BACKYARD COMPOSTING

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Yavapai County Cooperative Extension
Master Gardener Program

YAVAPAI COUNTY MASTER GARDENERS

- Extension Programs include
  - Master Gardeners Help Desk
  - Free Soil Testing by Master Gardeners
  - 4-H Youth Program
  - Youth outdoor science education
  - Family consumer health sciences
  - Professional food manager education courses

- MG Help Desk contact information

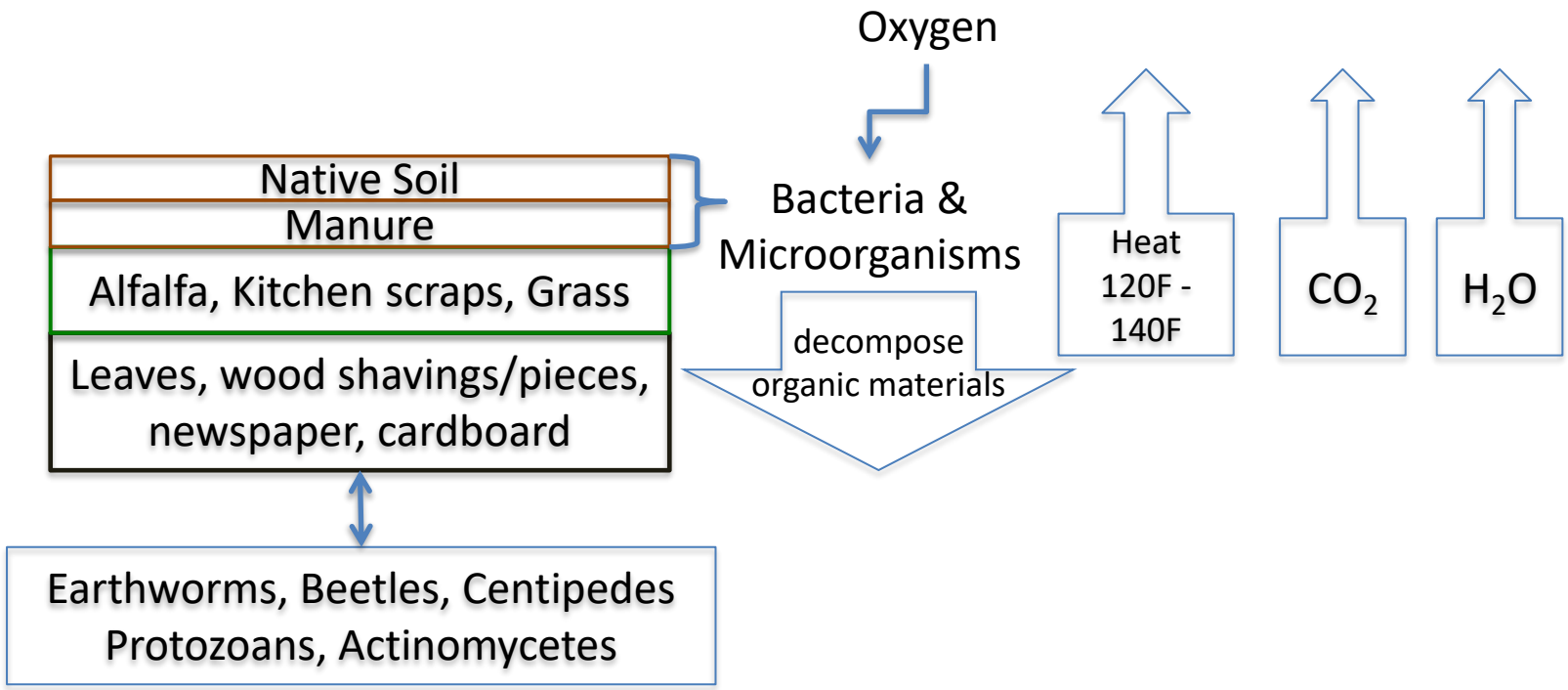
Camp Verde Help Desk	Prescott Help Desk
VerdeValleyMG@gmail.com	PrescottMG@gmail.com
928-554-8992	928-445-6590 ext 222

LET'S DISCUSS COMPOSTING!

