City of Dallas

Waste Diversion Team

Sanitation Services

ZERO WASTE BY 2040

Composting Essentials





Green Materials

Brown Materials

Water

Air

Time

What is Compost?

Compost - the act of mixing decaying organic matter for the use of fertilizing soil

Humus – decomposed organic matter, the nutrient component of soil

Composting is nature's way of recycling organic materials back into the soil in order for the cycle of life to continue. The billions of living organisms in healthy soil transform dead plants into vital nutrients for new plant growth.

- Environmental Protection Agency

WHY COMPOST

- **Reduces the amount of yard and kitchen waste going to the landfill.**
  - According to a recent waste characterization study, 29% of what Dallas residents throw away is kitchen and yard waste

- **Diminishes the need for chemical fertilizers and pesticides.**
  - Residential use of pesticides and fertilizers contributes to the pollution found in rivers and streams

WHY COMPOST

- **Improves the soil structure and texture to allow for greater soil fertility and healthy root development which leads to healthier plants.**
  - Composting supports aggregate formation, where particles of sand, clay and silt naturally group together to provide aeration, water drainage, and decreased erosion

- **Conserves water by retaining soil moisture.**
  - 100 lbs. of humus can hold up to 195 lbs. of water

Compost Can…

- Reduce or eliminate the need for chemical fertilizers.
- Promote higher yields of agricultural crops.
- Facilitate reforestation, wetlands restoration, and habitat revitalization efforts by amending contaminated, compacted, and marginal soils.
- Cost-effectively remediate soils contaminated by hazardous waste.
- Remove solids, oils, grease, and heavy metals from storm water runoff.
- Capture and destroy 99.6% of industrial volatile organic chemicals (VOCs) in contaminated air.
- Provide cost savings of at least 50% over conventional soil, water, and air pollution remediation technologies, where applicable.

http://www.epa.gov/epawaste/conserve/rrr/composting/pubs/index.htm#bpp

How to Choose a Composting Method

Now that you've decided to compost, it's important to find the right method for your family, which depends on multiple factors:

Time – How long do you want to wait for your compost?

Space – Where are you going to put your pile?

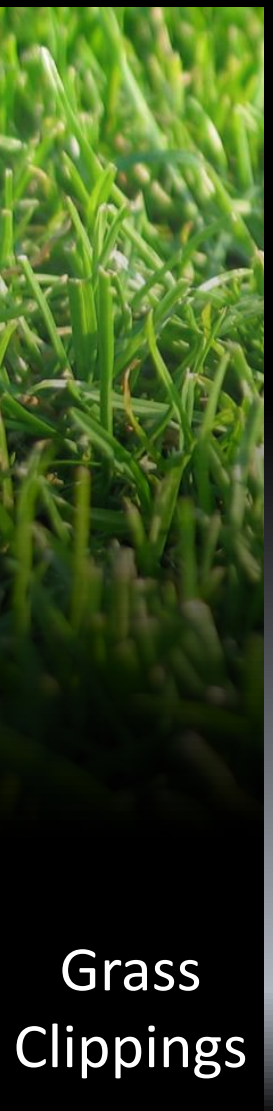
Energy – How much work do you want to put into your pile?

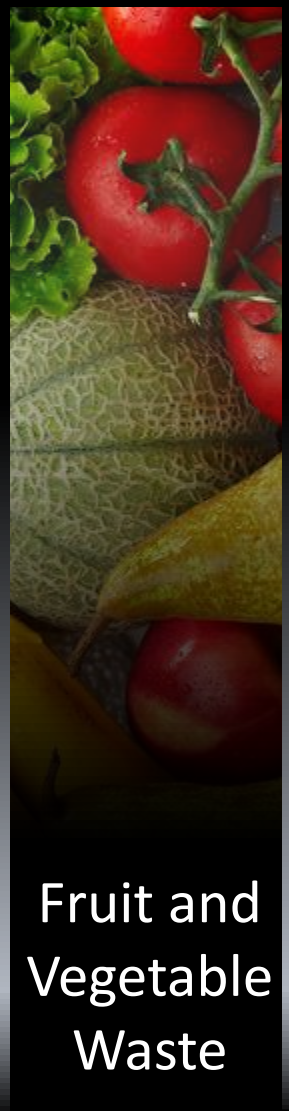
Kids – Do you want a method that your kids can get involved in?

