Something Composted This Way Comes

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City of Davis Composting Class

- Backyard composting
- Worm composting
- In-ground composting
- Food digesters
- Prize giveaways!
ORGANICS

FOOD SCRAPS
- fruits & vegetables
- bones
- eggshells
- rice, beans & pasta
- meat, poultry & seafood
- dairy products (no liquids)
- milk cartons, ice cream cartons
- greasey pizza boxes
- waxed paper
- tea bags
- coffee grounds & filters
- paper napkins & paper towels
- facial tissue
- paper plates
- paper take out food packaging
- plants & flowers
- yard trimmings

YES

FOOD-SOILED PAPER
- plastic
- glass
- metals
- dirt, rock & concrete
- cat litter
- non-compostable material

NO

YARD TRIMMINGS

ORGANICS ONLY

FOOD SCRAPS
- Place food scraps in paper bags, compostable bags or compostable containers BEFORE placing them in the organics cart.

FOOD-SOILED PAPER

YARD TRIMMINGS

PLACE ALL FOOD SCRAPS IN PAPER OR COMPOSTABLE BAGS OR CONTAINERS

NO PLASTIC, GLASS OR METALS
What is compost?

• Nature's own way of recycling
• The controlled decomposition of organic material
  – The process includes bacteria, fungi, and other macro and micro organisms
• A soil amendment product that results from proper composting
Why should we compost?

• Healthy soil
  – Return nutrients to the soil
  – Natural fertilizer

• Reduce waste

• Are you composting already?
  – Yard materials on the street
  – Backyard composting
  – Worm bin
  – Food Digester

• What are you composting?
  – Yard materials
    • Backyard composting
  – Food scraps
    • Backyard composting?
    • Worm composting
    • Food digester
    • In-ground composting
Grasscycling

• Leaving lawn clippings on the grass
• Mulch mower
• Reduces the need for fertilizer
• Increases water retention
Backyard Composting

- The compost bin
  - Hoop bin
  - Store-bought bins
  - Reuse bins
    - Pallet bin
    - Chicken wire
    - Nursery flats
- Multiple bins
- Pile composting
Free pallets are available from the City of Davis Stores Services. Call 757-5657 on Mondays or Wednesdays to request pallets. Bring gloves!
Presto Geo Bin

- Size is adjustable
- Made from recycled plastic
- Available for $10 to Davis residents in single-family homes
Placing your compost bin

• Must have contact with soil
  – Do NOT place on concrete
• Do not place against structures
  – Wood fencing, buildings, etc.
• Sun
  – Helps maintain heat
  – Dries out faster
• Shade
  – Helps maintain moisture
  – No warming effect
### What to compost?

- **50/50 mix of greens and browns**
- **Do NOT compost**
  - meat, bones, grease, fat, oil, pet feces, invasive weeds, diseased plants, large pieces of wood

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>- dry leaves</td>
<td>- fresh grass clippings</td>
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<tr>
<td>- sticks</td>
<td>- green leaves</td>
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<tr>
<td>- bread</td>
<td>- coffee grounds</td>
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<tr>
<td>- coffee filters</td>
<td>- fresh pulled weeds</td>
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| - dried grass         | - fruits and vegetables?
                        |   - no more than 10%    |
                        |   - bury deep in the pile|
                        |   - chop them up         |
Adding material to your pile

• Size matters
  – Small stuff breaks down faster than large pieces
  – Surface area
  – Min 3’ x 3’ x 3’ pile

• Mix the material
  – Layer greens and browns
  – Balanced “diet”
Moisture in your compost pile

• 40% moisture is ideal
• Test your pile
  – Pull out material from the center and squeeze
    • Dripping water = too wet
    • Dry and prickly = too dry
    • A few drops of water in your palm = perfect!
• Rainy season – cover your pile
• Hot, dry weather – add water

"By the pricking of my thumbs, Something wicked this way comes." - Shakespeare’s Macbeth
Temperature

- Evidence of activity – metabolic heat
- 120° - 140°
- Maintain the heat for several days
- Heat kills weed seeds, pathogens
- Increase temperature
  - Add water
  - Turn the pile
  - Add greens
  - 3’ x3’ x 3’
  - Insulate in cold weather
Turning your pile