- Definition of Composting
- Why Everyone Should be Composting
- 7 Steps to Successful Composting
- Problem Solving
- Using Finished Compost

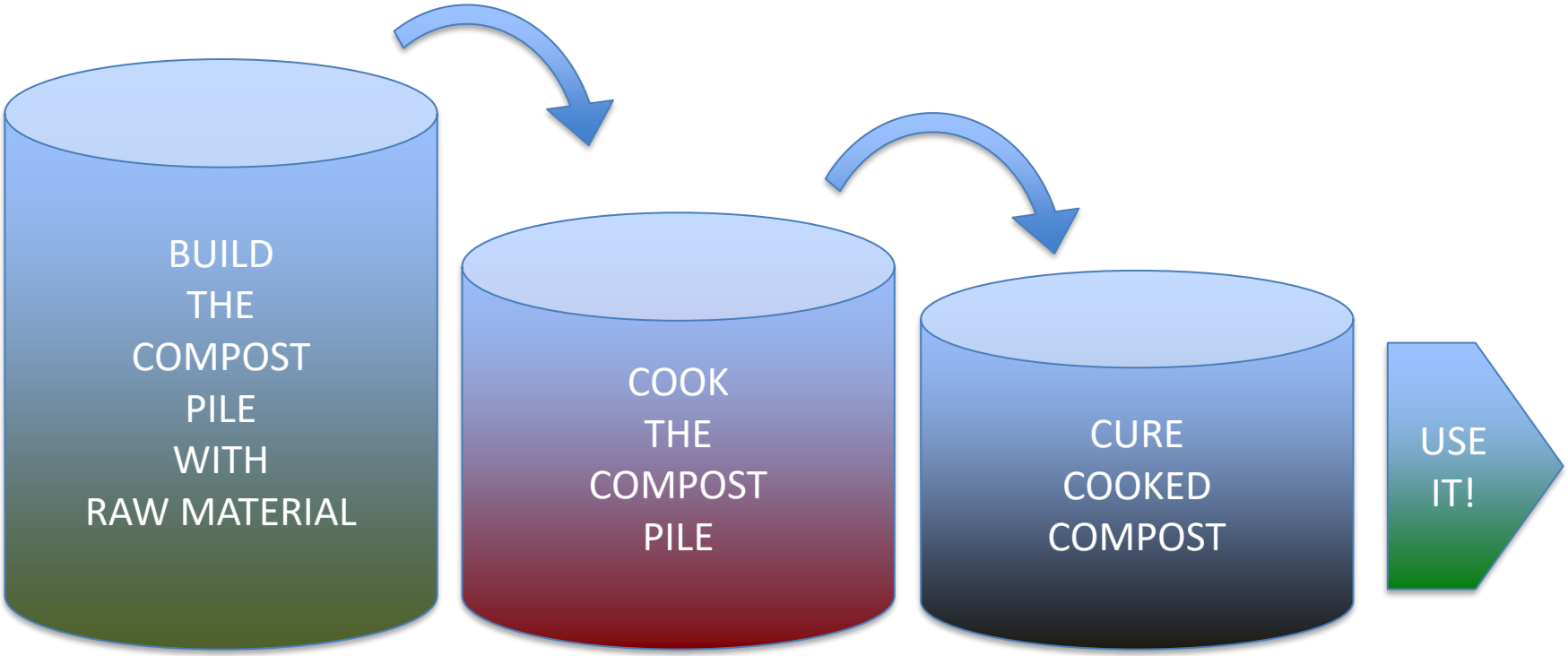
WHAT IS COMPOSTING?

DEFINITION: Composting is the aerobic decomposition of organic materials by microorganisms under controlled conditions



