THE BREAKDOWN ON COMPOSTING

A discussion of home composting in Wisconsin

AGENDA

1. What is composting
2. Benefits of composting
    a. Keep material out of landfill
    b. Soil supplement, not a fertilizer
        i. Helps soils to retain moisture
        ii. Helps plants to grow deeper roots
        iii. Add to garden
        iv. Add to Lawn. Reduce or eliminate lawn fertilizers and runoff
3. Materials that **can** be composted
    a. *Browns* - Wood and products
    b. *Greens* – Fruit, vegetable scraps, coffee, tea, grass, flowers, dirt and potting soil
4. Materials that **cannot** be composted
    a. Animal Products (Meat and Dairy)
    b. “Biodegradable” Products
    c. Oils and Fats
    d. Treated Wood Products
    e. Invasive Weeds
    f. Pet or human waste
    g. Charcoal Briquettes and ashes
5. Composting procedure
    a. Hot Composting
    b. Cool Composting
    c. Food Scrap Composting
6. Composting equipment
    a. Indoor Pail
    b. Simple pile
    c. Converted garbage can
    d. Bin (on the ground)
        i. Purchased Plastic Bin
        ii. Woven Wire Bin
        iii. Wooden slats Bin
    e. Rotating Bin or Drum
    f. Vermicomposting (worms)
    g. Variations of different types
7. Types of composting
    a. Indoor, Outdoor, Vermicomposting
8. What to do with it

The Role of Microorganisms in the COMPOSTING PROCESS

ARE MICROORGANISMS HELPFUL OR HARMFUL?

Modern advances in medicine and science have taught us to stay wary of bacteria and the threats they pose. Unsurprisingly though, life is more complex than these basics to keep us safe and healthy. Not all bacteria and microorganisms are harmful to human life—our bodies are teeming with essential lifeforms that help us break down our food and increase our overall immunities to sickness and allergens.

