

The Scoop on Composting...

In Southeast Texas, when those first crisp Autumn breezes send yellow elm and crunchy brown oak leaves swirling on driveways, and squirrels chase each other through the trees, many breathe a sigh of relief that the dog days of summer might actually be behind them. The days are shorter, the shadows longer. It is the favorite time of year for many Houstonians, who are eager to participate in outdoor activities.



With the grass growing season coming to an end, there's still lots to do in the yard and garden to get it ready for Spring. One of the most productive of these activities is to start a **composting** program...take advantage of all those leaves and pine straw and "cook up" a batch of mulch that will give your flower beds and landscape areas a real boost. It isn't difficult and the payoff can be spectacular.

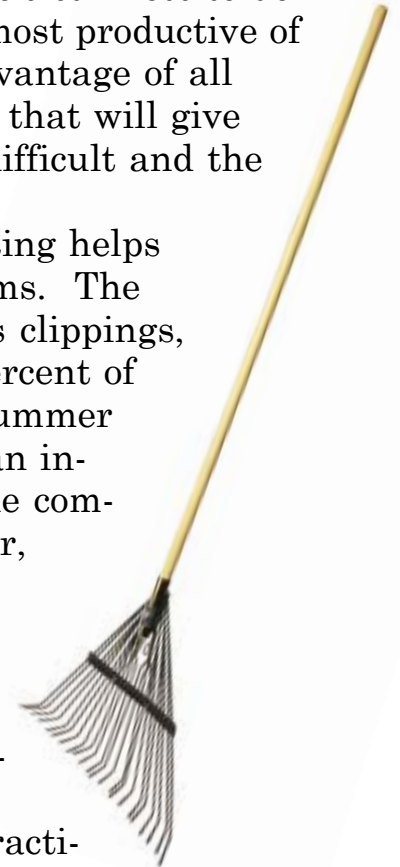
Not only is it great for your lawn and garden, composting helps with one of the nation's most critical environmental problems. The U.S. Environmental Protection Agency estimates that grass clippings, leaves, and tree or shrub prunings account for almost 20 percent of "household trash" and perhaps as much as 50 percent in Summer and Fall months. Landfill sites are rapidly filling up, and an increasing number of people across the country have made the commitment to recycle just about everything... aluminum, paper,

plastic, household scraps, and yard debris.

In addition to helping with the landfill crisis, composting offers another, very practical benefit. When rich compost mulch is used in flower beds and landscape areas, it holds in the moisture and cuts down on the amount of water needed to keep the plants healthy. Compost also breaks up clay soils, serving as a safeguard against erosion. And it adds structure and

moisture to sandy soils, which can allow landscaping of otherwise undesirable planting areas.

Compost improves soil aeration, which enables vital oxygen to boost soil productivity. Finally, virtually all plants grown in compost-enriched soils are healthier and are better prepared to fight off assaults from insects and diseases. So, with all these benefits and with the cost of water going up, composting can save both water and money!



So, how does it work?

Very simply, composting is nature's way of transforming organic waste into usable fertilizer through the interaction of microorganisms, water and air. The human element is responsible for organizing all the ingredients for the "recipe" and Mother Nature does all the rest.

Making compost imitates nature's cycle of life and death and accelerates the process of decomposition -- the breakdown of raw organic materials. This has been taking place in nature since life first appeared on the planet. Man has been attempting to control and utilize the process for hundreds of years, with varying degrees of success. However, with today's technology and modern tools, composting can be accomplished on a small scale in your own backyard, or commercially for an entire county or municipality.

It's a science...

Composting is a science...involving a complex "food chain" of bacteria, fungi, worms, beetles, mites and lots of other beneficial organisms that "eat up" organic materials and produce humus. Bacteria carry the heavy load in composting, especially in "hot" compost when they populate quickly. All these "bugs" need is a mass of organic materials that contain a balanced diet of nutrients -- carbon and nitrogen -- along with adequate moisture and oxygen.

Mix plenty of "green" materials (food scraps, grass clippings, and manure) with high carbon "brown" materials (dry pine straw, hay, dead leaves, wood chips or shavings, broken up twigs) and you're on the way. The balance is important, though...too much "green" may harbor pests and lose nitrogen in ammonia, which can create odor problems. Too much "brown" breaks down too slowly because it won't support a large enough population of organisms to do the job correctly.

Living things are basically made up of nitrogen (proteins) and carbon (sugars, starches and fiber). While alive, they are "green" and have a high nitrogen content. Once they start to die, the decomposing process begins, when the airborne bacteria consumes the protein-rich tissues first, and then becomes part of the "brown" material -- bug droppings, dead bacteria, and other by-products. New generations of bacteria consume the high-carbon plant fibers and the recycling is complete.

Balance is key...

