read this booklet, you can be a composting expert! Just remember your compost pile needs:

- Microorganisms, including bacteria and fungi.
- A good C:N Ratio (greens and browns).
- A large enough pile to keep itself warm if you want compost in six months.
- Enough moisture (but not too wet).
- Air.
- Time.

Put it all together and the microorganisms and other organisms will do the rest!

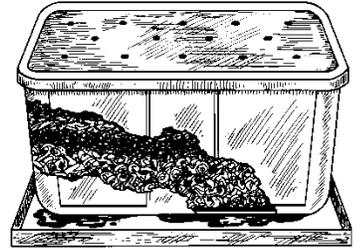
## Yard Waste Management Besides Composting

**Mulching** - Yard waste can be used for weed control and water retention. Use branches, leaves and grass. Just spread the materials around your plants. Branches may need to be chipped first.

**Leave It On The Lawn** - Even better than composting grass clippings and leaves, mulch/mow them into the lawn. For more information on this, see our "Leave It On The Lawn" pamphlet.

## Composting Indoors with a Worm Bin

If you don't have the ability to compost outside, you can still compost inside with a worm bin. Using a worm bin has several advantages. The composting material does not need to be turned; the worms do it for you. The bin is often located inside so you don't have to take a trip to the compost pile. The resulting compost is rich in plant micronutrients and helpful bacteria.



### What Kind of Worms Should I Get?

The most common type of worm in a worm bin is the red wiggler (*Eiseneia fetida*), also called the manure worm. The ideal number of worms in your bin depends upon the amount of 'worm food' you put in. The ideal worm: vegetative waste ratio is **2:1**. For example, if you generate 1/2 lb of vegetative waste per day, use 1 lb of worms. (There are approximately 1000 worms in a pound!)

### What Kind of Bin Should I Use?

Worm bins are typically made of wood or plastic and come in all different sizes. The size of the bin depends upon the amount of 'worm food' you produce. Add one square foot of bin surface area for each pound of vegetative waste produced in a week. Make sure that there are some holes in the bin to allow air flow. Don't forget holes for the bottom to let the liquid drain out. The worms like temperatures between 50 and 80 degrees Fahrenheit. Therefore, it is best to keep your worm box inside during the winter months.



### What Do Worms Eat?

Worms eat decaying fruit, vegetables and bacteria. Bacteria, fungi and other organisms in the bin also contribute to the degradation process. While milk and meat products do degrade, they can produce odors and attract pests. Therefore, they should be avoided in a worm bin.

Collect food waste in a covered container. Add food to one third of the bin every 5-7 days. Add the food to a different row each time. Start off slowly, adding just a few handfuls each time.

### What Else Should I Add to the Bin?

Besides food, worms need bedding. The bedding should be high in carbon and moist (about 60% moisture). Shredded newspaper, office paper, cardboard, or partially degraded leaves work well. Wet the bedding with water. Grab a handful and squeeze. If a few drops come out, the amount of water is about right (approximately 60% moisture). Fill 3/4 of the bin with moist bedding.

Sprinkle in a handful of soil or eggshells. This provides grit to aid the worms' digestion. A handful of finished compost or soil can speed the degradation process by adding helpful microorganisms.

## Harvesting Compost from Your Worm Bin

After approximately 4-6 months the compost is ready to be collected. To allow the material in the bin to further degrade, don't add food to the bin for one month. One method of harvesting the compost is to move it to one side of the bin. Then add new moist bedding and food waste to the empty side. Most of the worms will move to the new food in a few days - then simply removed the compost.

## Trouble Shooting Your Worm Bin

### Odors

If the bin is too wet, the degradation process may become anaerobic which leads to odors. To prevent this, add dry bedding if more than a few drops of water can be squeezed from the bedding.

### Fruit Flies

Fruit flies are the most common pest in a worm bin. They are attracted to yeast and rotting fruit. Flies can be avoided, or at least minimized, by burying the food waste 2 inches below the bedding. Another way to avoid fruit flies is to use a bin with small air holes that flies can't get through. Once the flies are present, stop putting food in the bin for approximately three weeks. The worms can survive over a month without adding food to the bin, but fruit flies cannot.

## For More Information on Yardwaste or Worm Bin Composting...

If you want to know more about composting and ways to make good compost, consult books or gardening magazines, call your county Cooperative Extension office or visit Cornell Waste Management Institute's comprehensive website at <http://cwmi.css.cornell.edu/smallscale.htm>.

### Call or write to:

NYS Department of Environmental Conservation  
Division of Materials Management  
Bureau of Waste Reduction & Recycling  
625 Broadway  
Albany, NY 12233-7253  
(518) 402-8706

### or email us at:

[recycling@gw.dec.state.ny.us](mailto:recycling@gw.dec.state.ny.us)

### and check out our web page at:

[www.dec.ny.gov/chemical/8801.html](http://www.dec.ny.gov/chemical/8801.html)

