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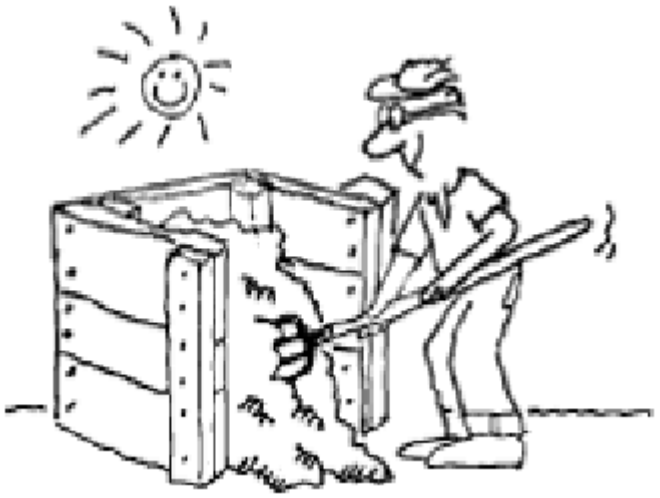
Lower Rio Grande Valley Development Council
311 N. 15th Street
McAllen, TX 78501

Lower Rio Grande Valley
Development Council

COMPOST - WHY IT'S IMPORTANT



CONTENTS

WHAT IS COMPOST?	1
WHY COMPOST?	2
WHAT CAN BE COMPOSTED?	4
HOW TO GET STARTED	5
MAKING COMPOST	7
COMPOST CREATURES	10
HOW TO USE COMPOST	10
TROUBLE SHOOTING	11
COMPOST PROGRAMS IN THE LRGV REGION	12
SOURCES	13

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WHAT IS COMPOST?

Composting is the natural process of decomposition and recycling of organic material into a humus rich soil amendment known as compost. Compost is one of the most valuable resources for beautifying your landscape, and it is virtually free. Leaves drop from trees. Grass clippings are left after mowing the lawn. Plants and animals die. Over time these organic materials break down or decompose. The rich, dark-brown, crumbly, soil-like material that results is called compost. Finished compost also has a pleasant smell.

At home or at your school compost can be made out of leaves, grass clippings, vegetable and fruit scraps, coffee grounds and filters, tea bags, wood chips, straw and small twigs. Tiny living things do much of the work of breaking down organic materials to form compost. These tiny workers are called microorganisms and include such things as bacteria and fungi. Animals living in the soil help microorganisms break down organic materials. Worms and pill bugs are examples of soil animals that help change organic waste into compost.

Healthy compost adds nitrogen, phosphorus, potassium and sulfur to soils. If can also help the soil retain moisture and give structure and support for its inhabitants. Not only can compost stimulate plan growth, it can carry the necessary bacteria to resist dangerous pathogens and toxins in the soil.

Compost can help create soil out of every kind of soil, silt, clay, or sandy dirt. The two things sick soils lack are microorganisms and organic matter. By adding nutrients to soil, vegetation becomes healthier and micro and macroorganisms are attracted to the ecosystem. The most beneficial organism is the earthworm, but there are many others. Once this ecosystem becomes balanced in the natural intended, every aspect of the system works to create a good environment for vegetation. The benefits brought about by this healthy ecosystem are:

- Encourages the formation of appropriately-sized aggregates which protect soil from erosion and compaction
- Eliminates (some say reduces) the need for chemicals which may pollute ground water
- Conserves water as penetration and retention are improved, erosion and run-off are reduced.
- Stabilizes and regulates pH at optimum level for nutrient availability
- Improves moisture retention in sandy soils so water loss and leaching are reduced or eliminated.
- Improves drainage in clay soils
- Promotes fertility through higher quantities of macro and micro nutrition, as well as improving the availability of the nutrition
- Stimulates plant root development. Overall root environment is improved due to better structure, porosity, and density of the soil.
- Soil-borne plant pathogens are controlled or suppressed.

WHY COMPOST?

Recycling the organic waste of a household into compost allows us to return badly needed organic matter to the soil. In this way, we participate in nature's cycle, and cut down on garbage going into landfills.

The average person in the United States generates 4.5 pounds of refuse per day which is, for the most part, finding its way into"sanitary" landfills. This disposal by burial not only threatens the quality of our groundwater supplies, but also wastes valuable land and sacrifices waste materials that might otherwise be turned into a precious natural resource.