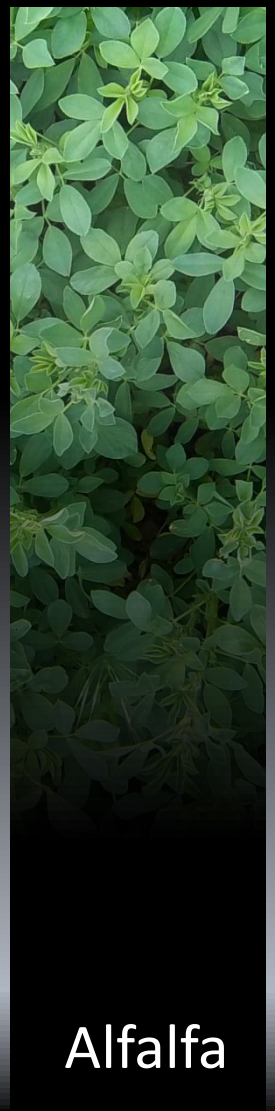
Materials – What type of organic waste does your family produce?

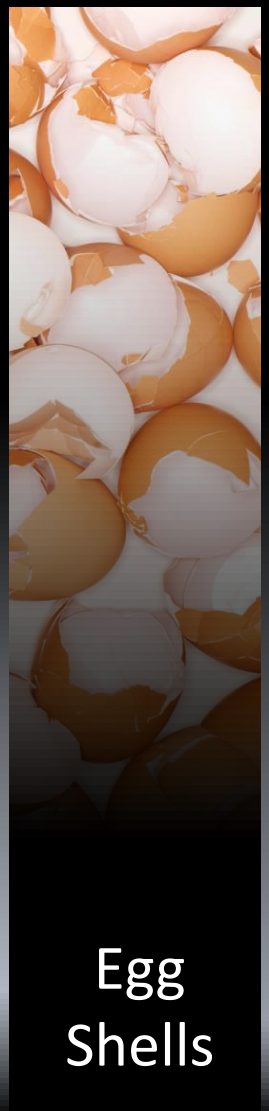
Composting has been described as an art, like cooking. As long as you enjoy it and your results are good – keep doing what you're doing!

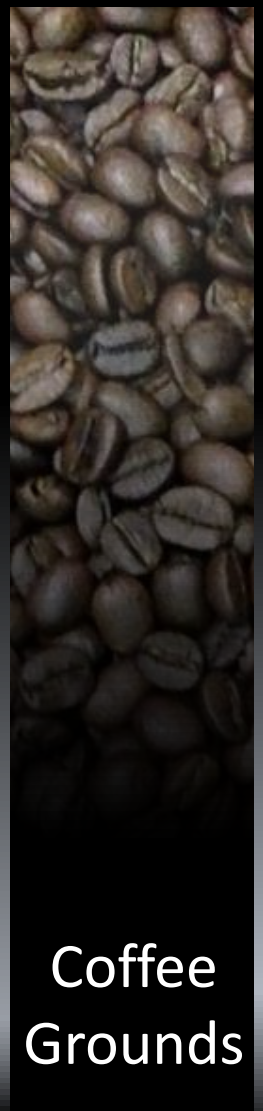
Green Materials (Nitrogen Rich)

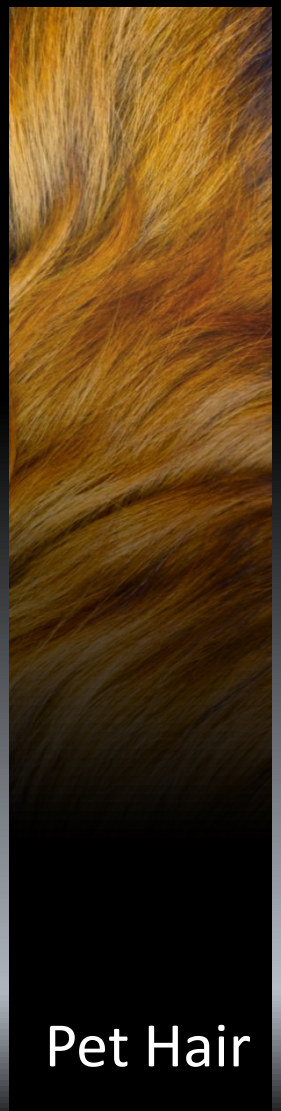

Grass Clippings


Fruit and Vegetable Waste


Alfalfa


Egg Shells


Coffee Grounds


Pet Hair


Garden Scraps and Fresh Cuttings

Brown Materials (Carbon Rich)

