Don’t Bag It!
Leaf It Alone!

Basics of Composting

City of Plano in cooperation with Texas AgriLife Extension

Questions

- Why compost?
- What is composting?
- What do you need to compost?
- How do you build a compost pile?
- What are alternatives to composting?
- How can you use finished compost?

Why compost?

- Save landfill space
  - More than 5M tons of yard trimmings end up in Texas landfills
  - Cost: $150M annually
  - Uses 15M cubic yards of space


What's in the trash?
Paper
Yard trimmings
Food
Plastic
Metal
Glass
Other

Why compost?

- Reduce or eliminate need for synthetic fertilizer
- Save water
  - Compost rich soil retains water
  - For every 1% increase in OM Per Acre, there is a water retaining capability of 16,000 more gallons of water

Why compost?

- Your soil structure will improve
  - Greater moisture retention in sandy soil
  - Looser clay soil
  - Buffers the soil's pH

Why compost?

- Your plants will
  - Be healthier
  - Be more disease-resistant
  - Look better than your neighbor's

What is composting?

- Duplication of a natural recycling
- Uses nature's decomposition process
  - Can be focused and accelerated

What is composting?

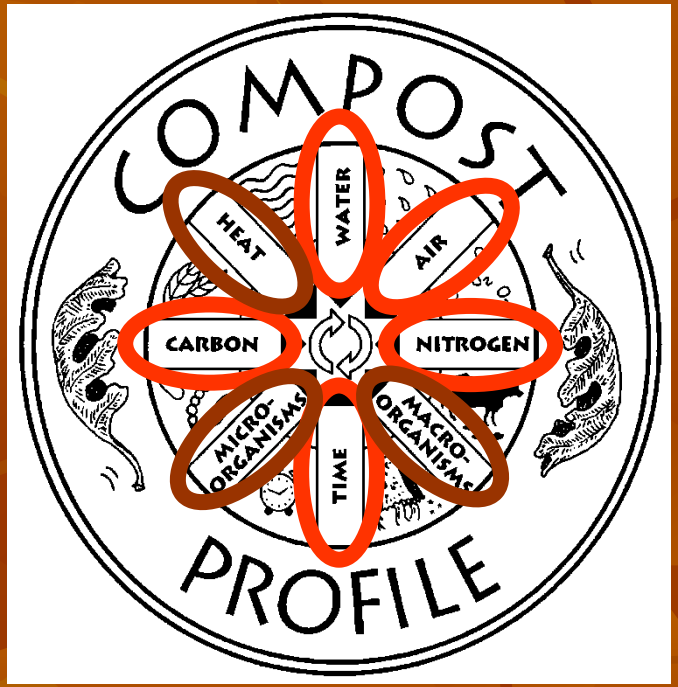
- Recycling of selected wastes
  - Yard trimmings
  - Fallen leaves
  - Selected kitchen waste*
- Creates a natural, slow-release fertlizing soil amendment

What do you need for composting?

What do you need for composting?

C=ATM3

- Materials
  - Browns and greens (carbon and nitrogen)
- Mass
  - 1 cubic yard minimum (3’x3’x3’)
- Moisture
  - 50% - the consistency of a damp sponge
- Air
  - Keeps micro-organisms alive
  - Anaerobic is smelly
- Time
  - Length of time is up to you



Materials: Carbon-Nitrogen Ratio

- Carbon
  - Provides energy
  - Burns easily
  - Leaves 40:1
  - Cornstalks 60:1
  - Straw 80:1
  - Sawdust 500:1

Materials: Carbon-Nitrogen Ratio

- Nitrogen
  - Promotes growth
  - Stinks when wet
  - Vegetable waste 12:1
  - Alfalfa hay 13:1
  - Grass 20:1
  - Rotted manure 20:1

Ideal Mix 30:1 Ratio

- Best mix
  - Grass 20:1 + Leaves 40:1 = 30:1
  - Equal amounts of grass and leaves by weight
    - Unequal amounts slow decomposition and can cause undesirable odor
  - Water

