Backyard Composting and Garden Soil Amendment

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Why Compost?

- Recycle waste materials
- Enhance soil structure
- Reduce soil losses from erosion
- Improve oxygen availability in soil
- Increase organic matter
- Recycle essential plant nutrients
- Increase biological activity

What Makes Compost?

- Raw materials (chemical composition)
- Organisms present
- Moist, oxygen-rich environment
- A dedicated space
- An observant, yet patient gardener

Raw Materials

- Plant based kitchen waste
- Yard Waste
- Shredded paper/newspapers
- Floor sweepings
- Vacuum cleaner contents
- Wood ashes (some, not a lot)
- Shredded green yard waste
- Animal manure (chicken, cattle)
- Spoiled hay
- Be creative – watch for materials

Materials NOT to Compost

- Meat/Fat Scraps
- Grease/Oil
- Pet Waste (parasites may be present)
- Large Woody Material
- Diseased Plants
- Weeds Gone to Seed
- Toxic Materials (paint chips, etc.)

Benefits of Organic Matter (OM)

- Soil structure
  - aggregate formation promoted by OM
  - OM increases water infiltration & water holding capacity
- OM increases cation exchange capacity
  - (*pr.* Cat-ions are essential nutrients in the soil including calcium, magnesium, potassium, nitrogen, sodium, hydrogen and aluminum)
- OM can increase microbial activity
- Nutrients
  - OM provides a nutrient source
  - OM helps keep some nutrients available
- Note - OM can retain pesticides

C:N Ratio
(Carbon to Nitrogen)

- Ratio should be about 10:1
- When there is too much carbon, the compost pile works slowly because the microorganisms have too little nitrogen to build up their populations
- When there is too much nitrogen, microorganisms cannot get enough carbon to satisfy their needs. The result is often an ammonia odor.

C:N Ratios of Some Materials

- Alfalfa hay 12:1
- Food wastes 15:1
- Grass clippings 18:1
- Rotted manures 20:1
- Fruit wastes 35:1
- Leaves 55:1
- Straw 80:1
- Paper 175:1
- Sawdust, wood 400:1

Managing Organic Amendments

- High C:N ratio organics
  - add adequate N during soil application
  - compost
    - to reduce C:N ratio
    - to eliminate weed seeds
- Low C:N ratio organics
  - add directly to soil (such as alfalfa)
  - watch for "burning" by high N organics
- High O2 consumption
  - anaerobic conditions in poorly aerated soils

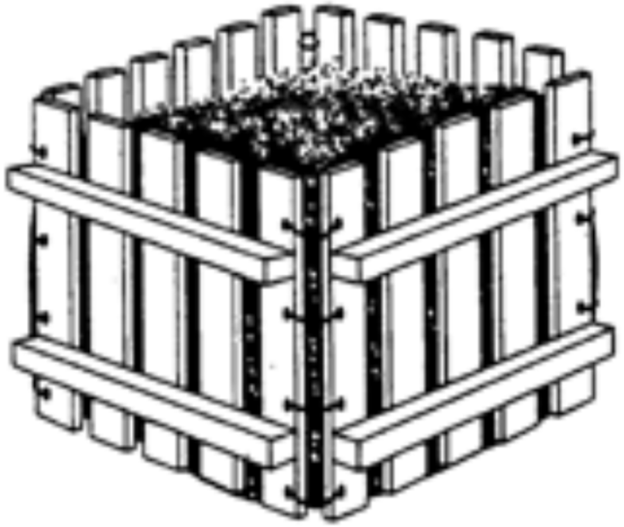
Initial Compost Construction "Lasagna Gardening"

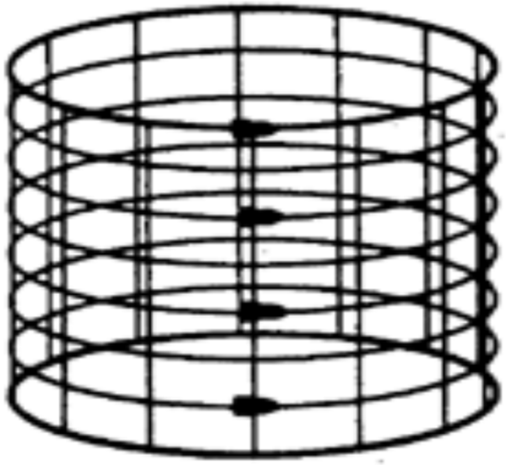
- **1st layer:** 3-4" of chopped brush or other coarse material (air circulation)
- **2nd layer:** 6-8" of mixed scraps, leaves, grass clippings, etc.
- **3rd layer:** 1"of soil serves as a microbial inoculant
- **4th layer:** (optional) 2-3" of manure to provide the nitrogen needed by microorganisms
- Repeat until desired height/volume

