

# BACKYARD COMPOSTING



Presented by Jennifer Moreland

University of Arizona  
Yavapai County Cooperative Extension  
Master Gardener Program



# YAVAPAI COUNTY MASTER GARDENERS



*Note: Extension Offices are currently closed to walk-ins due to the COVID19 Restrictions but will re-open when deemed safe by the County Agent*

- 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

<b>Camp Verde Help Desk</b> <a href="mailto:VerdeValleyMG@gmail.com">VerdeValleyMG@gmail.com</a> 928-554-8992	<b>Prescott Help Desk</b> <a href="mailto:PrescottMG@gmail.com">PrescottMG@gmail.com</a> 928-445-6590 ext 222
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# LET'S DISCUSS COMPOSTING!



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



# NOT BEING DISCUSSED...



X Not talking about Vermicomposting

X Not covering PermaCulture

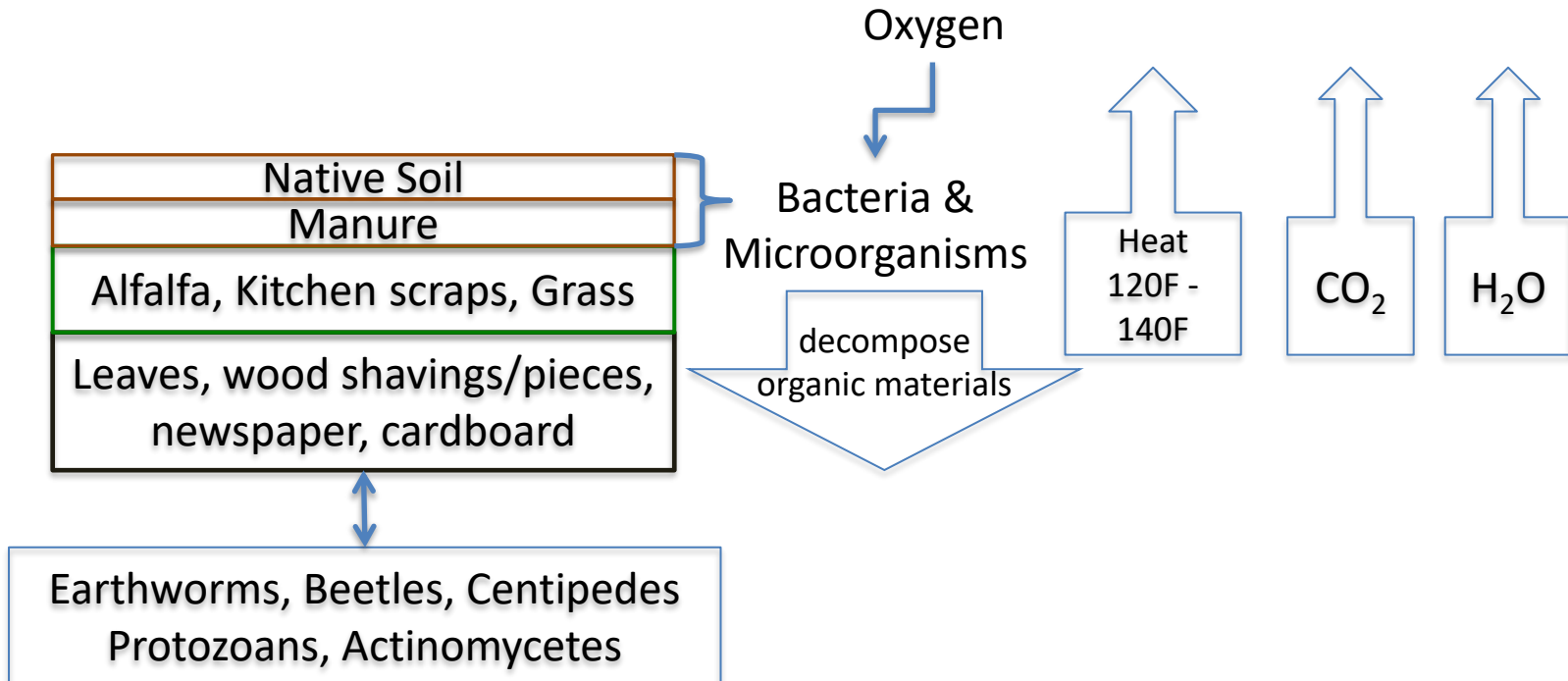
X Not going into  
Large-Scale Industrial  
composting