Mastercomposter.com

Landscape recycling makes sense because leaves, lawn clippings and tree trimmings account for up to 30% of the material being dumped in landfills today.

Wayne J. McLaurin and Gary L. Wade, Extension Horticulturists

Composting also provides a way not only of reducing the amount of waste that needs to be disposed of, but also of converting it into a product that is useful for gardening, landscaping, or house plants.

Compost can save you money:

Reduce trash

Provides free soil amendment

Retains soil moisture & saves on water bills

Compost can help your garden:

Feeds the soil

Prevents soil erosion

Improves yields of fruits, vegetables, flowers and herbs

Composting can improve our environment:

Turns waste into a valuable resource

Saves limited landfill space

Recycles nutrients back into the soil

Other benefits of using compost:

- Improves the soil structure, porosity, and density, creating a better plant root environment
- Increases infiltration and permeability of heavy soils, reducing erosion and runoff
- Improves water holding capacity, reducing water loss and leaching in sandy soils
- Supplies a variety of nutrients
- May control or suppress certain plant pathogens
- Supplies significant quantities of organic matter
- Improves cation exchange capacity of soils and growing media, improving their ability to hold nutrients for plant use.
- Supplies beneficial microorganisms to soils and growing media
- Improves and stabilizes soil pH
- Can bind and degrade specific pollutants

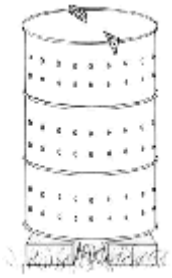
WHAT CAN BE COMPOSTED?

Fruits, vegetables trimmings, grains, bread, unbleached paper napkins, coffee grounds with filters, tea bags, eggshells can be composted. If it can be eaten or grown in a field or garden, it can be composted. In addition to leaves, grass, and yard clippings, vacuum cleaner lint, wool and cotton rags, sawdust, shredded newspaper, and fireplace ashes can also be composted.

Materials to avoid:

Meat, bones, fish, dairy products, grease and oil: cause odors and attract rodents. Pet droppings: contain disease. Weeds with seeds and runners: grow when you spread your compost. Diseased and insect-infested plants: spread if not well composted. Plastics, glass, and metals - including plastic utensils, condiment packages, plastic wrap, plastic bags, foil, silverware, drinking straws, bottles, polystyrene or chemicals.

HOW TO GET STARTED



Container: You may use wood and plastic containers. Either build or buy, or use your imagination and recycle something like an old dresser drawer, trunk, or discarded barrel. Wood would be better because it is more absorbent. With plastic containers the compost tends to get quite wet. Experiment and find out what works for you. A compost pile can be as plain or fancy as you want. The size of the compost pile determines how effective it will be; piles smaller than 27 cubic feet (3 X 3 X 3) do not hold sufficient heat for the composting to be effective, and piles larger than 125 cubic feet (5 X 5 X 5) do not allow sufficient oxygen to reach the center. Be sure your compost pile is a manageable size.

Composting is like cooking, with may recipes and variations. Here is the basic approach:

1. Collect leaves, grass, yard clippings.
2. Place in a heap or bin.
3. Sprinkle with water, maintain dampness.

For quicker composting (1-3 months):

- Alternate layers to mix green and brown materials
- Aerate the pile by turning and poking.
- Chop materials into smaller pieces and moisten.

For slower composting (3-6+ months):

- Just keep adding materials to your pile or bin.
- Keep it moist. It's that simple!

There are four basic ingredients in a compost pile:

- ***Carbon:*** Energy food for micro-organisms. Dry, tough, fibrous plant materials such as leaves, straw, sawdust, shredded paper.

- ***Nitrogen:*** Protein micro-organisms need to break down the carbon. Fresh weeds, grass clippings, fruit and vegetable kitchen scraps.

- ***Water:*** Moisture is a very important part of composting. Too much can suffocate micro-organisms and result in a smelly pile. Too little will slow down the decomposition process.

- ***Air:*** aerating, or turning, your pile is very important to provide oxygen for micro-organisms.

Following are materials that are suggested for a successful compost pile. Although a diversity of organic material can increase the productivity of your pile, not all of the items suggested are necessary ("N"-nitrogen, "C"-carbon).