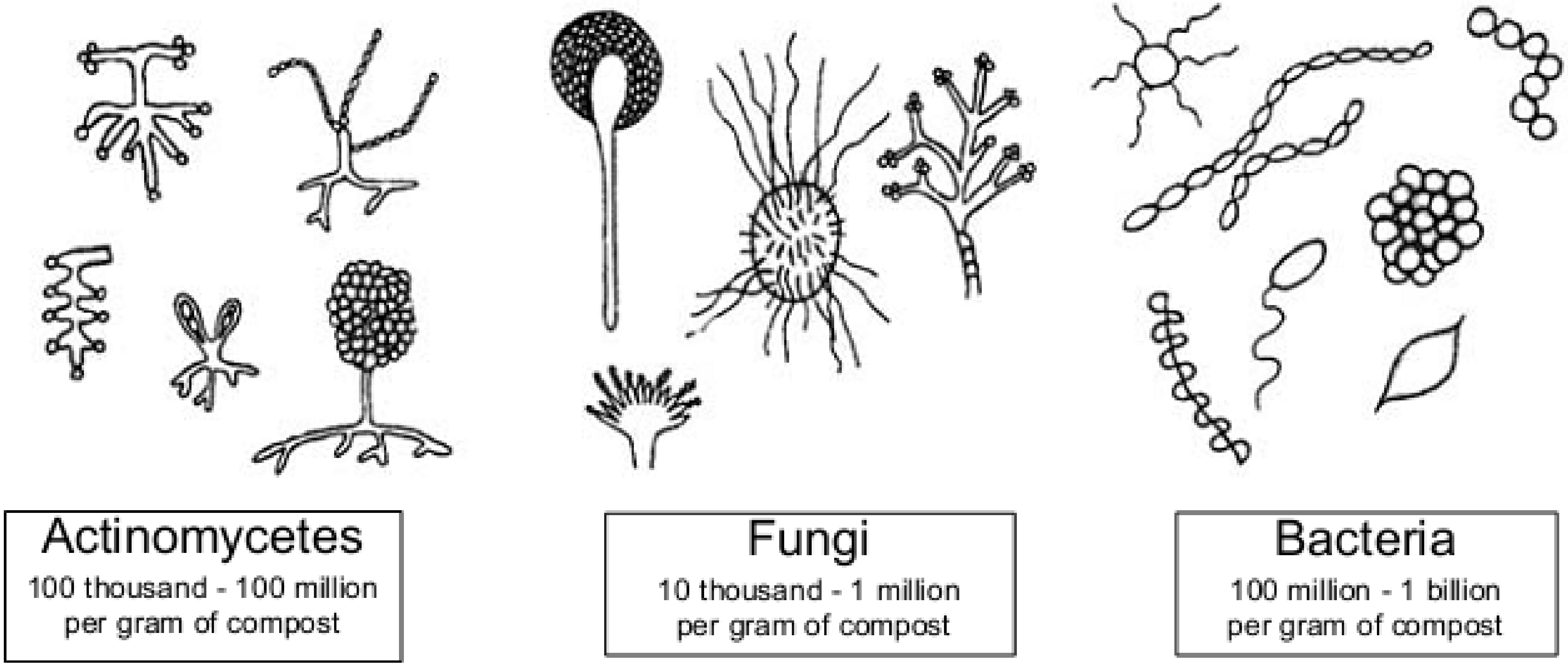
THE IMPORTANCE OF BACTERIAL LIFE IN PLANTS

Bacterial life is crucial to the health of plant life. To begin, beneficial bacteria on plants and throughout the earth around them act as a shield. So long as they're present, other competitive and potentially harmful microorganisms and vermin struggle to occupy the same niche. Some microorganisms even kill deadly bacteria and those that cause diseases to spread among crops.

MICROORGANISMS IN COMMERCIAL COMPOSTING

As noted, the role of microorganisms in the composting process is twofold. First, essential bacteria assist in removing dead matter by reducing it to viable soil replete with valuable nutrients and minerals. The secondary purpose reflects our modern needs; bacteria output vital nutrients and, as such, are cultivated to complement the requirements of different crop species.

COMPOST MICROORGANISMS MAGNIFIED 1,000 TIMES



HOME COMPOSTING MATERIALS

COMPOST

COMPOST TIP

Chopping or shredding these items helps speed up the composting process.

For best results, composters can mix in 2 to 3 volumes of "brown" material with each volume of "green" material.

Carbon-Rich "Browns"

Brown leaves & yard waste

- Brush & twigs (1/2" in diameter or less)
- Cardboard (dry and clean)
- Egg cartons (shredded)
- Newspaper
- Nuts & nut shells (but **not** black walnuts)
- Paper towels
- Pine cones & pine needles
- Sawdust & shavings (from non-treated wood)
- Straw & hay
- Wood chips

Nitrogen-Rich "Greens"

Green leaves & yard waste

- Coffee beans, grounds & used filters
- Dirt & potting soil
- Egg shells
- Flowers & yard plants
- Fruit, including cores & rinds
- Grass clippings
- Gourds & pumpkins
- Melons and melon rinds
- Tea leaves & tea bags
- Vegetables, greens & legumes

USING THE VILLAGE COMPOST, MULCH AND BRUSH SITE (brown material)

Compost Pile

- Drop off leaves, grass and yard waste to the pile
- Use decomposed leaves/grass from the pile to amend soil, garden and add to compost for brown. Lots of good microbes!! Get a headstart on composting.