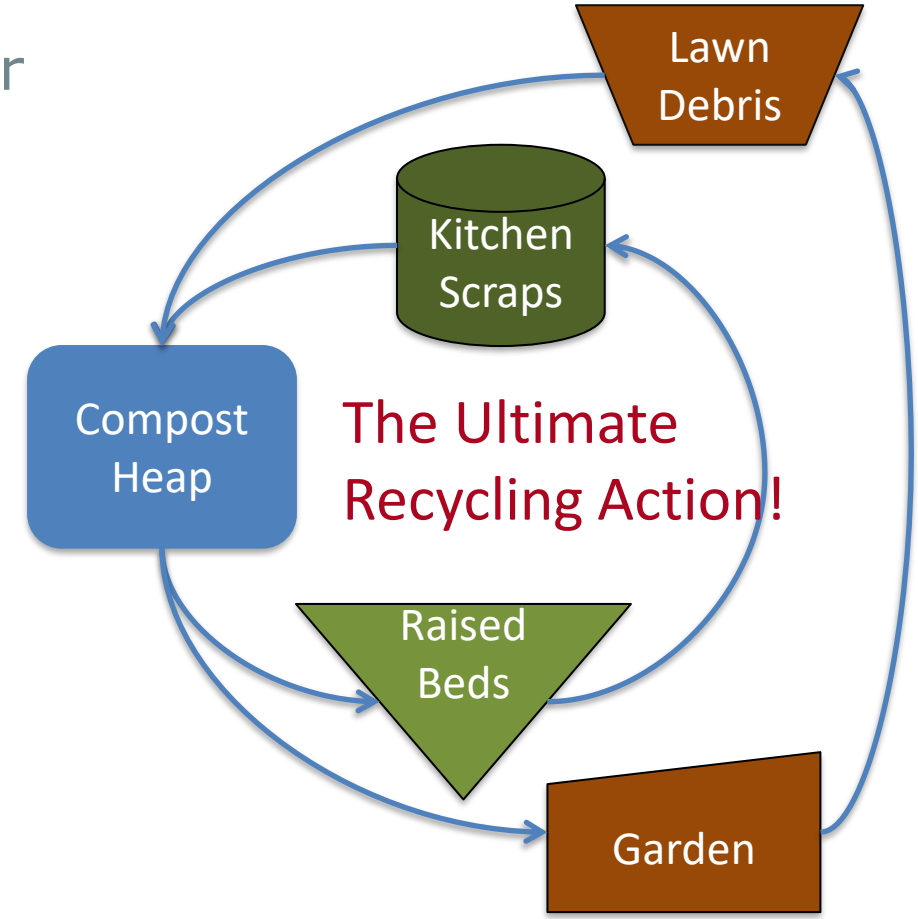
WHAT IS COMPOSTING?

3 STAGES OF COMPOSTING:



WHY COMPOST?

- Improves soil structure, drainage, aeration and water holding capacity
- Provides nutrients for plant growth that are released slowly and less likely to be leached away
- Reduce Landfill Burden



7 STEPS TO SUCCESSFUL COMPOSTING

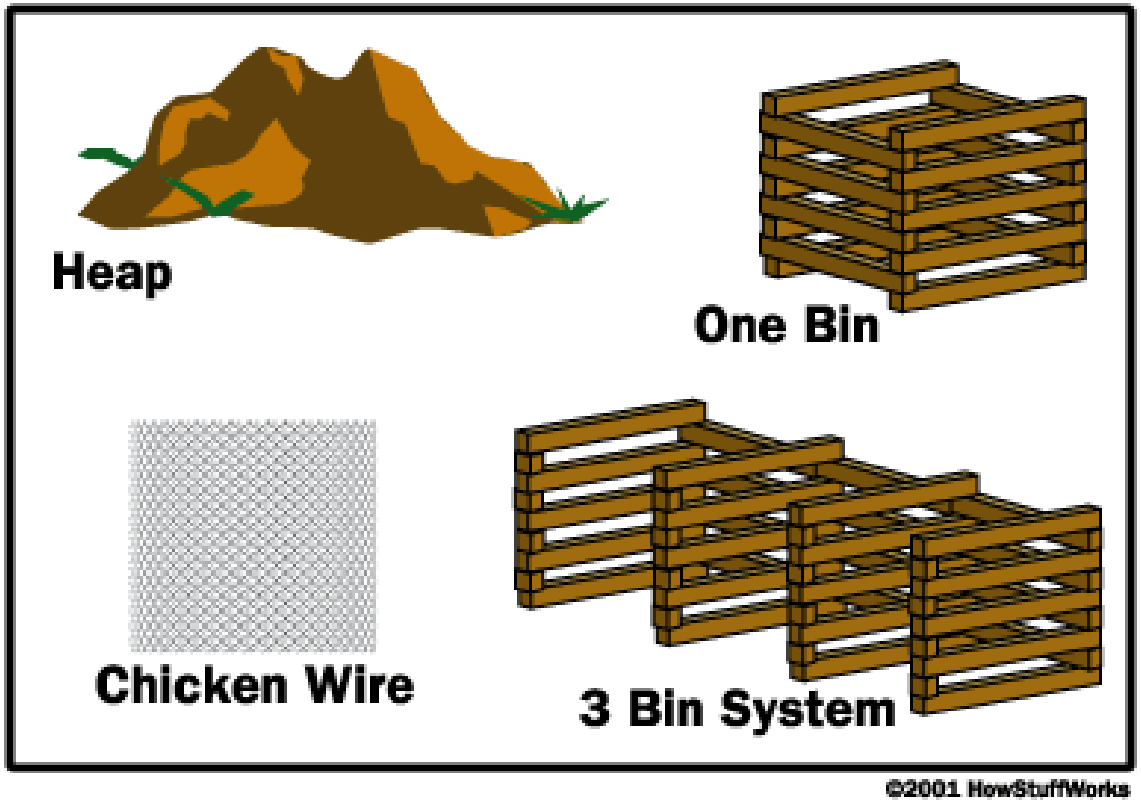
- Step 1. Select Composting Site
- Step 2. Choose a Container Type
- Step 3. Collect Raw Materials
- Step 4. Aerate The Compost Pile
- Step 5. Maintain Moisture Levels
- Step 6. Keep Proper Temperature
- Step 7. Cure The Compost