- Adds oxygen
  - aerobic decomposition
- Mixes materials
- Turn every 1 to 2 weeks for max aeration
- More turning = faster composting
- Not in a hurry?
  - Turn when you need compost

"Double, double toil and trouble; Fire burn, and cauldron bubble." - Shakespeare’s Macbeth
Harvesting your compost

• Compost in 3 – 6 months
• Turn pile – remove the brown “dirt” at the bottom
• Cure it first!
  – Lay it out in the sun to dry
• Using compost
  – Mulch
  – Soil amendment
  – Fertilizer
  – Potting mix

"When the battle's lost and won." - Shakespeare’s Macbeth
Troubleshooting

- **Smelly Pile/ Pest Problems**
  - Too much food waste
    - Stop adding food scraps and greens
  - Too wet
    - Add dry, brown material
  - Anaerobic
    - Turn your pile

- **No Heat/Slow Decomposition**
  - Too dry
    - Add moisture
    - Add green material
  - Pile too small
    - Add material

"What's done is done." – Shakespeare’s Macbeth
Food Scrap Composting

• Vermicomposting
  – a.k.a. worm composting
• Food digester
• In-ground composting
Food Scrap Composting

- fruit
- vegetables
- bread
- rice
- pasta
- tea bags
- coffee grounds & filters
Do NOT Compost

- Meat
- Bones
- Fish
- Dairy
- Fats, oils and grease
  - Salad w/ dressing
- Pet feces (dogs & cats)
  - Horse, cow, rabbit OK

"All the perfumes of Arabia will not sweeten this little hand."
- Shakespeare’s Macbeth
Worm Composting

- Ideal for apartments, small places
- Only for food scraps
- Getting started
  - Bin
  - Location
  - Bedding
  - Worms
  - Food scraps
Why Worms?

- Compost is highly nutritious fertilizer
- Worm tea?
- Fun method of composting food scraps
- Pest resistant
Think like a worm

• Where do you find worms?
  – Cool, damp soil
  – Near the top 2 feet of soil
  – Soft, aerated soil
  – Never in the sun
Concerning worms...

- Ectotherms (cold-blooded)
  - Active when warm
- Hermaphroditic
  - Each worm creates a cocoon
- Porous skin
  - Absorbs moisture
  - Sensitive to pH

"I bear a charmed life." - Shakespeare’s Macbeth
Purchasing a worm bin

- Different styles
- Most have spigot to collect leachate
- $$$
Make your own worm bin

• Plastic storage tote with lid
  – Opaque
  – 12 – 18 inches deep is best
    • Deeper—no oxygen
    • Shallower—no insulation
  – Punch holes
    • In the bottom
    • In the lid
    • NO LARGER than 1/16”!
  – Will your bin be located indoors?
    • Buy 2 bins
    • don’t punch holes in one

"Screw your courage to the sticking-place."
  -Shakespeare’s Macbeth
Location

- MUST be in complete shade!
  - Keep out of direct sun
- Be wary of asphalt and concrete
  - Heat conduction
- Protected area where there is no frost
- You may need to move the worm bin occasionally
  - Think about the size of your worm bin
- Winter: Insulate your bin
  - Wrap with blanket, straw bales
  - Bury in ground or compost pile
- Suggested locations
  - Against a building in the shade
  - Under a porch
  - Garage
  - Under the sink
  - Deep shade under a bush or tree
Worm Bedding

- Bedding is a food source and an environment
- Suggested bedding materials
  - Shredded newspaper
    - this is the best!
  - Shredded paper
  - Coconut hulls
  - Decomposing leaves
  - Peat moss
- Dampen the bedding FIRST
How much bedding?

• Bedding is for worms like water is for goldfish
  • At least 6 inches
  • More bedding = more insulation
  • Leave 2-3” of air
  • Add more bedding as needed
    – Worms will eat it
• Add some dirt
Composting Worms

- Red wigglers
  - *Eisenia fetida* or *Lumbricus rubellis*
- Locally available
  - City of Davis Public Works ($5)
    - Call first—talk to Jennifer G. directly
    - Arrange a time
    - Bring your worm bin!
      - Bedding, holes prepared
  - UC Davis Project Compost
  - Davis Ace Hardware
Feeding your worms

- Move back the bedding
- Place the food scraps in the bin
- Cover the food scraps with the bedding
  - Always cover with at least 2 inches of bedding!!