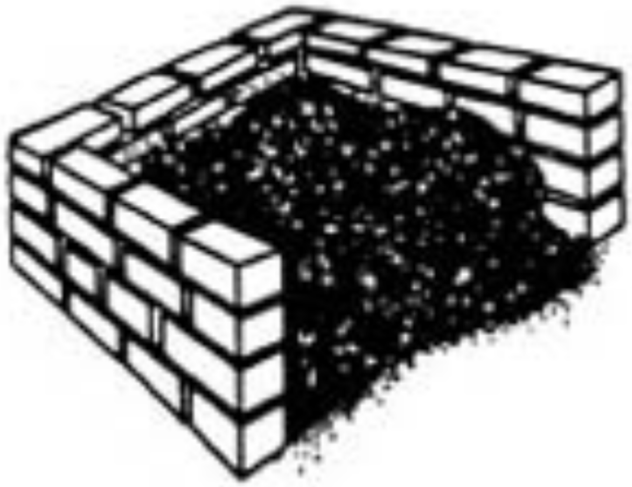
Composting Tools

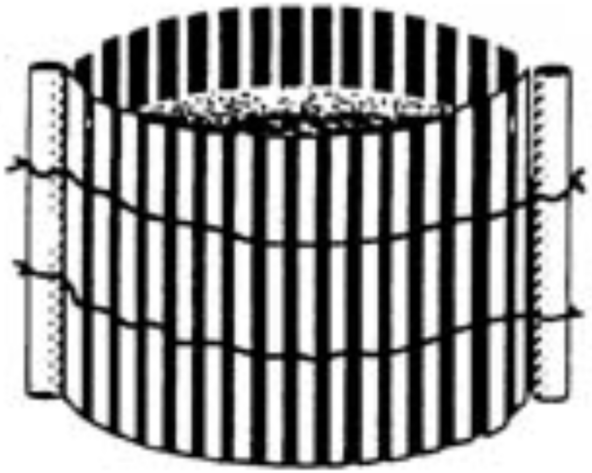
- Spading or Pitch-Fork
- Water Source
- Optional
  - Thermometer
  - Bin(s)
  - Turning Tool

Homemade Bins

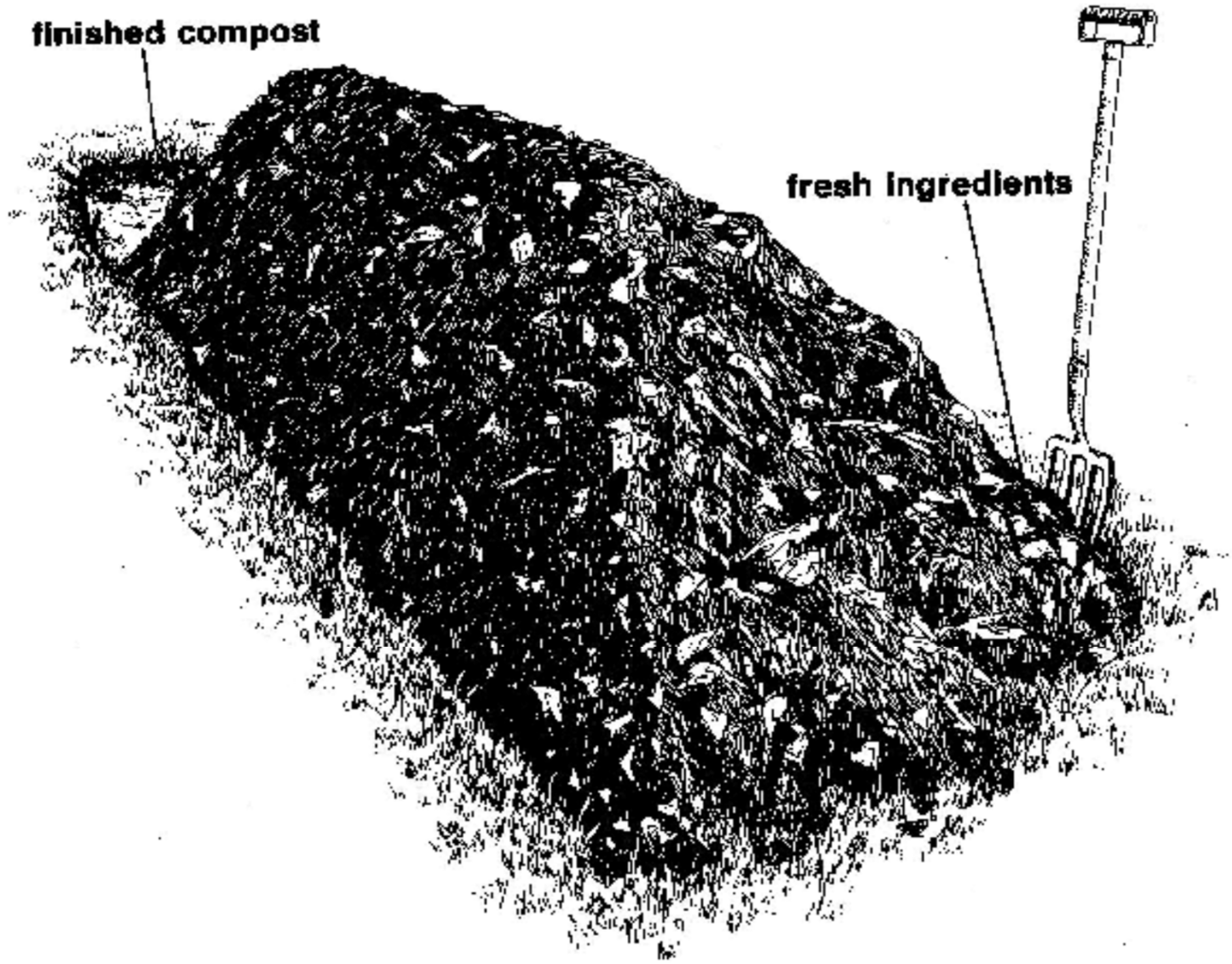








Wandering Pile



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Rotating Drum

Source: Amazon.com

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Prefab Bins

Cool Season Cover Crop

- Plant combination of hairy vetch (a legume) and cereal rye in the fall (October)
- Inoculate vetch seeds with appropriate inoculum (seed catalogs have it)
- Mow and turn into soil 3-4 weeks before planting

Working the Cover Crop

Using Alfalfa Cubes to Amend Garden Soil

- Spread 80 lbs alfalfa cubes over 100 sq ft garden soil
- Water the cubes well until they expand
- Turn expanded cubes into soil
- Plant crops

Note - Purchase product that is Certified Noxious Weed Free.

Thank You

Questions?