The University of Georgia
College of Agricultural & Environmental Sciences
Learning objectives

- Why composting is important
- How the decomposition processes work
- How to construct and maintain a compost pile.
Benefits and drawbacks of composting structures
Using composted materials in the landscape and garden
How organic materials can be used in amending the soil
How organic materials can be used as mulch in the landscape and garden
In a forest, leaves and plants fall forming a layer of mulch that absorbs rainfall and protects the soil.

Over time this layer decomposes into nutrients for the forest.
People Remove Natural Mulch

In our suburban and urban landscape, we like to rake up and remove this plant material.

Soils are robbed of the natural soil amendments & nutrients.
Excessive grass clippings and leaves dumped or blown into the street, drainage ditch or stream bank are sources of water pollution.
Where Does Stormwater Go?

Stormwater flows across streets, down street gutters, drainage ditches and storm drains into rivers, lakes and streams untreated.
Grass Clippings

- Good on lawn
- Bad in streets and down storm drains.
- Carry excessive nutrients and pesticides into waterways.
Too much nutrients may cause....
**Algal blooms**, fish kills, loss of other aquatic life, eutrophication
Georgia Garbage
Pounds per person per day

FY ’94.....  5.55 lbs

FY ’04....  6.5 lbs

Source: GA DCA Solid Waste Annual Report 2004
What’s In Our Garbage

- **Organic** 28%
- **Plastic** 16%
- **Paper** 38%
- **Construction** 6%
- **Inorganic** 3%
- **Metal** 5%
- **Glass** 4%

*Courtesy of GA DCA*
Managing Solid Wastes

Local governments offer yard waste collection
Cities....355
Counties...93

Source: GA DCA Solid Waste Annual Report 2004

Recycle yard waste at home and keep it out of the landfill.
Yard Waste...

...Where to put it.
Recycling Options

- Mulching
- Grasscycling
- Composting
Mulching
Benefits of Mulch

- Conserves soil moisture
- Reduces amount of runoff
- Insulates roots from heat & cold
- Helps suppress weeds & disease
- Organic mulches add nutrients to soil
Mulch Basics

- **Apply** anytime, best in the late fall
- **Identify** mulch materials & quantity
- **Use mower** to make your own mulch
- **Do not apply** directly in contact with plants. Leave an inch or more of **space** (prevents diseases).
- **Remove** weeds before applying
- **Do not bury** or **dig** in
Mulch Material

- Leaves (chopped)
- **Newspaper**- Applied 3-4 sheets thick and covered with organic mulch
- **Bagged material**- Pine straw, pine bark, and cypress chips
- **Compost material**
- **Materials to avoid**- nut shells, fresh hardwood wood chips, straw, hay, grass clippings, sawdust, rocks.
Grasscycling
Grasscycling

Mow frequently enough so that no more than 1/3 of the length of the grass blade is cut in any one mowing.

Grasscycling is not dumping leaves on streets and into storm drains.
Grasscycling Benefits

- Saves Landfill Capacity
- Saves Time
- Saves Water and is Better for the Environment
- Saves Money
Grasscycling (Mowing Heights)

Suggested Mowing Heights for Various Types of Grasses

- Bermuda (Hybrid) - ¾”
- Bermuda (Common) - 1”
- Zoysia - 3/4” to 1”
- Centipede - 2”
- St. Augustine - 2” - 3”
- Fescue, Ryegrass - 2-1/2” - 3”
Composting
How Compost Happens

BROWN + GREEN → COMPOST

(leaves & pine needles) (grass & vegetable scraps)
Benefits of Composting

- Saves **money**
- Helps **improve** soil fertility
- **Protects** the environment
Choosing the best compost system

**Piles** - no special tools or bins

**Holding bins** - neatly contain materials, ward off animals, and keep in moisture

**Tumbling systems** - designed for quick, hot composting.
Heap Composting
(*No container necessary*)

- **Simple**
- **Piled** on top of each other directly on the ground.
- Materials can be added immediately or stockpiled.
Compost Hoops
(*Homemade or Store bought*)

- Usually made from dog or hog wire.
- Are easy and fairly inexpensive to build.
- Help keep your compost pile tidy.
Wooden Compost Structure
(*Homemade or store bought*)

**Bins** - Neatly contain yard trimmings and vegetable/fruit scraps. Can be homemade or store bought.
Plastic Compost Bins *(Store bought)*

- Keep optimum size of pile
- Store anywhere
- Hide wastes
- Cover Material
Tumbler
*(Homemade or store bought)*

- Ease to tumble and keep compost mixed up
- Low maintenance
- Pest proof
- Avoids odor
- Make compost faster
- Keeps damp in dry conditions & warm in winter
Compost in a Trash Can

*(Homemade bin)*

- Use an extra plastic trash can to put leaves and grass in.
- Cut off the bottom with a saw or knife.
- Place unit into the soil.
- Drill 24-48 1/4-inch holes in the sides of the can to increase airflow.
Buckets  
(For Small Space Composting)

A way for apartment-dwellers or people living in small spaces to compost food wastes inside or outside.
How to Compost

Instructions

Methods

Basic Recipe
Compost Ingredients

- What to Compost
- Browns vs. Greens
- What to Avoid
- Basic Recipe
What to Compost