Tip: Are your worms indoors? Add several sheets of damp newspaper on top of your worm bin to keep down flies and odors.
Feeding your worms

• Don’t overfeed your worms!
• Feed only once a week
Feeding your worms

• Chop food up for faster composting
• Watch the pH level
  – Citrus, coffee grounds
• Feed one side of the bin at a time
When can I harvest the compost?
Harvesting the worm compost

- Put your worms on a diet for a few weeks
- Feed on one side of the bin
- Remove the compost from the other side
  - Only remove ½ of the compost
    - Worms
    - Cocoons
- Spread remaining compost evenly in bin.
Harvesting the worm compost

• Make a pile of compost
• Keep removing the upper layer
  – Worms dig down to avoid light
• Place worms back in bin
• Sift out un-composted material
Using worm compost

• Dry it out in the sun and cure it first
• Caution: seeds remain viable!
• Use as a fertilizer, not a mulch
  – Nutrient content varies depending on diet
• Worm tea?
In-Ground Composting

“Best way to compost food scraps in a pest-free environment.”

- Martin Guerena
  City of Davis IPM Coordinator

"If chance will have me king, why, chance may crown me." - Shakespeare’s Macbeth
In-Ground Composting

• Find a well-drained area in your garden
  – Garden bed or outside of tree drip-line
• Dig a hole or trench at least 12” deep
• Add 2-3” of food scraps
  – Chop and mix into the soil
• Cover with at least 8” of soil
In-Ground Composting

- Watch for signs of digging
  - Not a good composting method with dogs
- Food scraps will be composted in 1-6 months
  - Soil type, season, material added, moisture
- Seeds can be planted immediately
- Large transplants—wait for finished compost
In-Ground Composting Tips

• Best in fall and winter
  – Prepare soil for spring
• Great for vegetable garden beds
• Worms!!!
  – if you build it, they will come
• Hard to harvest the compost
Food Digesters

The double-walled solar cone creates a heat trap of circulating air to encourage bacteria growth. Over 90% of the organic waste in your Green Cone will be absorbed as water by the soil.
Make your own food digester

• 32 gallon galvanized garbage can with tight fitting lid
• Drill 1/4”-1/8” holes
  – Approx. 20 holes in the bottom
  – Approx. 20 holes in the lower 1/3
Make your own food digester

• Find a well-drained area in your yard
• Dig a hole to fit the digester
  – 1/2 – 1/3 of digester should be below the ground
  – NO HOLES should be above ground
Using your food digester

- Add food scraps and replace the lid
  - Add scraps daily or weekly as needed
- **Tight fitting lid!!!**
- No need to add worms
- Should take 4-12 months to fill the digester
Beware!

• If left too long…a digester **may** become cockroach breeding grounds.
• Try using the digester as a densifier, or pretreatment to in-ground composting
  – Empty every few months
  – Spray down with vinegar
• MONITOR the bug population
• If roaches continue to be a problem…try another method.

"Look like the innocent flower, but be the serpent under't."  -Shakespeare’s Macbeth
Harvesting your compost

• Shovel out the material
1. Harvest the compost
   – Dry the composted material out in the sun
     • More nutrients in composted food waste—use sparingly
   – Replace the un-composted material in the digester
2. Move the material to in-ground composting

When harvesting, watch out for jagged metal around holes!
"Fair is foul, and foul is fair."
-Shakespeare’s Macbeth
Troubleshooting your food digester

- **Smell and fruit flies**
  - Flies and smell *inside* is OK, but not *outside*
  - Add sawdust, dry grass, shredded newspaper
  - Hang strips of flypaper in your digester

- **Pests getting in your digester**
  - Secure the lid—tie it to the handles
  - No meat, dairy, fish or greasy foods
  - Roaches? Use only as a densifier or eliminate.