Choose your bin type: homemade

Carpenter's special

Simple and exposed

Choose your bin type: commercial

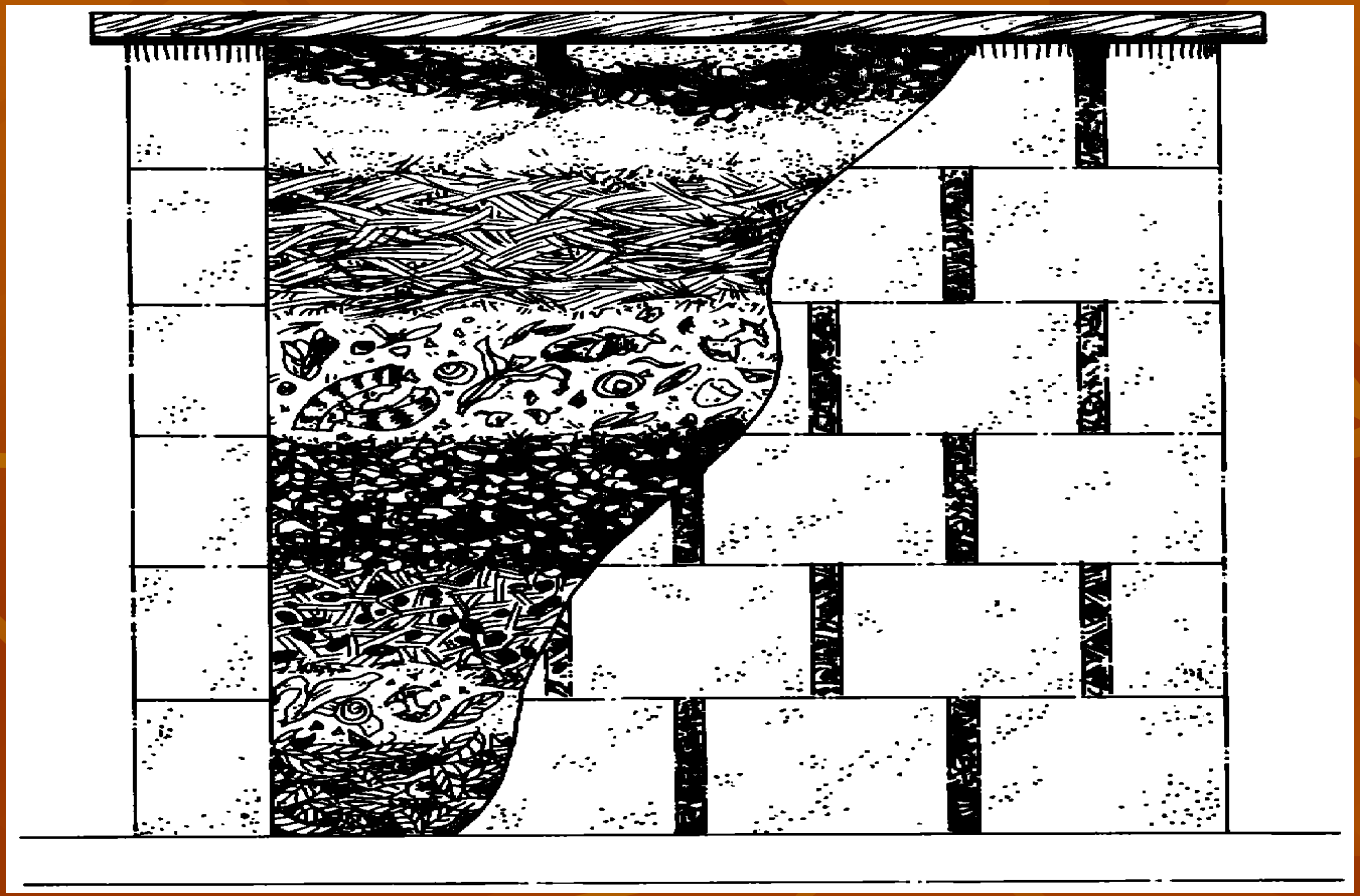
More expensive but completely contained

More commercial bins

