



# Backyard Composting in Oklahoma

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In Oklahoma, yard trimmings and grass clippings can make up 15 to 25 percent of a community's waste. The costs of collecting and transporting yard waste and the subsequent landfill tipping fees may be a considerable portion of a community's waste management budget. These costs may be reduced if communities encouraged and practiced backyard yard waste composting.

Yard wastes, especially grass clippings, are usually high in nutrient content. When yard waste is composted, bacteria use air and water to break down plant materials into nutrient-rich compost. These nutrients can be beneficial to soils, plants, and trees in the yard when applied as mulch or a soil amendment.

Compost systems can be simple and slow as a heap or pile, which is turned occasionally during the year. A more structured and complex system requires containers, more turning, and produces finished compost in a few months. In compost piles, water is added to green and brown vegetation layers.

As decomposed plant material, compost is an excellent soil amendment. Compost can loosen clay soils, help sandy soil retain moisture and nutrients, and retain soil moisture when used as a mulch. Beneficial bacteria and organisms in compost assist plants in absorbing nutrients. Thus, natural materials are recycled in a home yard environment.

## What is Compost?

Compost is a natural dark brown humus-rich material formed from the decomposition or breakdown of organic materials such as leaves, grass clippings, vegetation, vegetable food scraps, and twigs. Bacteria, worms, fungi, and insects need water and air to use the organic materials as food and decompose them.

## What is the Procedure to Make Compost?

Organic materials are placed in alternating green and brown layers in a container, bin, or pile. Alternating green and brown layers of material help assure the correct carbon and nitrogen amounts. With water and air, bacteria and insects use

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the materials as a food and energy source. The bacteria need water to live and grow. This process generates heat from 140 to 160 degrees F. Aeration is done by turning the container or pile of material. The more turning, the more air the bacteria have available, and the faster the process works. When the temperature decreases, the process is complete.

## How is a Compost Bin Made?

Bins may be made in various sizes and with a variety of materials. The following easy steps describe compost pile construction:

1. Construct a confining perimeter with 3' to 5' diameter and 4' high. Materials may be concrete blocks, railroad ties, wire mesh, boards, old pallets, other fencing material, barrel, or garbage can with holes for air
2. Layer green (wet) and brown (dry) vegetable matter (1 part green to 3 parts brown)
3. Wet thoroughly, then sprinkle with water periodically
4. Turn every week to speed the decomposition process

## How Long Does it Take Compost to Form?

The time of completion will vary according to the type and amount of materials used, the climate, the size and type of bin or pile used, and the amount of aeration or turning of the pile. With the correct carbon to nitrogen ratio, water, and air, compost should be ready to use in 4-6 months. If the pile is turned more frequently, the compost should be ready more quickly. The smaller the individual pieces of material in the pile, the more surface area the microorganisms have to work on and the faster the materials will decompose. Shredding or chipping branches decreases the decomposition time.

## When is the Compost "Done?"

Compost is ready when the temperature of the pile falls to ambient levels, the material is dark, crumbles easily, pieces are small and there is no odor.

## How can the Process be Sped Up?

Mixing frequently provides more air for the bacteria. Keep the material moist with soaking about once a week. Break the materials into smaller pieces.

## What can be Composted?

- Most yard waste such as grass clippings, leaves, twigs, excess vegetation
- Non- fat containing food scraps
- Twigs or chipped branches
- Coffee grounds, tea leaves

## What cannot be Composted?

- Large branches
- Fatty foods and grease, meats, dairy products, fish
- Bones
- Synthetic products such as plastics
- Diseased plants
- Weeds and vegetables that produce abundant seeds
- Pet or human waste

## Why Make Compost?

- Recycle natural materials
- Reduce amount of chemical fertilizer used
- Reduce amount of material going to landfills
- Reduce landfill tipping fees for individuals or communities
- Prolong landfill life

## What can Compost be Used For?

- Improve soil structure and texture
- Increase water-holding capacity of sandy soil
- Loosen clay soil and improve drainage
- Add nutrients to improve soil fertility
- Aid erosion control
- Potting soil
- Mulch around shrubs to retain moisture

## Problems that may be Encountered (Trouble Shooting)

Problem	Cause	Solution
Pests - rats, racoons etc.	Meats or fatty foods	Remove and omit meat products Cover pile with soil or sawdust
Low pile temperature	Pile too small Not enough air Not enough moisture Not enough nitrogen (N)  Weather too cold Too wet	Need bigger pile Turn pile Add water when turning pile Add greens, N sources such as fertilizer and grass clippings Insulate with straw or plastic Reduce water, protect from rain, turn more frequently
High pile temperature (+140 ° F)	Too big Not enough air	Reduce size Turn more frequently
Rotten Odors	Not enough air Too wet	Turn more frequently, add coarse material such as straw
Ammonia	Too much nitrogen Need more carbon	Add more browns, less greens Add straw, paper, or cardboard

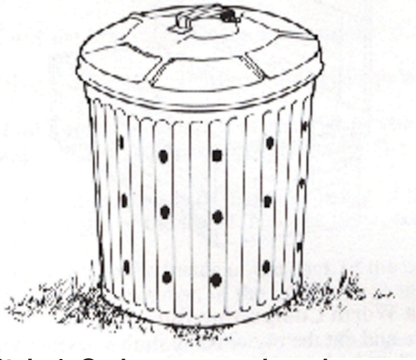
If you need further information or assistance, please contact your County Extension Educator.