Early in the composting process, it is often difficult to maintain the right amount of moisture in all the materials



◆ *"Every year more than five million tons of yard trimmings and other organic materials end up in Texas landfills instead of building up the soil. Disposing of all this organic matter in landfills costs more than \$150 million a year!"*



◆ *"Millions of gallons of city-treated water are used to irrigate landscapes where native vegetation once grew in naturally mulched soil, sustained by rainfall."*

◆ *"To compensate for the loss of nutrients, homeowners purchase costly synthetic fertilizers and pesticides for their lawns. Runoff of these chemicals can pollute both ground and surface water supplies."*

Source: Texas Water Development Board

◆ *“Today, much of the water runs off the land, eroding depleted and unprotected soils that are unable to absorb it. The excess sediment from your lawn (and those around it) can smother aquatic life in the streams, creeks and rivers where the runoff ends up. The sediment can also increase the cost of operating water supply reservoirs.”*



The minimum dimensions for a compost pile are 3'x3'x3' – smaller piles just will not heat up or decompose. Practically, then, it should be large enough to hold the heat it will generate, and small enough to allow air movement into the center of the pile.



you've accumulated into a well-mixed pile. Too much moisture leaves no air spaces, and too much ventilation dries it out. Later, when everything starts to break down into a more compact mass, the biggest challenge might become keeping it adequately aerated with fresh air.

“Hot” composting can deplete the oxygen in a pile very quickly, even early in the process. Remember, the “balance” is the key to success here. Experts warn that a pile of dry organic materials can “shed water like a duck” so constant monitoring is critical. If it does get too dry, you can turn it, pull it apart and re-stack it, or you can mix in fine-particle absorbent materials, like manure. If it keeps getting too dry, try covering it with a tarp or a plastic sheet.

If the pile is too wet, you can turn it, mix it and add dry coarse materials like dead leaves or straw into it to absorb the moisture. Most “brown” materials are coarse, stiff and angular, so they tend to create air spaces in the pile that help it to stay aerated. “Green” materials, on the other hand, are most often pliable and moist, and they clump together into an “anaerobic” (lacking oxygen) mass.

The “best” level of moisture for a compost pile, the experts suggest, is as much moisture as the materials can contain without filling the air pockets -- like a completely damp, well-squeezed sponge.

Composting “happens” when moist organic materials are exposed to air. When materials break into smaller particles, there is more exposed surface area for the hungry organisms to attack, so it makes sense to crumble, crush or otherwise pulverize large objects before adding them to the pile. This is a case where size does make a difference -- aerobic composting works best and fastest when everything is reduced to small pieces and thoroughly mixed together...giving the decomposing organisms access to the critical carbon, nitrogen, and water. Chunks of wood and other pockets of “brown” material create “nitrogen-poor zones” with too much air space.

The best way to tell if your compost pile is “healthy” is to take its temperature. The most efficient composting occurs when the pile's temperature rises to between 120 and 160 degrees Fahrenheit...and stays there. Composting can happen at lower temperatures, it just takes a lot longer.

Growing and housing the pile...

Let's face it, most compost piles aren't aesthetic masterpieces, so it makes sense to locate them away from highly visible areas in your yard. You'll need a source of water nearby, and you'll probably want to put it in a partially shaded area to keep it from drying out too fast and too often. Remember, as you're adding material, the taller it becomes, the more difficult it will be to turn. You don't have to have an expensive container to compost successfully; but you do need a dedicated area to house it. There is a variety of inexpensive options -- including one using recycled wood pallets -- to create a structure to hold the materials.

"Hot" Compost Recipe...

There are two basic ways to compost...hot or cold. The hot method is significantly faster because it speeds decay which promotes the growth of the microorganisms. They create the heat -- and actually make the pile steam when it reaches between 120 and 150 degrees F -- as they process the brown and green materials. One of the "cool" things about a hot compost pile is that the heat kills many of the weed seeds and plant disease organisms.

Another bonus with hot composting is that it produces "batches" -- enough to fill a 3' x 3' container -- that are ready to use in one to four months.

- **Select and prepare your site.** Pick at least a 4' x 8' area where rainwater doesn't "puddle", that's at least partially in the shade, and is near a water source. Use some untreated wood to construct a frame and attach chicken wire securely across the top. Use this pallet for the "floor" to allow good drainage and let oxygen get to the bottom of the pile.

- **Add your composting materials.** Alternate a 12 inch layer of "green" with 12 inches of "brown". Add some kitchen scraps to layers that will be covered...vegetable and fruit scraps, cores

and peelings, egg shells, coffee grinds, corncobs, etc.

- **Moisten each brown layer** with a fine mist of water, and then apply an inch or two of soil to add the microorganisms. Make sure that there are plenty of coarse materials (e.g., sticks and branches) to aerate the pile. They won't break down easily, so you'll want to sift them out as the compost "matures."

- If the pile is uncovered, you may want to create a depression in the top to collect rainwater. If the weather is excessively rainy, however, cover the pile with a tarp or plastic so it doesn't become saturated and spoil the "recipe". Check the temperature soon after creating the pile -- it should be hot in the middle -- that's a sign that the "bugs" are hard at work.

- **Turn the pile over** every one to two weeks with a pitchfork or shovel until it doesn't re-heat much after turning. Be sure to move the dry materials on the edge into the pile each time.

You'll want some **good tools** to work with, including a hose with a good spray nozzle, a sturdy pitchfork, a good pointed shovel, a compost thermometer, some gloves, and a tarp or plastic to use as a cover or for mixing materials.

Compost Tea...

Looking for a nourishing drink for your houseplants? This will perk them right up...

Take an old sock, some cheesecloth, or even an ugly old pillowcase (if you want to make a large batch) and fill it with finished compost. Close the porous fabric receptacle securely, and immerse it into a properly sized container of water. Allow it to "perk" for 24 hours until it has the appearance of strong coffee. Dilute it to the color of weak tea when you use it to water your plants...they will LOVE it...!