7 STEPS TO SUCCESSFUL COMPOSTING

- Step 1. Select Composting Site
  - Minimum of 6 hours of sunlight – BEWARE of AZ HEAT!
  - Away from structures and minimize view
  - Access to water like hose or irrigation
  - Slightly sloped ground with good drainage – NOT A DITCH!
  - Downwind from homes, windows, and outdoor patio
  - Barricade out large animals like squirrels, packrats, birds, skunks, deer and DOGS!

7 STEPS TO SUCCESSFUL COMPOSTING

- Step 2. Choose Container Type to build or buy
  - Many shapes work: Heap, Hoop, Bin, Barrel



* Size: Ideally 1 cubic yard (3ft x 3ft x 3ft)

7 STEPS TO SUCCESSFUL COMPOSTING

- Step 2. Choose Container Type

Left: UMN Extension Office hoop bins

Center: Arizona Desert Botanical Garden Compost Bins

Right: Backyard compost pile

* Size: Ideally 1 cubic yard (3ft x 3ft x 3ft)

7 STEPS TO SUCCESSFUL COMPOSTING

- Step 2. Container Type

Barrel Tumblers

- ✓ Bins spin on axel
- ✓ Third “bin” is open bucket
- ✓ Monthly progression

7 STEPS TO SUCCESSFUL COMPOSTING

- Step 2. Container Type - Pre-fab Bins

7 STEPS TO SUCCESSFUL COMPOSTING

- Step 3. Collect Raw Materials
  - Use natural and organic materials
  - Chopped, shredded, clipped will decompose faster (<2in)
  - Acceptable: grass, leaves, wood, bark, stems, stalks, garden waste, kitchen scraps, coffee grounds & filters, Tea bags, eggshells, newspapers, cardboard

  - ➢ Beware pests and diseased pieces
  - ➢ Unacceptable: meats, oils, dairy, bones, pet waste, synthetics, glossy papers, toxic chemicals
  - ➢ DO NOT use toxic plant materials

7 STEPS TO SUCCESSFUL COMPOSTING

- Step 3. Raw Materials continued
  - Carbon-to-Nitrogen Ratio (C:N) is 25:1 to 40:1

Carbon-rich materials		**Nitrogen-rich materials**	
Wood chips	400:1	Fresh leaves	40:1
Cardboard	350:1	Garden waste	30:1
Sawdust	325:1	Fruit waste	25-40:1
Newspaper	175:1	Horse or Cow Manure	20-30:1
Straw	75:1	Coffee Grounds	20:1
Dried leaves	60:1	Grass Clippings	20:1
		Alfalfa	12-15:1
		Vegetable Scraps	12-25:1
		Chicken Manure	7:1