# WHAT IS COMPOSTING?



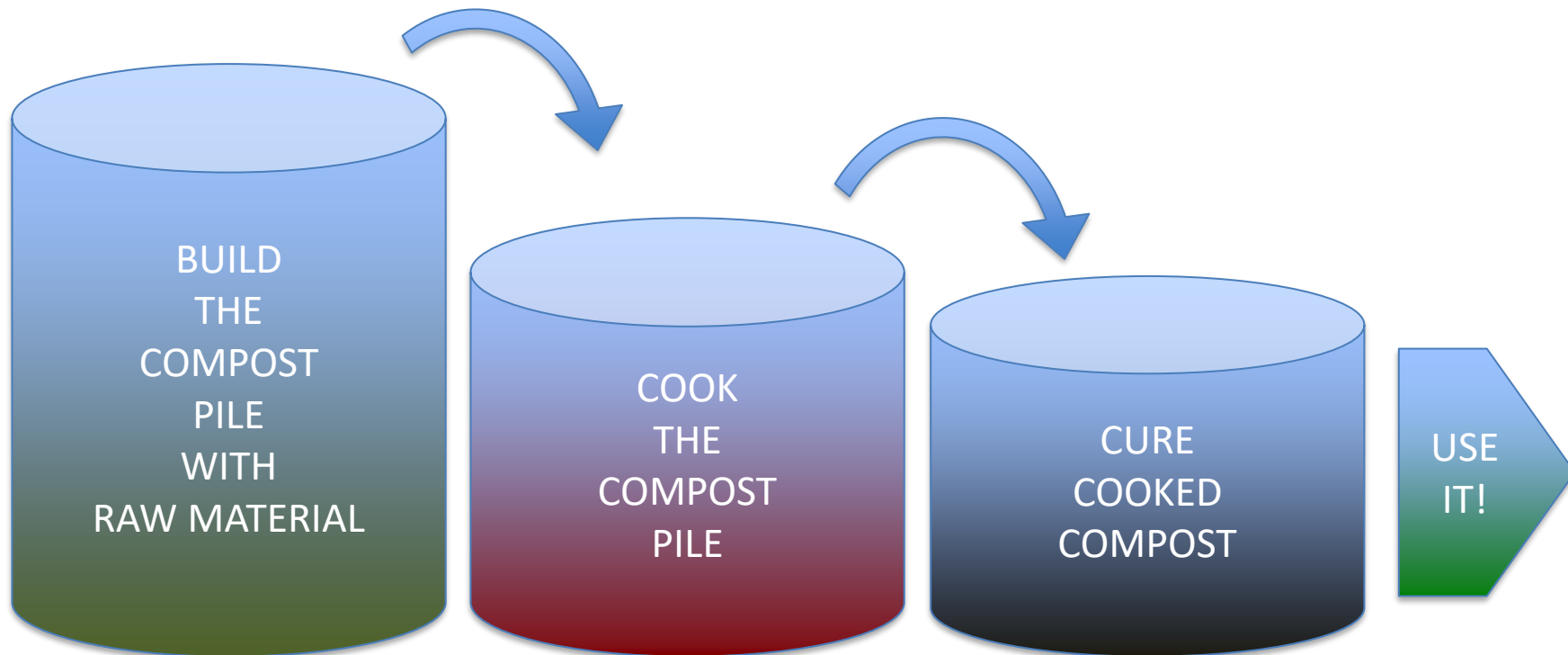
**DEFINITION:** Composting is the aerobic decomposition of organic materials by microorganisms under controlled conditions



