



Solid
Waste
Management
Coordinating
Board

Composting

Prepared for 2009 Community POWER Grantees. Visit RethinkRecycling.com for more information on this and other waste related topics. This information has been approved by county staff and may be reproduced using the credit line below. Be sure to have your county staff contact review any changes made to this document before publishing.

This information has been provided by the Solid Waste Management Coordinating Board through a Community POWER (Partners on Waste Education and Reduction) Grant. Visit RethinkRecycling.com your go-to-guide for waste and recycling in the Twin Cities.

Introduction

Composting: Why Throw When You Can Grow?

Over 11% of our garbage is food waste that could be put to a much better use – creating compost! Composting is a process whereby organic wastes (grasses, leaves, kitchen scraps and garden debris) are converted into to a highly desirable, organic, soil-like material. Compost improves soil quality and can reduce your use of water and fertilizer in your yard and garden. Gardeners have used compost for centuries to increase organic matter in the soil, improve soil physical properties, and supply some of the essential nutrients for plant growth. Even if you're not a fan of gardening, you can lighten the load you carry out to the trash by simply composting food waste.

Informational Article

Why Throw When You Can Grow?

Over 11% of our garbage is food waste that could be put to a much better use—creating compost! Composting is a process whereby organic wastes (grasses, leaves, kitchen scraps and garden debris) are converted into a highly desirable, organic, soil-like material. Gardeners have used compost for centuries to increase organic matter in the soil, improve soil physical properties, and supply some of the essential nutrients for plant growth.

Composting is the management of the natural processes of decomposition for our own benefit. Natural bacteria, worms, fungi, and invertebrates work to turn our food and yard waste into compost. The larger decomposers, like insects and worms, tear and break apart the materials, while smaller and microscopic organisms process the materials chemically. Those chemicals then release nutrients for our lawn and garden plants to absorb.



A successful compost pile requires three things:

1. **Air Circulation:** Microbes need air to thrive and to process the materials in your compost pile. You can keep air circulating by turning the pile with a shovel regularly, or by adding bulky, oddly shaped materials to the pile to create air pockets.
2. **Moisture:** Microbes also need water; they live in the thin sheath of water that coats the organic material in the compost pile. If there is too little water, the microbes will dehydrate and die. If there is too much it can displace the air pockets and cause unlivable conditions for the microbes. To test your pile, pick up a handful of the mixture—if water drips out, that’s too much water. If the material falls to pieces when you pick it up, that’s too dry. If the mixture stays in a clump for a few seconds before breaking apart, that’s just right.
3. **The Right Ingredients:** You should keep the ratio of ingredients you add to two parts green to one part brown. “Greens” are nitrogen-rich materials like green leaves or grass, coffee grounds, tea bags, plant trimmings, and fruit and vegetable scraps. “Browns” are carbon-rich materials, including dried grasses or leaves, straw, woodchips, twigs, sawdust, or dead plants.

There are a few other considerations to keep in mind while creating a successful compost pile. First, place your compost bin in a spot in your yard that is at least partially shaded and at least two feet from your house, garage, or fences. The place should be convenient for you to add materials to, have access to water and good drainage, and be away from large trees (their roots steal nutrients and can grow into the compost).

A second consideration is size. A pile that is one cubic yard (3’ high, 3’ wide, 3’ long) is big enough to retain heat and moisture but small enough to be easily turned. Home compost piles shouldn’t be larger than 5’ x 5’ x 5’.

The third consideration is a container. A simple pile in your yard will work just fine, but a bin or container will help your pile retain heat and moisture and will look neater than a simple pile. You can build a bin with scrap lumber, old pallets, fencing, or concrete blocks. Or, you can buy a compost bin at local garden centers and hardware stores.

You should contact your city recycling coordinator for composting requirements before starting a compost pile. Visit RethinkRecycling.com and www.composters.com for information on your city’s requirements, where to buy a bin, and how to properly and successfully maintain your compost pile.

Additional Information

Backyard Composting 101

Composting is simply managing the natural process of decomposition for our benefit. Natural bacteria, worms, fungi, and a variety of invertebrates help turn food and yard waste into compost. The larger decomposers (some insects and some earth worms) process material physically by tearing or breaking it apart. The smaller or microscopic organisms process material chemically. It is the chemical decomposers that release nutrients in a form that plants can absorb. They work together, feeding in your pile (and on each other), to break down materials. They need a moist environment to thrive. Some of these organisms feed directly on the waste, while others feed on the bacteria in the pile. As they feed on the compost pile, they generate a lot of heat, which helps the material decompose. The internal temperature is dependent upon the microbial activity, not heat of the sun.