Grass clippings (N): should be mixed in with dry materials such as straw, hay sawdust or laid in the sun to dry since they are almost entirely water which can suffocate your pile. Grass clippings that have been sprayed with pesticides or herbicides may contaminate your pile.
Sod (N): may take years to decompose if strips are not chopped or shredded and mixed in thoroughly.
Leaves (C): any kind of leaves may be used, including needles.
Fresh Weeds (N): should be mixed with brown material. May want to chop up or shred if extremely fibrous plant. Make sure to collect weeds before they have set seeds. Only the hottest of piles are able to kill seed.
Seaweed (N & C): rich in trace elements and nutrients.
Woody Material (C): wood chips, cones, bark. May be used, but takes a long time to decompose if not chopped up.
Kitchen Waste (N & C): fruit and vegetable waste, stale baked goods, used coffee grounds, paper towels, tea bags, egg shells. Any organic material except meat and dairy products (No bones, grease, gravy, milk, cheese, etc.). Beneficial to mix kitchen waste with dry carbon material. Can chop it up in blender mixed with a little water for faster decomposition.

Paper (C): Newspaper, computer paper and copy paper may be shredded and added to compost pile or can be recycled.
Things you'd never think of (N & C): Human hair, dead house plants, vacuum cleaner waste, natural fabric, untreated wood.

Keys to good composting:

- The carbon/nitrogen ratio: A mixture of dry leaves, sawdust, or other sources of carbon combined with manure, green plants, or fertilizer for nitrogen (approximately 4:1 by volume).

- The presence of micro-organisms: A few shovels full of rich garden soil or compost will supply these.

- The moisture level: The pile should have the moisture of a well-squeezed sponge. Add water as needed.

- The oxygen level: A compost pile should be turned periodically to promote decay of its contents. Turning the pile adds oxygen, so the more you turn it, the faster it breaks down. (Turning heavy, rotting leaves and grass is vigorous exercise).

- The particle size: The finer the particle size, the more surface there is for microorganisms to work. Shredding leaves and larger materials generates compost faster.

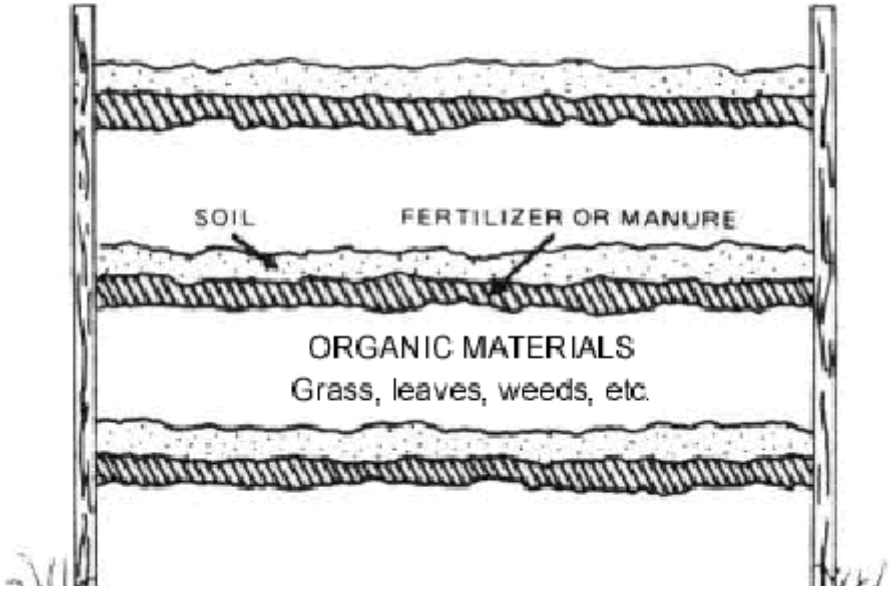
MAKING COMPOST

Locate your compost pile on a well-drained site which would benefit from nutrients running off the pile. It also should be located where it will not interfere with activities in the yard or offend neighbors. The pile will do best where it is protected from drying winds and where partial sunlight will help heat the pile. The more wind and sun to which the pile is exposed, the more water it will need. Your pile can be built gradually in layers and then turned to mix. Or if you have sufficient material, it can be mixed and blended at one time.

- To ensure good aeration and drainage, put down a 3-inch layer of coarse plant material, such as small twigs or chopped corn stalks, or wooden pallet.

- Next, add about 8 to 10 inches of leaves or other dry organic wastes from your landscape and/or kitchen.