# WHAT IS COMPOSTING?



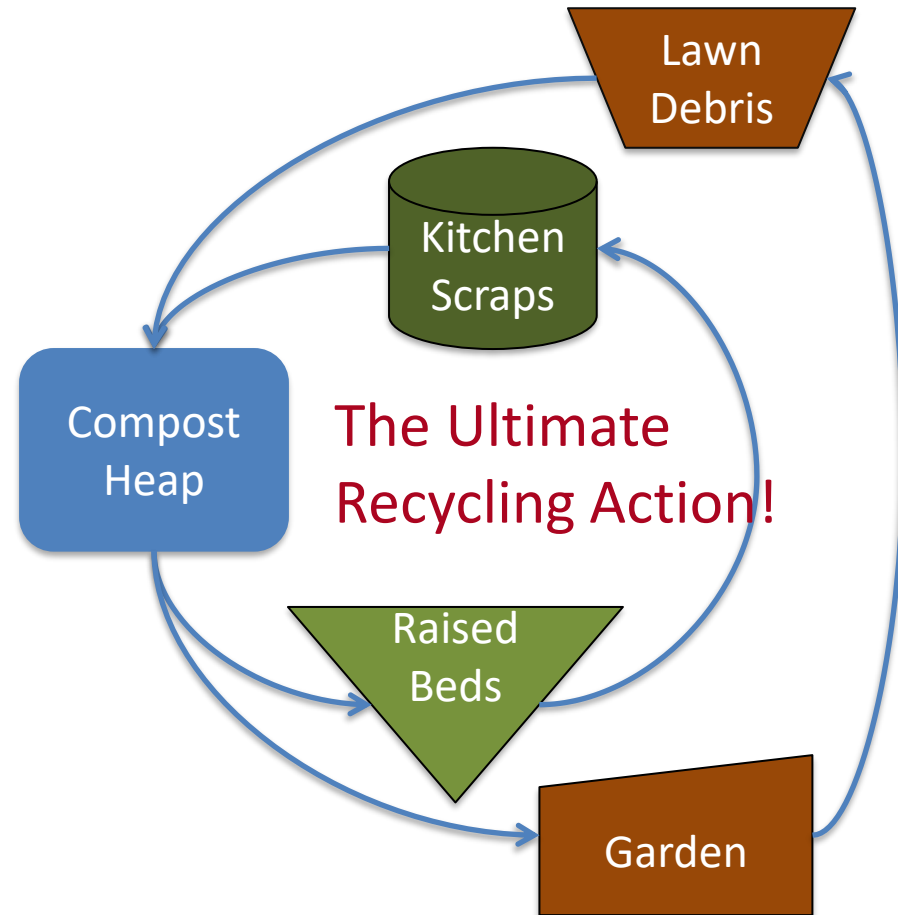
## 3 STAGES OF COMPOSTING:



# 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



*\*Arizona Desert Botanical  
Garden Compost Bins*



# 7 STEPS TO SUCCESSFUL COMPOSTING



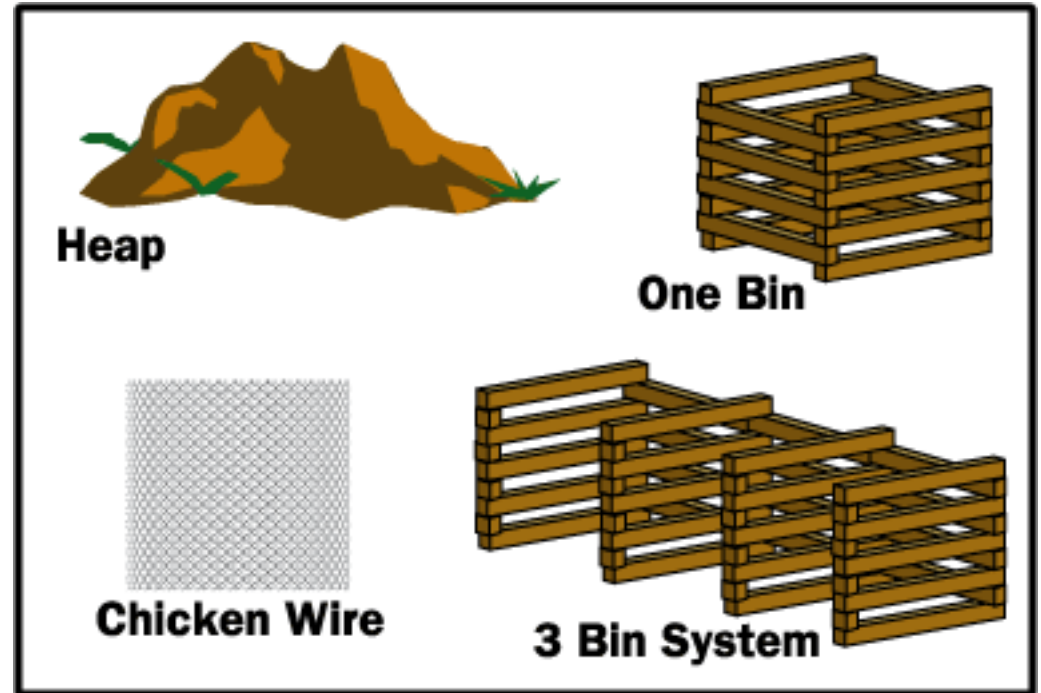
- Step 1. Select Composting Site
  - Minimum of 6 hours of sunlight – BEWARE of AZ HEAT!
  - Away from structures and minimize view
  - Access to water like hose or irrigation
  - Slightly sloped ground with good drainage – NOT A DITCH!
  - Downwind from homes, windows, and outdoor lounging areas
  - 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 to build or buy