- Grass Clippings
- Leaves
- Shrub Prunings
- Flowers
- Sawdust
- Fruit & Vegetable Scraps
- Coffee grounds/tea bags
- Small amounts of uncoated paper
Brown vs. Green Ingredients

**Browns** - dry plant parts (leaves & pine needles) source of carbon

**Green** - fresh (grass clippings, vegetable scraps, weeds, source of nitrogen.)
Do Not Compost

Butter
Bones
Cat Manure
Cheese
Chicken
Dog Manure
Fish Scraps
Vegetable Oil

Lard
Mayonnaise
Meat
Milk
Oils
Peanut Butter
Salad Dressing
Sour Cream

These items can attract pests, rodents, and create foul odors.
Do Not Add

- **Lime**—experts find it unnecessary and not beneficial to the environment.
- Wastes that attract pests
- Disease/Insect ridden plants
- Troublesome weeds (e.g. seed heads, rhizomes)
Basic Compost Recipe

**Chop** compostables.

**Mix** 2/3 dry brown material with 1/3 moist green

**Add** water as you build your pile.
Methods of Composting

- Dump and Run/ Slow
- Fast Method
- Small Space
Dump & Run Method

Add leaves and other compostable materials as they become available.

When adding new materials, it is best to blend them into the core.

This method takes 6 months-2 years to yield compost.
1. Set Up Bin or Heap

Select a spot that receives partial shade.

Out of the way but convenient

Places to set-up bin
- near your garden
- back corner of the yard
- location close to a source of water
2. Mixing & Adding to the Pile

- Add materials to the bin or pile
- No need to check for moisture
- Pile is not mixed in this method
- Build pile with greens & browns as they become available
Fast Composting
Fast Composting

Build a “hot” heap, hoop or bin.
Requires frequent turning and moisture
Temperatures can reach 120-150°F
Ingredients- layered yard trimmings, fruit & vegetable trimmings
Layering Illustrated
The first step is to add a bed of twigs and small branches to promote air circulation.
Add a layer of **browns**. Water between layers to evenly distribute moisture.
Next, add a layer of fresh greens
Add water & another layer of browns
Add next layer of *greens* from prunings or clippings
Keep extra **browns** and **greens** stored separately in other bins for use in compost pile later.
Add Water To The Pile

Use a squeeze test to be sure your pile has the right amount of water.

Adding moisture will help to break down materials faster.

Sprinkle water to adjust the moisture level or add brown material to lower moisture content.
Small Space Composting

- Bucket
- Worm Boxes
Bucket Composting

Compact way to **compost** vegetable/fruit scraps.

**Use** a 5 gallon bucket

**Ingredients:** kitchen scraps, dry material (soil, sawdust, peat moss, straw)

**Chop** scraps and mix an equal amount of dry material once a week.
Worm Composting (Vermicomposting)

What is Vermicomposting?

Different from Composting

Vegetable & Fruit Waste
Worm Boxes
Small Space Composting

- Can be used to compost vegetable & fruit wastes inside or outdoors.
- For small spaces
- Give off very little odor
- They eat only food waste
Improving the Finished Product

Finished compost can be improved by sifting through a screen to remove oversized pieces.
How To Use Compost

- Soil Amending
- Mulching
- Potting Mix
Soil Amending

Mix 4-6 inches of compost into newly reclaimed or poor soils

Mix 1-3 inches into annual garden beds, or into soil under and around new trees & shrubs before planting.
Mulch

Spread 2-3” over the soil around plants, trees, shrubs

Use on exposed slopes to suppress weeds

Keeps plant roots cool and moist & conserves water

Maintains a loose & porous surface helping to prevent soil erosion.
Potting Soil

- 1/3 Compost
- 1/3 Coarse Sand
- 1/3 Ground Pine Bark
Can compost replace petroleum based fertilizers?

How long does it take to produce compost?
## Troubleshooting

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Problems</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad Odor</td>
<td>Too wet</td>
<td>Add browns</td>
</tr>
<tr>
<td>Bad Odor</td>
<td>Not enough air</td>
<td>Turn pile</td>
</tr>
<tr>
<td>Center is Dry</td>
<td>Not enough water</td>
<td>Moisten &amp; turn</td>
</tr>
<tr>
<td>Only Warm in Middle</td>
<td>Pile too small</td>
<td>Mix into larger pile</td>
</tr>
<tr>
<td>Will Not Heat Up</td>
<td>Lack of nitrogen</td>
<td>Mix in N Source</td>
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Recap Benefits

- Preventing leaves from entering streets and storm drains helps to prevent stormwater pollution.
- Recycling yard waste saves you money, time and efforts.
- Composting helps to turn garbage into gold.
QUESTIONS?
Additional Information

www.ugaextension.com
www.cleanwatercampaign.com
www.mastercomposter.com
www.compostingcouncil.org
www.compostinfo.com
Sources

www.dca.state.ga.us GA Department of Community Affairs
www.dep.state.pa.us (Pennsylvania Dept. of Environmental Protection)
http://aggie-horticulture.tamu.edu/extension/ (Texas A&M Horticulture Extension)
www.compostinfo.com (Florida’s Compost Info)
www.cleanairgardening.net (Clean Air Gardening)
www.marquisproject.com (Marquis Project)
www.ces.uga.edu
Backyard Composting (Harmonious Press, 1992)
Thank you

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