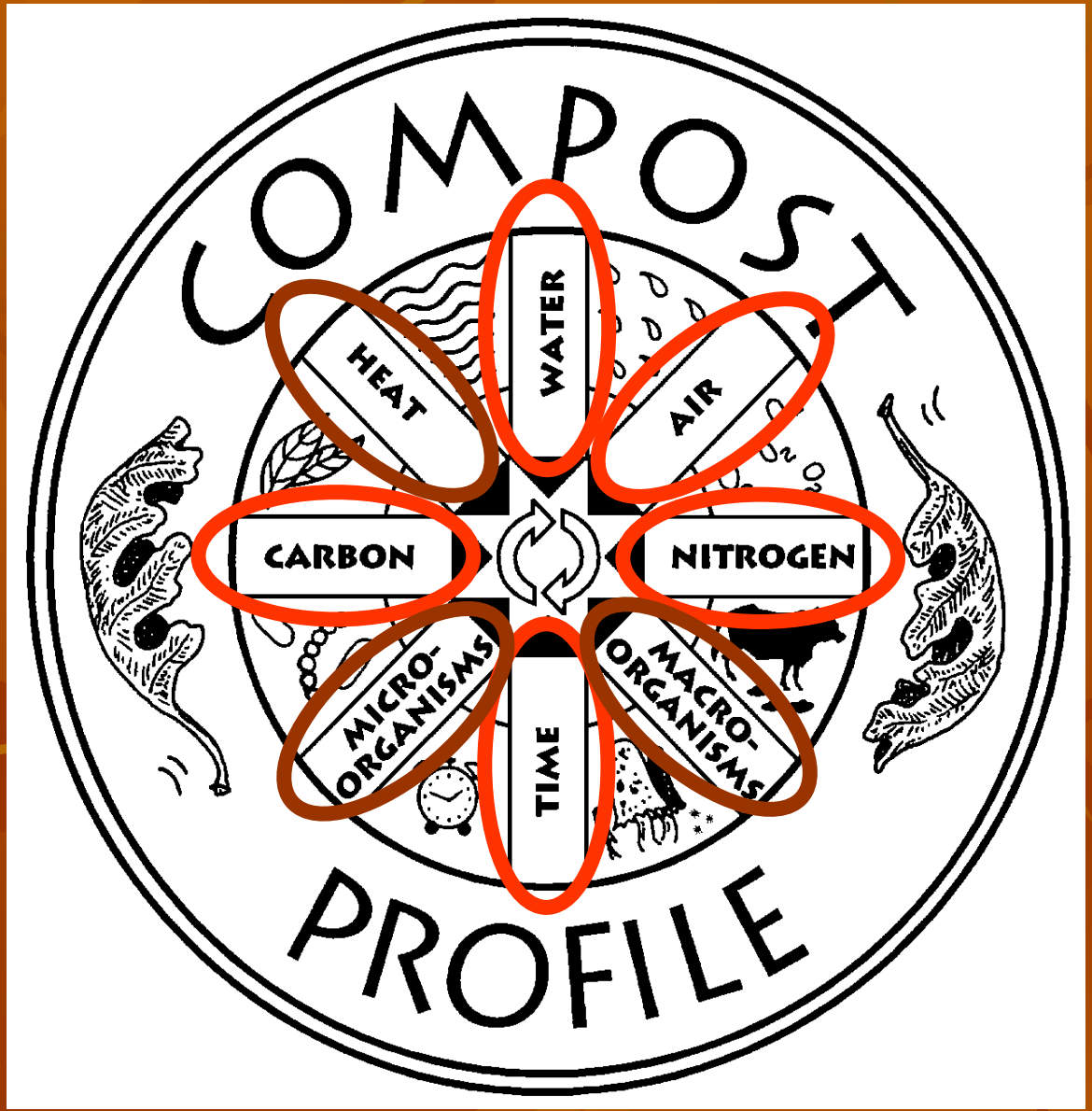
The Shepherd bin

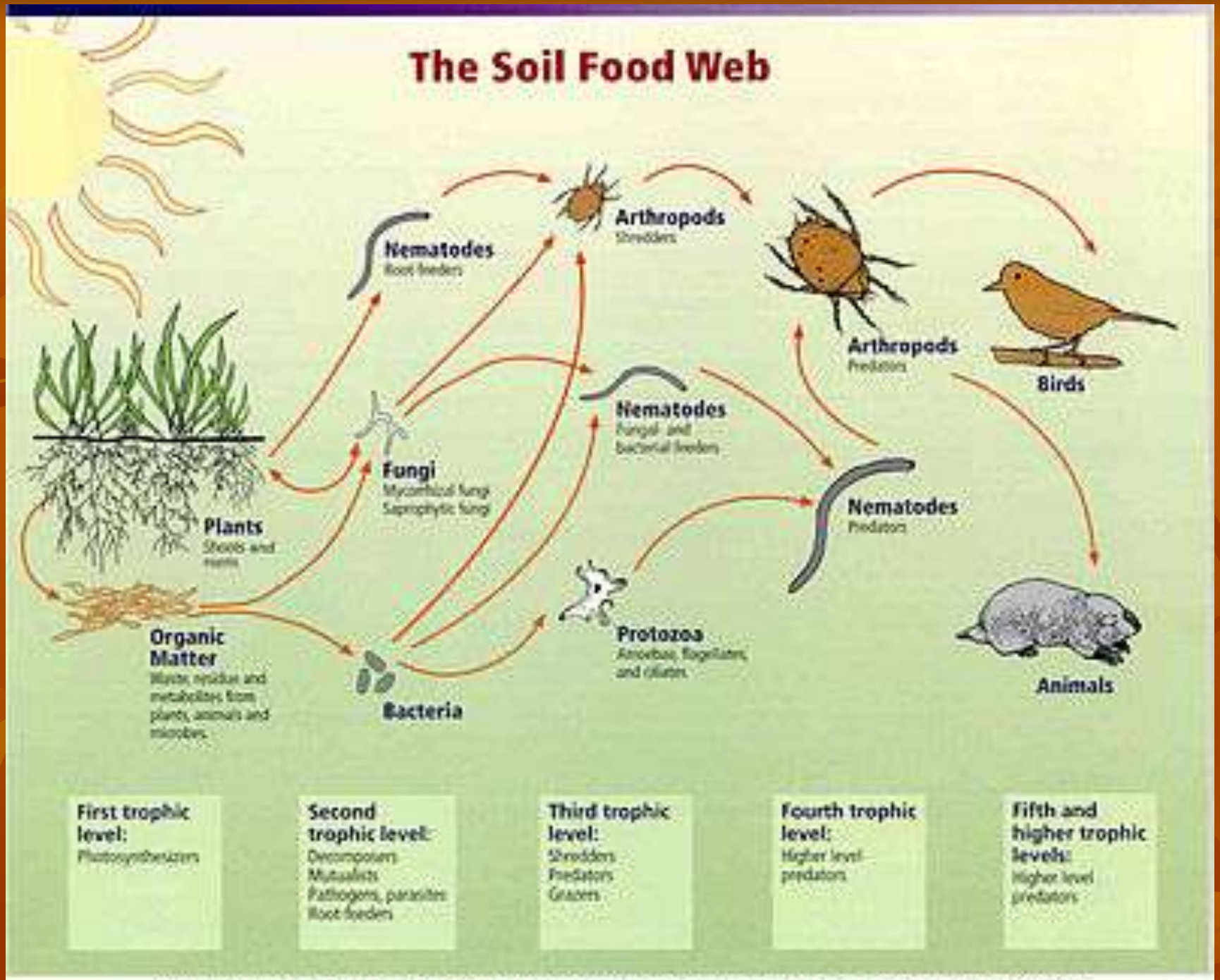
How do you build a compost pile?