What belongs in my compost pile?

The goal is to create favorable conditions for beneficial microorganisms to grow and do their work of decomposing vegetable and fruit scraps and yard waste.

A successful compost pile has three basic needs:

1. **Air Circulation**

Microbes require air, otherwise the anaerobic microbes will take over, and they are stinky! Air can be incorporated into the pile by turning the pile with a shovel or hoe, or adding bulky, oddly shaped material to make little spaces.

2. **Consistent Moisture Level**

Microbes also require moisture. The microbes live in the thin sheath of water that coats the organic material in the compost pile. If there is no water, the microbes will dehydrate and die. But too much water will displace all of the air space causing anaerobic conditions. In general, the mixture should feel about as damp as a wrung-out sponge. Pick up a handful of the mixture and squeeze: if water drips out – that's too much, if the material falls to pieces as soon as you open your hand – that's too dry, if the mixture stays in a clump for a few seconds before breaking apart – that's just right.

3. **The right ingredients – 2 parts green to 1 part brown**

Nitrogen rich "greens" include: green leaves, coffee grounds, tea bags, plant trimmings, fruit and vegetable scraps, fresh grass clippings.

Carbon rich "browns": dried grasses, leaves, straw, woodchips, twigs, sawdust, shredded newspaper, dead plants.

What does NOT belong in my compost pile?

- Food with meat, dairy, or oils
- Pet feces
- Diseased plants
- Weeds gone to seed
- Ash from charcoal or coal
- Bones
- Grease
- Branches and wood chunks



How do I use my finished compost?

- Mix compost in with your soil to improve quality.
- Use it to fill in low spots in your yard.
- Use it as mulch for landscaping and garden plants.
- Mix compost in the soil for potted plants.
- Top dress your lawn to retain moisture.

Before starting a compost pile in your yard, contact your city recycling coordinator at RethinkRecycling.com for composting requirements.

Getting Started

Get started composting in three simple steps:

1. Make a compost bin or buy one;
2. Throw in your kitchen scraps and some yard waste;
3. Mix it up with a shovel or pitchfork once in a while.

Compost Bin Considerations

- **Location, location, location** - Pick a spot in your yard that's at least partially shaded and at least 2 feet from a structure like your house or a fence. Other considerations:
 - Convenient for you to add materials
 - Access to water
 - Good drainage – place on bare ground
 - Away from large trees – their roots steal nutrients and can grow into the compost
- **Size** - A pile that is 1 cubic yard (3 feet high, 3 feet wide, 3 feet long) is big enough to retain heat and moisture, but small enough to be easily turned. Home compost piles shouldn't be larger than 5' x 5' x 5'.
- **Containers** - You can compost in a simple pile, but using a container or bin helps your compost pile retain heat and moisture and look neat. To get started, it's easy to go with a single bin system. As materials are added and mixed together, the finished compost settles to the bottom of the bin.
 - **Building a bin** - Bins can be built from scrap lumber, old pallets, snow fence, chicken wire, or concrete blocks.
 - **Where to Buy Compost Bin** - Local garden centers and hardware stores sell different kinds of bins. Find help online at:
 - RethinkRecycling.com
 - www.composters.com



Vermicomposting or Worm Composting 101

Vermicomposting is the process of having redworms and other decomposer organisms process our organic waste and turn it into a great natural fertilizer (called vermicompost).

Vermicomposting requires very few supplies, and can be done by anyone in an apartment or house. A simple container makes a fine worm bin and keeps worms and decomposing food scraps in one area. The worm in your worm bin may be fed most of your non-meat food scraps. They require very little attention, do not get sick, and don't mind if you go on vacation. In addition, redworms are big eaters that are extremely happy to spend the day eating organic waste, excreting worm castings and making more worms, providing you with high quality compost!

Visit the Recycling Association of Minnesota at www.recycleminnesota.org to view an instructional video on vermiculture, print instructions and to order redworms.

Visit RethinkRecycling.com to find composting tips and more information on waste reduction.

Composting Quiz

1. What percent of our garbage is food waste?

- a. 1%
- b. 6%
- c. 11%
- d. 16%

Answer: c. Over 11% of our garbage waste is food waste that could be put to a much better use—composting!