Mulch Pile

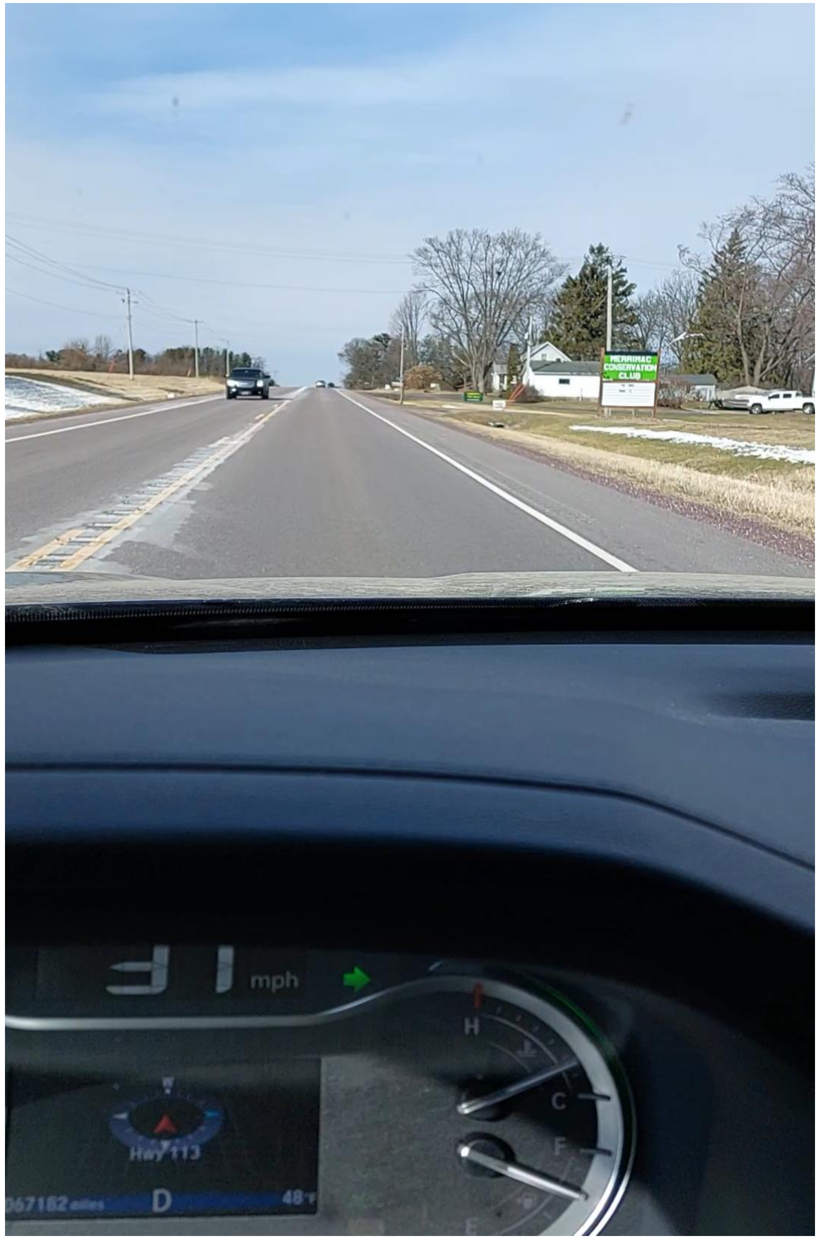
- Use wood chips for mulch around plants to help hold in moisture

Brush Pile

- Drop off brush and branches. Village staff burns down periodically.

Directions

- Behind Merrimac Conservation Club. See video



NOT FOR COMPOST

Not for Home Composting

- Biodegradable forks, spoons & knives
- Branches or logs more than 6" in diameter
- Charcoal briquettes or briquette ash
- Cigar & cigarette ashes
- Coffee or beverage cups
- Diapers
- Dairy products (butter, milk, cheese, etc.)
- Invasive weeds and plants
- Meat (cooked or raw) & bones
- Oils, greases & fats (including snack chips)
- Pet food
- Pet or human waste
- Pizza boxes with grease or cheese on them
- Recyclables (glass, plastic, metal cans. etc.)
- Sawdust from treated wood
- Trash (wrappers, packaging, etc.)
- Used take-out containers & Styrofoam shells
- Wood treated with varnish or paint

For more, visit dnr.wi.gov & search "compost," or consult other DNR publications, Home Composting: Reap A Heap of Benefits & Home Composting: The Basic Composter.

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HOT COMPOSTING

Hot Compost pile breaks down yard materials rapidly. The microbes do all the work. They are happy with a mix of brown and green materials, water and oxygen. The pile may reach 140 deg F or more.