- Provide nitrogen for compost-promoting microorganisms by adding 2 to 3 inches of fresh grass clippings of fresh manure. If fresh nitrogen sources are unavailable, add about one-third cup synthetic fertilizer (36-0-0) per 25 square feet of surface area.

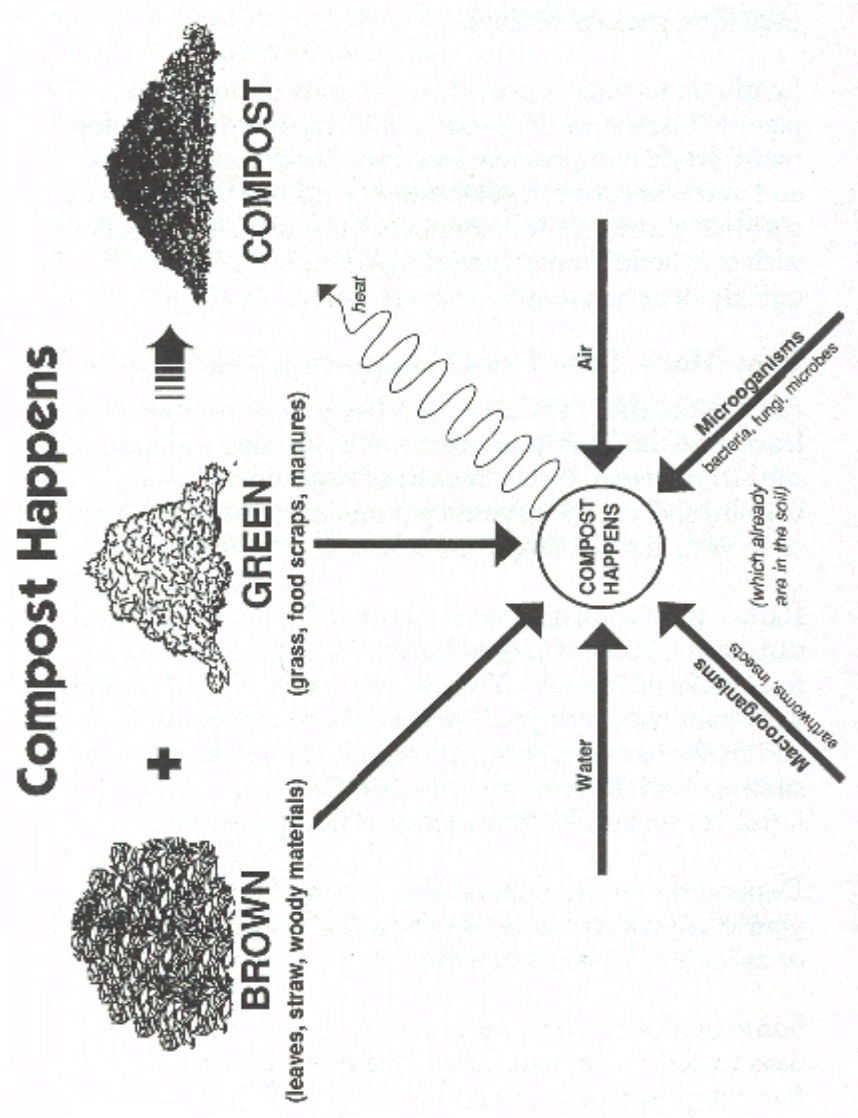


- If no soil is included in your compost material, add a sprinkling of soil or compost starter to each later to inoculate the pile with microorganisms.

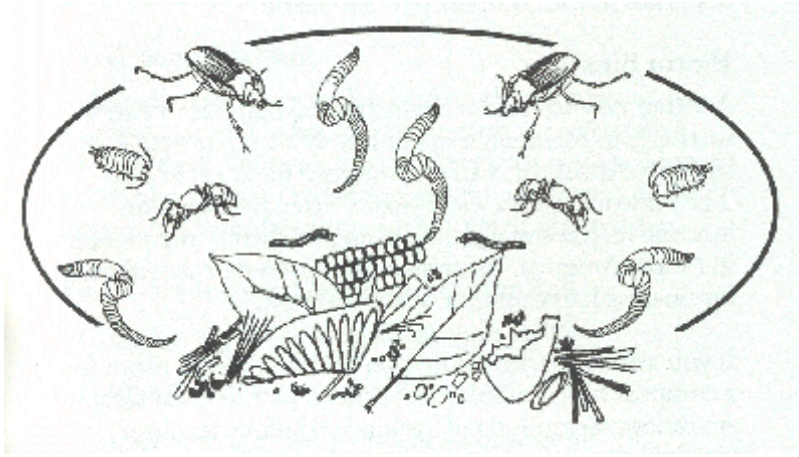
- Moisten the pile as you add leaves and other dry material.