7 STEPS TO SUCCESSFUL COMPOSTING

- Step 3. Raw Materials continued
  - Build the pile in layers…
    - Brown: 6-8 inches
    - Green: 3-4 inches
    - Manure: 1-2 inches
    - Native Soil: 1-2 inches
  - Create 3 or 4 repetitions

7 STEPS TO SUCCESSFUL COMPOSTING

- Step 4. Aerate the pile
  - Turn the Pile but not too often
  - Re-introduction of oxygen
  - Use pitchfork or mechanical turner
  - How often affects how quickly the pile decomposes
    - Turn weekly finished in 1 to 2 months
    - Turn monthly finished in 4 to 6 months
    - Don’t turn, wait for 6 to 12 months

7 STEPS TO SUCCESSFUL COMPOSTING

- Step 5. Keep the pile moist
  - Need moisture for metabolic process
  - Smaller piles need to be watered more often
  - Choosing a site that has good water access is a good idea
  - Moist like a damp sponge
  - Too dry and process slows down
  - Too wet and water displaces air in pore spaces

Be Cautious if using a Barrel Tumbler!
Need good drain holes and balance of materials.

7 STEPS TO SUCCESSFUL COMPOSTING

- Step 6. Keep proper temperature
  - Mesophilic or Cold composting (50F to 105F)
  - Thermophilic or Hot composting (above 105F)
  - Temps above 110F to 150F destroys most pathogens, weed seeds and fly larvae
  - Beware of spontaneous combustion especially in Arizona heat

7 STEPS TO SUCCESSFUL COMPOSTING

- Step 7. Curing the compost
  - Allow the finished pile to sit UNDISTURBED for 1 month
  - Stabilizes the final chemical and decomposition reactions
  - Improper curing will kill your young plants from release of gases

PROBLEM SOLVING

So what can go wrong?

- Practice, Trials, What about… - Don’t be afraid to get started!
- Learn from Unpleasant Odors
- Slimy or Waterlogged Piles?
- Slow or No Decomposing Action

PROBLEM SOLVING

- Unpleasant Odors
  - Compaction means insufficient oxygen; turn the pile
  - Excess moisture; add porous material like sawdust
  - Sour or Sulfurous smell? Turn the pile to increase oxygen
  - Ammonia smell? Add carbon to stabilize the nitrogen

PROBLEM SOLVING

- Slimy or waterlogged pile
  - Stir the outer drier materials toward the wet center
  - Reduce added water especially if on a timer
  - Reconsider drainage of site
  - If pile is damp but won’t heat, add ammonia sulphate or grass clippings (add nitrogen)

PROBLEM SOLVING

Slow breakdown of organic material

- Try turning the pile if in mesophilic cold temps
- Insulate sides to capture metabolic warmth
- Add water while turning the pile
- Move Barrels next to a warm rock wall
- May need more nitrogen but start sparingly
  - Add 1lb nitrogen to 1 cubic yard of material
- Cold weather may require insulation or larger pile size
- OR the active stage of composting may be complete

FINISHED COMPOST

- Should be dark, crumbly and have earthy odor
- Pile should feel only slightly warmer than ambient air temp
- Pile will reduce in size up to half from raw material stage

FINISHED COMPOST

Hot Composting creates a soil-like compost

- Particle size is less than ½ inch
- Use as a soil amendment
  - Incorporate just prior to planting
  - Use up to 1:1 ratio with soil
- Gardens, Containers, Turf
  - Existing plantings can be side-dressed or drilled in being aware of roots
- Promotes better rooting
  - Improves soil structure
  - Better aeration and water retention
- Reduces need for fertilizer

FINISHED COMPOST

Cold Composting creates a chunky compost with larger bits of organic matter

- Use as a top dressing or mulch
- Place loosely around plantings without disturbing the soil
- Reduces moisture loss
- Promotes roots closer to the surface
- Keeps soil cool so wait until soil temps warm up
- Decomposition of mulch by organisms will be naturally moved down into the soil

BACKYARD COMPOSTING

- It easy and fun!
- So many benefits for your yard and garden!
- It is the Ultimate Recycling Program!

BACKYARD COMPOSTING

Any Questions?

For more information about our programs,
visit our website at
extension.arizona.edu/yavapai

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Cooperative Extension
Yavapai County