*Right: Arizona Desert Botanical Garden Compost Bins*

*Center: My Neighbor's backyard compost pile*

*Left: UMN Extension Office hoop bins*



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



# 7 STEPS TO SUCCESSFUL COMPOSTING



- Step 2. Container Type – Here's what I did...
- ✓ Purchased double small bins on frame
- ✓ Bins spin on axel
- ✓ Third "bin" is open bucket
- ✓ Monthly progression



# 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

<b>Carbon-rich materials</b>		<b>Nitrogen-rich materials</b>	
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 Manure	30:1
Straw	75:1	Coffee Grounds	20:1
Dried leaves	60:1	Grass Clippings	20:1
		Cow Manure	20:1
		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



Native Soil
Manure
Alfalfa, Kitchen scraps, Grass
Leaves, wood shavings/pieces, newspaper, cardboard
Native Soil
Manure
Alfalfa, Kitchen scraps, Grass
Leaves, wood shavings/pieces, newspaper, cardboard
Native Soil
Manure
Alfalfa, Kitchen scraps, Grass
Leaves, wood shavings/pieces, newspaper, cardboard

# 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



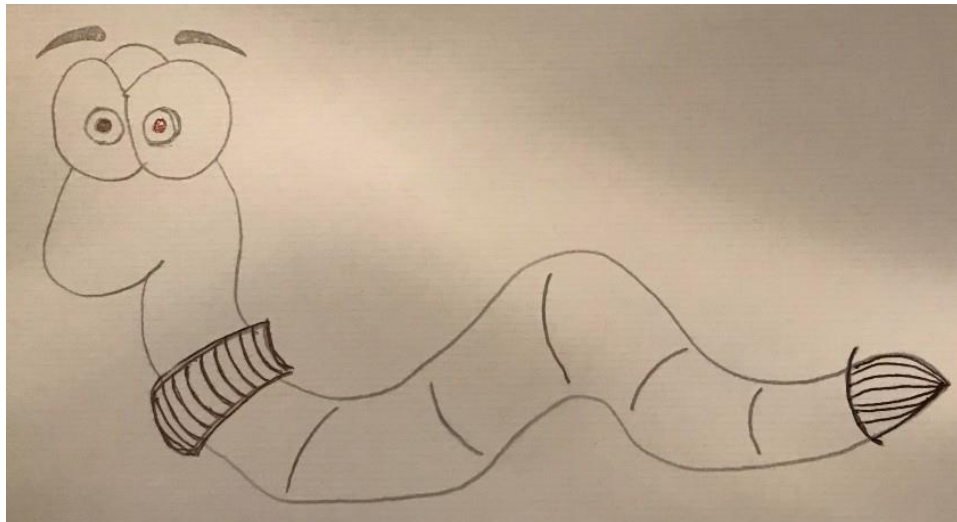
- Step 7. Curing compost
  - Allow the finished pile to sit UNDISTURBED for 1 month
  - Stabilizes the final chemical and decomposition reactions
  - Improper curing will kill your young plants from release of gases



# 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 is 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 since raw material stage





# FINISHED COMPOST



- Hot Composting creates a soil-like compost
  - Particle size is less than 1/2 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
  - Promotes roots closer to the surface
  - Reduces moisture loss
  - Keeps soil cool so wait until soil temps warm up
  - Decomposition of mulch by organisms will be naturally moved down into the soil

Cold Compost



Hot Compost



# 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](https://extension.arizona.edu/yavapai)



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Cooperative Extension

Yavapai County