Mix the materials thoroughly. Shape the pile so its center is lower than its sides, to help water flow into the pile. Keep the pile moist, but not soaking wet. Within a few days, it should heat up. If not, it may lack nitrogen or moisture. If the pile emits an ammonia smell, it is too wet or too tightly packed for oxygen circulation; turn the heap an add coarse material to increase air space. Once a month, turn the pile with a pitch fork, putting the outside materials on the inside and vice versa.

The plant materials should decompose into compost within five months in warm weather, longer under cool or dry conditions. The center of the pile should reach 160öF. to kill most weed seed, insects and eggs, and disease organisms. Composting may be completed in one or two months if the materials are shredded, kept moist, and turned several times to provide good aeration. Spread it in the garden and dig or till it under to offer your soil and plants renewed vigor.



Compost Creatures



- Worms and insects work through leaves, grass, and other organic materials, creating air shafts and rich worm castings.
- Bacteria and fungi create heat as they digest these materials.
- Nature's helpers continually mix organic matter and release nutrients so that plants can absorb them again.

Taking worms out of their natural environment and placing them in containers creates a human responsibility. They are living creatures with their own unique needs, so it is important to create and maintain a healthy habitat for them to do their work. If you supply the right ingredients and care, the worms will thrive and make compost for you.

How to Use Compost

- Dig it into planting areas to improve the health of the soil.
- Spread it around shrubs, flowers and trees as mulch.
- Use it in potting mixed for indoor and outdoor plants.

Trouble Shooting

Concern	Possible Cause	Solution
Rotten Odor	excess moisture (anaerobic conditions)	turn pile, add dry, porous materials, such as leaves, sawdust, wood chips, or straw
	compaction	turn pile, or make smaller
Ammonia Odor	too much green (nitrogen)	add brown (carbon) materials, such as leaves, wood chips, or straw
Low Pile Temperature	pile too small	make pile bigger or insulate sides
	insufficient moisture	add water while turning pile or cover top
	poor aeration	turn pile
	lack of green (nitrogen)	mix in green sources such as grass clipping, manure or food scraps
	cold weather	increase pile size or insulate pile with an extra layer of material, such as straw
High Pile Temperature (+ 140° F)	pile too large	reduce pile size
	insufficient ventilation	turn pile
Pests rats raccoons insects	presence of meat or fatty food scraps	remove meat and fatty foods from pile, or cover with a layer of soil, leaves or sawdust, or use an animal-proof compost bin or turn pile to increase temperature

Compost Programs in the LRGV Region:

City of McAllen, Recycling Center,
4101 N. Bentsen Rd., McAllen, TX

Price Guide	
Compost	$15.00 per cubic yard
Mulch	$12.00 per cubic yard
Delivery Fee	$15.00 per load (minimum of 14 cubic yards)

Wholesale Prices For purchases over 30 cubic yards	
Compost	$10.00 per cubic yard
Mulch	$7.00 per cubic yard
Delivery Fee	$15.00 per cubic yard

Mulch will slow water loss, reduce competition from weeds and grasses, will moderate soil temperature and will provide a small amount of "nutrients".

Compost helps the soil absorb and retain nutrients and moisture, and protects plants from diseases and pests.

For more information call (956) 688-3266.

City of Brownsville
900 FM 802, Brownsville, TX

Price Guide	
Compost	$45.00 per ton
Mulch	$25.00 per ton

For more information call (956) 831-3641.

Several smaller cities have Composting Programs and chipper material for cities and parks projects and also have it available for their cities at their Parks and Recreation Dept., Recycling Centers, etc.

Some of the cities include:

City of Alamo
City of Port Isabel
City of San Juan
City of La Feria

SOURCES

Backyard Composting - Your Complete Guide to Recycling Yard Clippings by Harmonious Technologies; Cornell Composting Resources; Community Composting In Hood River County; *Composting with Red Wiggler Worms* by Gillian Elcock and Josie Martens; Virginia Cooperative Extension; University of Georgia College of Agricultural and Environmental Science; U.S. Environmental Protection Agency; Aggie Horticulture Network; Mastercomposter.com; and Amherst New York.