- If you build it, they will come



$C = ATM^3$

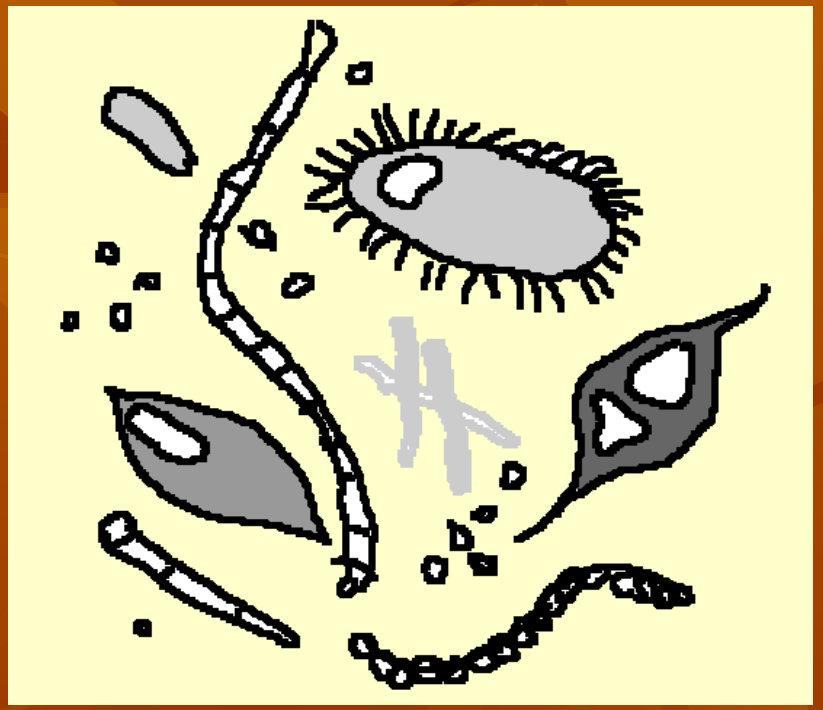

COMPOST
HEAT
WATER
AIR
CARBON
NITROGEN
MICRO-ORGANISMS
TIME
MACRO-ORGANISMS
PROFILE



Relationships between soil food web, plants, organic matter, and birds and mammals
Image courtesy of USDA Natural Resources Conservation Service
http://soils.usda.gov/sqi/soil_quality/soil_biology/soil_food_web.html

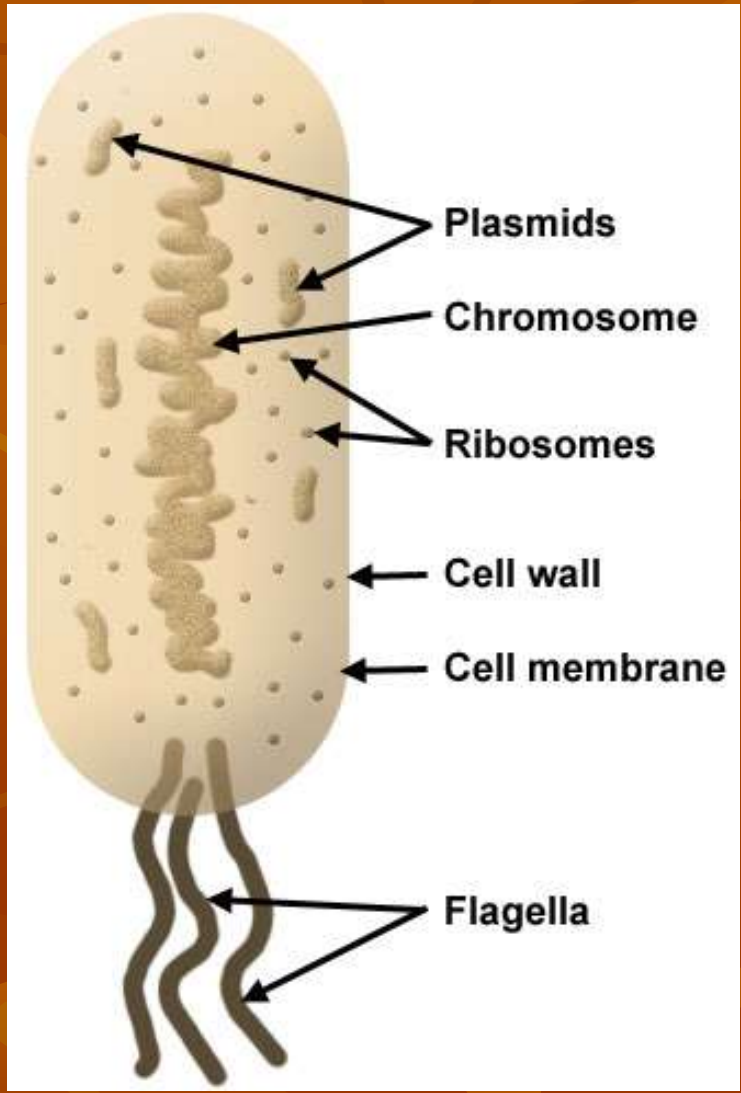
Your workers: Micro-organisms

- Microbes
  - Psychrophilic
    - 0-50 degrees Fahrenheit
  - Mesophilic
    - 50-100 degrees Fahrenheit
  - Thermophilic
    - 100-200 degrees Fahrenheit