## References

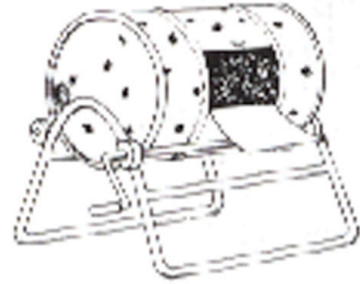
Ag in the Classroom Curriculum, Grades 3-4, Lesson S1-Composting  
 Fact Sheet F-887, "Rural Community Yard Waste Composting Systems"  
 Brochure L-251, "Recycling Yard Waste, "Don't Bag It" - Mulching with Wood Chips"  
 Brochure L-252, "Recycling Yard Waste, "Don't Bag It" – Leaf Composting"  
 Brochure L-253, "Recycling Yard Waste, "Don't Bag It" – Lawn Care Plan"  
 Waste Management Web Site [www.rd.okstate.edu/waste](http://www.rd.okstate.edu/waste)  
 Publications Web Site <http://www.osuextra.com>  
 The Rodale Book of Composting by D.L. Martin and G. Gersuny, Eds., Rodale Press, Emmaus, Pennsylvania

## Compost Bin Styles

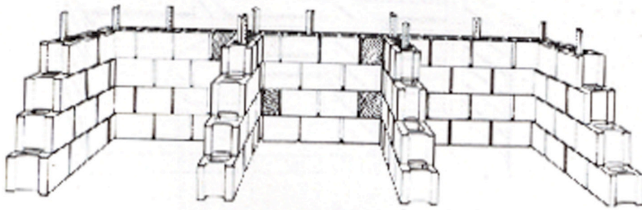
1. Garbage can or barrel – with holes in bottom and in rows about 4-6 inches around sides.
2. Commercial – many varieties usually about the size of a 30-gallon garbage can, found at home supply stores.
3. Three bin turning units are made so that the compostable material can be easily transported from one bin to another, thus reducing the time to produce the compost. They can be made out of a variety of materials.
  - a. Concrete blocks
  - b. Wood with wire sides
  - c. All wood
4. Holding units (for easy passive composting) can be made from many materials, require no turning and are thus slower to produce compost.
  - a. Wood pallets
  - b. Concrete blocks
  - c. Posts and chicken (or other type) wire
  - d. Posts and snow fence



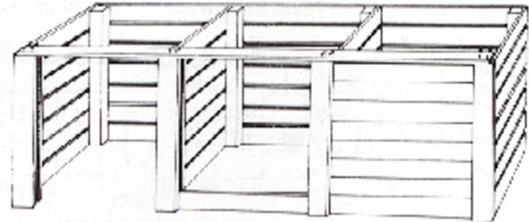
Style 1. Garbage can or barrel



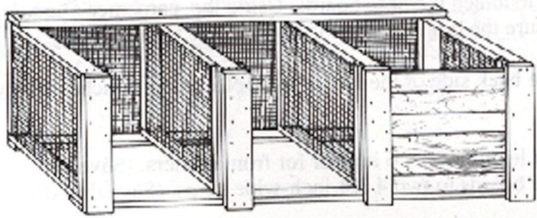
Style 2. Commercial



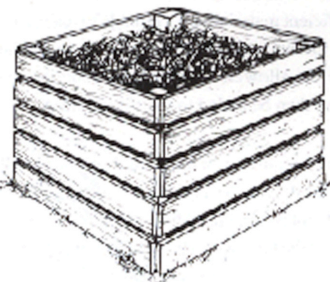
Style 3a. Concrete blocks



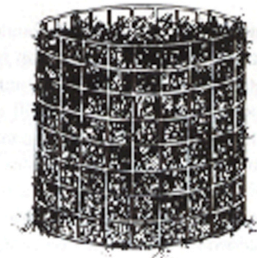
Style 3c. All wood



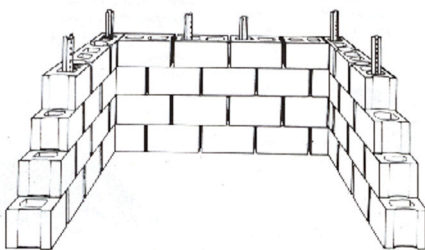
Style 3b. Wood with wire sides



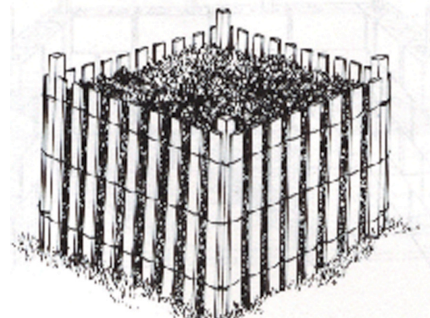
Style 4a. Wood Pallets



Style 4c. Posts and chicken wire



Style 4b. Concrete blocks



Style 4d. Posts and snow fence

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