Mix (2) parts brown with (1) part green. Build layers. Mix (aerate) together and add water as necessary to shorten compost time.

1-3 months compost time.

Requires weekly attention.

COOL COMPOSTING

Cool Composting is the laid-back way to recycle your yard materials. It remains cool because

- Little or no green is added
- No moisture added
- Pile stays small to sustain lower temps
- Pile is not turned

Pile may be turned if odors develop.

6-12 months compost time

FOOD SCRAP COMPOSTING

Food Scraps may be composted various ways.

- Hot
- Cool
- Trench
- Worm Bin (Vermicomposting)
- Indoor

See slide for materials that can be composted.

Cut up vegetable chunks into smaller pieces. No whole potatoes, onions, carrots, etc.

Add brown materials 2 to 1 of vegetable scraps.

WORM (VERMICOMPOSTING) Vegetable scraps only

Use Red Worms (Red Wigglers) not earthworms

Worms in a tray with shredded newspaper bedding.

Add food scraps into the bedding or on top.

After compost is complete, worms must be separated from finished compost.

Complete compost in 4-5 weeks.

COMBINATIONS Add worms to hot composting.

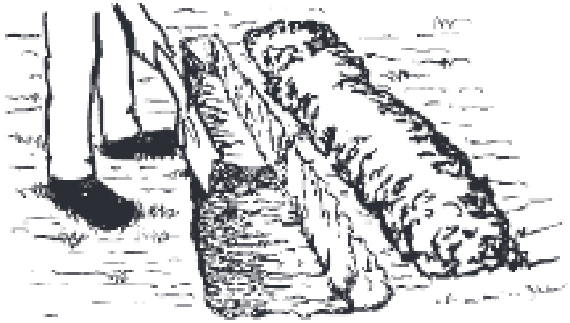
Must be picked out by hand

COMPOST EQUIPMENT

1. INDOOR BUCKET or PAIL
2. OUTDOOR COMPOSTING
   - SIMPLE PILE
   - TRENCH
   - WOVEN WIRE BIN
   - WOODEN SLAT OR PALLET BIN
   - SIMPLE CONVERTED GARBAGE CAN drill drain and ventilation holes
   - BARREL OR DRUM COMPOSTER with removable bottom access panels
   - ROTATING BARREL COMPOSTER
   - MULTICHAMBER ROTATION COMPOSTER
   - WORM BINS (vermicomposting)
3. INDOOR COMPOSTING
   - Tabletop or floor mount electric machine. Grinds up and dehydrates food scraps.

COMPOST PILE

TRENCH OR PIT



WIRE BIN

PLASTIC COMPOST BIN WITH BOTTOM SIDE ACCESS PANELS

VERMICOMPOSTER

CONVERTED GARBAGE CAN, ROTATING BARREL AND ROTATING MULTI-CHAMBER COMPOSTER

WHAT TO DO WITH IT?

1. Make sure the compost is fully decomposed. If still active, the microbes will compete with little plants for available nitrogen. Some microbes are good for the soil.
2. Soil amendment. Add to pots, flower beds and vegetable gardens. Add 1part compost to 4 parts soil. Helps soil to retain moisture, allows more nutrients to be absorbed.
3. Make your own potting soil or add to existing potting soil. Potting soil is usually sterilized.
4. Add to lawn. Add ¼ - ½" onto the lawn. Along with mulch mowing, commercial lawn fertilizers can be reduced or eliminated, reducing nitrogen runoff into our lakes.
5. Helps bind or improve absorption of carbon in the soil.

COMPOSTING RESOURCES

1. https://dnr.wisconsin.gov/topic/Recycling/Compost.html
2. https://www.epa.gov/recycle/composting-home
3. https://www.epa.gov/recycle/preventing-wasted-food-home
4. https://livetoplant.com/how-to-choose-the-right-compost-bin-for-your-space/
5. https://www.treehugger.com/vermicomposting-step-by-step-guide-5185295