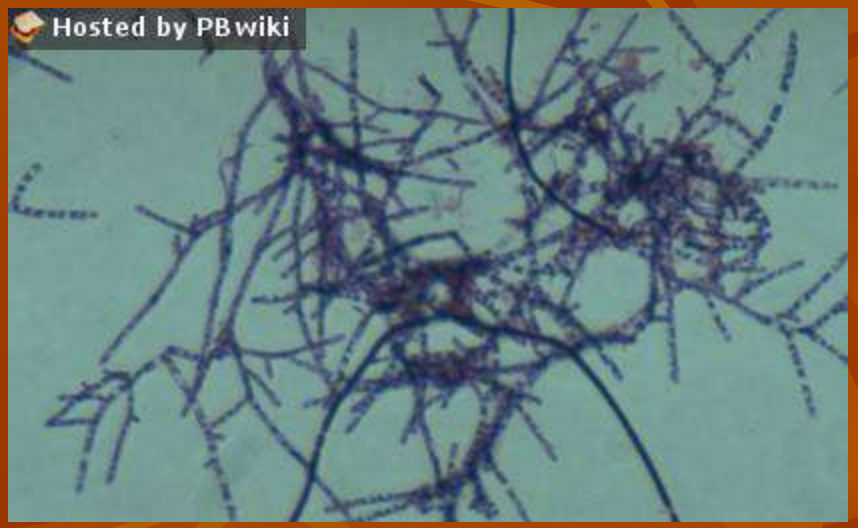
Other composting organisms

- Bacteria
  - Single Celled Organisms
  - 3 Basic Shapes
    - Rod
    - Spherical
    - Spiral
  - Primary Decomposers



Other composting organisms

- Actinomycetes
  - Higher form bateria
  - Similar to fungi and molds
  - Provides nutrients by liberating:
    - Carbon
    - Nitrogen
    - Ammonia



Other composting organisms

- Fungi
  - Primitive plants
  - Lack chlorophyll
  - Break down organic matter to obtain energy

Other composting organisms

- Soil invertebrates
  - Physical decomposers
    - Chew and grind pile materials
  - 1st, 2nd, and 3rd level consumers
    - Springtails
    - Mites
    - Centipedes
    - Sow bugs
    - Beetles
    - Wolf spiders
    - Earthworms

Types of compost piles

- Active or passive?
  - Type A – hot pile
  - Type B – cold pile

- Many methods
- Many different containers

Type A: Hot Pile

Indore method ("lasagna method")

- Start with bulky **browns**
- Alternate layers of **green** and **brown**
- **Water** each layer as you build
- Top off pile with **browns**
- Turn once a week for the first 4 weeks
- Turn irregularly as needed
- Temperature will stay at or above 110° F
- Temperature can rise to 200° F
- 4-6 weeks to "reap the bounty"

Type B: Cold Pile

- Start with bulky **browns**
- Alternate layers of **green** and **brown**
- **Water** each layer as you build
- Keep adding new **browns** and **green** materials to the top of the pile
- Don’t put in weeds gone to seed
  - Not hot enough to kill the seeds
- Harvest material from the bottom
  - When unidentifiable, dark and crumbly

What to leave out?

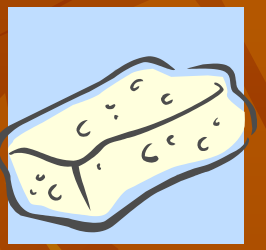
- Pet waste
- Meat or dairy
- Bones
- Fats, oils

For faster results

- Reduce particle size by
  - Chopping
  - Grinding
  - Shredding
- Turn the pile more frequently
  - Without turning, it will take 1-2 years
  - To keep pile at 110 degrees, turn every 2-3 weeks

For faster results

- Maintain optimum moisture level
  - Damp like a sponge
  - Locate your bin near a water source



- Save the food scraps for the worms

Uses for Compost

- Existing landscape beds
  - ½ - 1” lightly worked in
- New landscape beds
  - 2-4” tilled or worked in
- Lawn application
  - ¼ - ½ ” top dressing twice annually
- New lawn preparation
  - 1-2” tilled into new soil

Uses for Compost

- Potting soil
  - Use a 1:3 mix of compost and soil
- Trees, trees, tress
  - Spread layer 1” deep out to dripline
  - Top with 4-6” mulch

Uses for Compost

- Compost Tea
  - Fill a sock or nylon with compost
  - Soak up to 24 hours in 1 quart water
  - Agitate to add oxygen
  - Use immediately on plants

One very stressed tree

One very stressed tree

3 MONTHS LATER

Look what you can do!

A little color.

Look what you can do!

A little foliage.

Conclusions/Q&A

- Just do it – it's not difficult
- Enroll in Master Composter classes
- Visit: Don't Bag It – Compost It!
  - http://aggie-horticulture.tamu.edu/extension/compost/compost.html

Acknowledgements