2. Which of the following are considered basic needs of a successful compost pile?

- a. air circulation
- b. consistent moisture level
- c. the right ingredients
- d. sunlight
- e. lots of water
- f. a, b, and c only

Answer: f. Air circulation, a consistent moisture level, and the right ingredients are the three basic needs of a successful compost pile. Too much water won't allow microbes to grow and sunlight is not necessary as the microbial activity generates heat to help the material decompose.

3. T/F: The right ingredients are a mixture of two parts green to one part brown.

True or False

Answer: True. Nitrogen-rich greens include: green leaves, coffee grounds, tea bags, plant trimmings, fruit and vegetable scraps, and fresh grass



clippings. Carbon-rich browns include: dried grasses, leaves, straw, woodchips, twigs, sawdust, shredded newspaper, dead plants.

4. Which of the following are NOT good ingredients to add to your compost pile?
- a. food with meat, dairy, or oils
 - b. pet feces
 - c. diseased plants
 - d. weeds gone to seed
 - e. bones
 - f. grease
 - g. all of the above

Answer: g.

5. T/F: You compost bin should be placed near or under a large tree if possible.

True or False

Answer: False. Your bin should be away from large trees as their roots could steal nutrients from the pile and could grow into the compost.

6. What is the recommended size for a residential compost pile?

- a. 5' x 5' x 5' (5 feet high, 5 feet wide, and 5 feet long)
- b. 3' x 3' x 3'
- c. 1' x 1' x 1'

Answer: b. A pile that is 3' x 3' x 3' (1 cubic yard) is big enough to retain heat and moisture, but small enough to be easily turned. Residential compost piles should be no larger than 5' x 5' x 5'.

7. T/F: To have a successful compost pile you must buy a bin from a local garden center or hardware store.

True or False

Answer: False. You can compost in a simple pile, but using a container or bin helps your compost pile retain heat and moisture and look neat. You could also build your own bin from scrap lumber, old pallets, snow fence, chicken wire, or concrete blocks. Of course, you can buy different kinds of bins at garden centers and hardware stores also.

8. T/F: There are different ways of composting, including "worm composting".

True or False

Answer: True. Besides regular "backyard composting", there is also a type of composting called "vermicomposting" or "worm composting".

Vermicomposting is the process of having redworms and other decomposer organisms process our organic waste and turn it into a great natural fertilizer. It requires very few supplies and can be done in a much smaller space in an apartment or house. To learn more, visit the Recycling Association of Minnesota at www.recycleminnesota.org to view an instructional video on vermiculture, print instructions, and order your redworms.

9. T/F: You should contact your city recycling coordinator to learn about composting requirements in your area before starting a compost pile in your yard.



True or False

Answer: True. You can find your city recycling coordinator's contact information at RethinkRecycling.com/city_info.asp.

10. Which of the following are great ways to use your finished compost?

- a. mix it in with your soil to improve quality
- b. use it to fill in low spots in your yard
- c. use it as mulch for landscaping and garden plants
- d. mix it in the soil of your potted plants
- e. top dress your lawn with it to retain moisture
- f. all of the above

Answer f. All of these are great ways to use the natural process of composting to improve your yard and plants!

Resources

RethinkRecycling.com - Residents and businesses can learn how to create less waste, recycle more and properly dispose of hazardous items.

RethinkRecycling.com is sponsored by the metro region's Solid Waste Management Coordinating Board (SWMCB), comprised of the six member counties, and the Minnesota Pollution Control Agency.

A Recipe for Good Compost print piece is available by emailing the Solid Waste Management Coordinating Board at assistant@rethinkrecycling.com. Updated Spring 2009.

www.extension.umn.edu/distribution/horticulture/DG3296.html - Minnesota Extension Service Guide to Composting

How To Compost Your Organic Waste link and print resource available from the MPCA. Contact resource center staff at clearinghouse@pca.state.mn.us or by phone 651-215-0232. www.reduce.org/compost/index.html

Anoka County:

www.anokacounty.us/yardwaste

Dakota County:

www.dakotacounty.us/EnvironmentRoads/EnvirProtect/Composting/default.htm

Hennepin County:

www.hennepin.us Search "Backyard Composting"

Ramsey County:

www.co.ramsey.mn.us/ph/rt/brush_compost_yardwaste.htm

Washington County:

www.co.washington.mn.us/info_for_residents/environment