Material Size

Smaller = Faster Process

- Increase surface area by mulching, chipping or chopping kitchen waste into smaller pieces
  - Especially Carbon rich materials (e.g. leaves, woodchips, twigs, etc.)
  - This creates a larger surface area for the microorganisms
- Large items do not decompose quickly
  - They may take 2 – 3 composting cycles to fully compost

DO NOT PLACE IN THE BIN

- Meats, dairy products, oily foods, or grains
- Droppings from meat-eating animals
- Weeds with seeds or runners
- Diseased and insect-infested plants
- Shavings and sawdust from treated wood, and other materials containing strong preservatives or other toxins
- Ashes

Thermophilic (HOT) Composting

The Berkeley Method

- The compost heap needs to be roughly 3ft. by 3ft. by 3ft.
- Mix together ingredients by laying them in alternating layers (2 to 4 inches) of "greens" & "browns"
- After building the compost heap, wait 4 days until turning the pile, then turn every other day for 14 days
- The temperature is maintained between 131-149° Fahrenheit
- Turn the compost from outside to inside and vice versa to mix it thoroughly

HOT Composting

Pros

- Produces finished compost quickly
- Uses space efficiently
- Builds fertility quickly for new garden locations
- Kills most weed seeds & pathogens

Cons

- Requires more time and interaction
- Requires careful control of moisture and C/N ratio
- Must use the Batch method
- Compost will contain less nitrogen & beneficial bacteria

Mesophilic (COLD) Composting

- "Let it Happen" Method
- Add Balanced materials as you go along
- Size Varies
- Maximum temperature is 120° Fahrenheit
- Takes six months to two years

COLD Composting

Pros

- Needs little maintenance
- Spares beneficial microbes
- Contains more nitrogen
- Allows materials to be added a little at a time

Cons

- Nutrient loss occurs through extended exposure to the elements
- May take 6 months to 2 years
- Fails to kill pathogens or weed seeds
- Needs balanced carbon and nitrogen, as well as wet and dry materials, as you add to the pile
- Produces compost with more un-decomposed bits of high-carbon material

Carbon to Nitrogen Ratio

Ideal Ratio = 30:1 Carbon to Nitrogen

Eyeball method: 3:1 Brown to Green

Nitrogen

Carbon

Unmanaged Composting

Vermi-Composting

Vermi-Composting

- Indoor method for composting Kitchen Waste to create small amounts of nitrogen-rich compost in the form of worm castings
  - Examples of Kitchen Waste: Any non-meat foods such as vegetables, fruits, crushed eggshells, tea bags or coffee grounds
- Type: Red Wiggler Worms: *Eisenia fetida*
- Can be bought online or at select pet stores
- The worm bin must be in a climate that is 60 – 80° Fahrenheit

Troubleshooting

- **Smells Bad**
  - Too much green material
  - Too much water
  - Not enough air
    - Add brown material and turn, protect from rain
- **Pests**
  - Attracted by meat or dairy
  - Not hot enough
    - Turn and cover so food scraps and green material are in center
- **Not heating up**
  - Too much brown material
  - Not enough water
    - Add green material or water, and turn

Remember:

"Too much brown, pile slows down. Too much green smells like a latrine."

Composting Essentials Review

Green Materials

Nitrogen Rich: provides nutrients and moisture for the compost workforce.

Brown Materials

Carbon Rich: provides energy and is also used for absorbing excess moisture and giving structural strength to your pile.

Water

40% saturation

Not dripping, but like a sponge

Air

Anaerobic vs. Aerobic

Time

4 weeks to 2 years

depends on the number of turns


Questions?
Waste Diversion Hotline
(214) 670-4475