



Backyard Composting in Oklahoma

David Hillock
Assistant Extension Specialist

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 such 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 the materials as a food and energy source. The bacteria need water to live and grow. This process generates heat from 140 F to 160 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.

Oklahoma Cooperative Extension Fact Sheets
are also available on our website at:
<http://osufacts.okstate.edu>

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 3 feet to 5 feet in diameter and 4 feet high. Materials may be concrete blocks, 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 (one part green to three 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, the compost should be ready to use in four to six 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 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 and excess vegetation.
- Food scraps without fat.
- Twigs or chipped branches.
- Coffee grounds, tea leaves.

What cannot be Composted?

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

Why 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.

How can Compost be Used?

- 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 landscape plants to retain moisture.

Problems that may be Encountered (Trouble Shooting)

Problem	Cause	Solution
Pests - rats, raccoons, 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 the local county Extension educator.

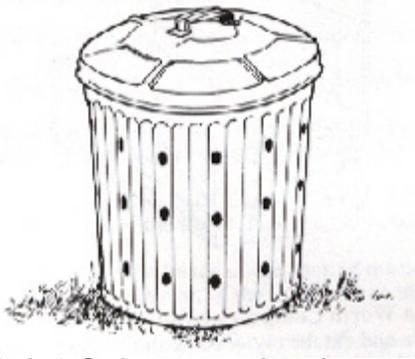
References

Ag in the Classroom Curriculum, Grades 3-4, Lesson S1-Composting
 L-251, "Recycling Yard Waste, "Don't Bag It" - Mulching with Wood Chips"
 L-252, "Recycling Yard Waste, "Don't Bag It" – Leaf Composting"
 L-253, "Recycling Yard Waste, "Don't Bag It" – Lawn Care Plan"
 Publications Web Site: osufacts.okstate.edu
The Rodale Book of Composting by D.L. Martin and G. Ger-shuny, Eds., Rodale Press, Emmaus, Pennsylvania

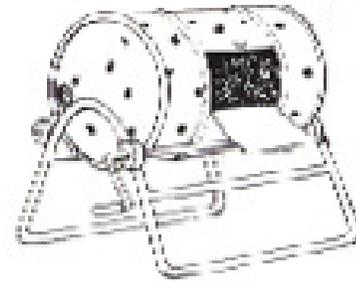
Compost Bin Styles

1. Garbage can or barrel – with holes in bottom and in rows

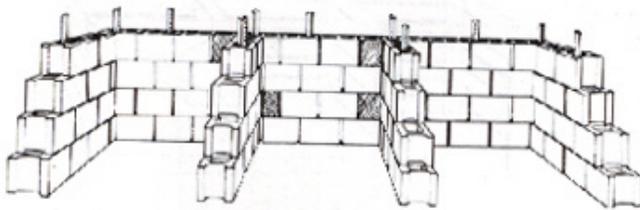
- about 4 to 6 inches around sides.
2. Commercial – many varieties usually about the size of a 30-gallon garbage can, found at home supply stores.
 3. Three-bin turning units are made so the compostable material can be easily transported from one bin to another, reducing the time to produce the compost. 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 slower to produce compost.
 - a. Wood pallets
 - b. Concrete blocks
 - c. Posts and chicken (or other type) wire
 - d. Posts and snow fence



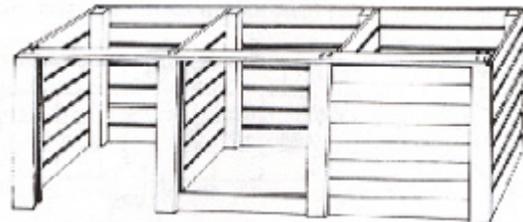
Style 1. Garbage can or barrel



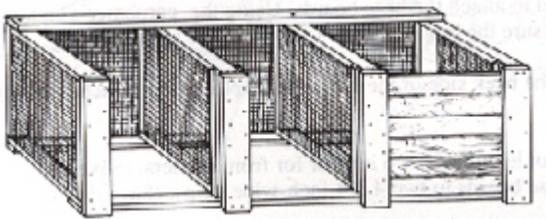
Style 2. Commercial



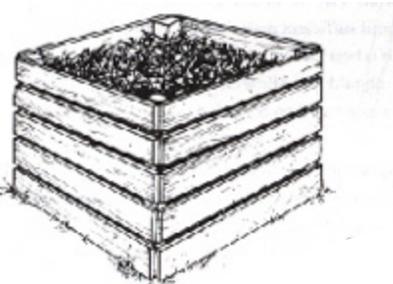
Style 3a. Concrete blocks



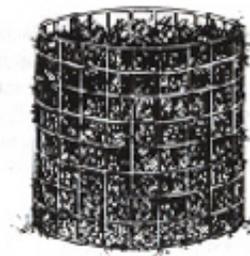
Style 3c. All wood



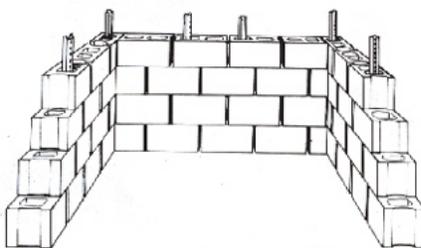
Style 3b. Wood with wire sides



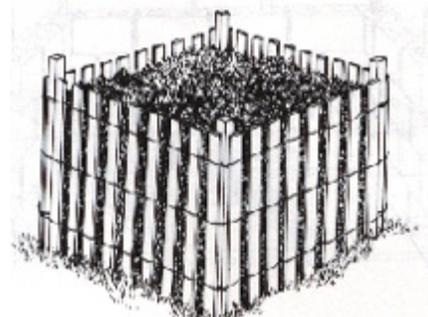
Style 4a. Wood Pallets



Style 4c. Posts and chicken wire



Style 4b. Concrete blocks



Style 4d. Posts and snow fence

The Oklahoma Cooperative Extension Service

Bringing the University to You!

The Cooperative Extension Service is the largest, most successful informal educational organization in the world. It is a nationwide system funded and guided by a partnership of federal, state, and local governments that delivers information to help people help themselves through the land-grant university system.

Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the Cooperative Extension system are:

- The federal, state, and local governments cooperatively share in its financial support and program direction.
- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.
- It provides practical, problem-oriented education for people of all ages. It is designated to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.
- It utilizes research from university, government, and other sources to help people make their own decisions.
- More than a million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.

Oklahoma State University, in compliance with Title VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, and Title IX of the Education Amendments of 1972 (Higher Education Act), the Americans with Disabilities Act of 1990, and other federal and state laws and regulations, does not discriminate on the basis of race, color, national origin, genetic information, sex, age, sexual orientation, gender identity, religion, disability, or status as a veteran, in any of its policies, practices or procedures. This provision includes, but is not limited to admissions, employment, financial aid, and educational services. The Director of Equal Opportunity, 408 Whitehurst, OSU, Stillwater, OK 74078-1035; Phone 405-744-5371; email: eeo@okstate.edu has been designated to handle inquiries regarding non-discrimination policies; Director of Equal Opportunity. Any person (student, faculty, or staff) who believes that discriminatory practices have been engaged in based on gender may discuss his or her concerns and file informal or formal complaints of possible violations of Title IX with OSU's Title IX Coordinator 405-744-9154.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director of Oklahoma Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President for Agricultural Programs and has been prepared and distributed at a cost of 20 cents per copy. Revised 0516 GH.