Compost Happens!
An Introduction to Feeding the Soil

**Bianca Howard**
City of Raleigh
Solid Waste Services

**Jodi Riedel**
Wakefield High School
Horticulture Teacher
Overview

- What is compost?
- Why should you compost?
- Benefits of compost
- How to use compost
- Vermicomposting
- Resources for further study
What Is Compost?

- Nature’s way of recycling
- Controlled decomposition
What Goes into Compost?

- Carbon-rich material (leaves, straw)
- Nitrogen-rich material (green plants, food scraps)
- Oxygen (turning helps add)
- Water (moisture speeds decomposition)
Let’s Get Specific...

- Need 30:1 carbon-to-nitrogen
- Try for 2 parts green to 1 part brown.
- Example: 1/3 pile leaves, 1/3 grass clippings, 1/3 food scraps
What NOT to Compost

- Meat scraps
- Bones
- Dairy products
- Cat or dog manure
- Greasy or oily foods
Okay to Compost:

- Fruit peels
- Vegetable peelings
- Coffee grounds and filters
- Tea bags
- Leaves
- Grass clippings
- Straw
- Egg shells
- Wood ashes
- Paper towels and napkins
- Sawdust
- Plant trimmings
There are many ways to compost.
How long does it take?
- Size of pile
- Mixture of materials
- Environmental conditions
- Small piles won’t heat, take longer to finish
- Try for 1 cubic yard (3 feet)
When is it ready?

- Can’t recognize the material that went into it.
- May have a sweetish smell
- Dark brown and crumbly, looks like soil
A Few Tips

- Keep it moist. Aim for feel of a wrung-out sponge.
- Turning more often adds air, and helps avoid the odors associated with anaerobic decomposition.
- Try multiple bins or containers to stockpile material.
Benefits of Composting

- Saves space in your trash can, landfill
- Food waste makes up 12% of waste in NC
- Reduces methane gas formation in landfills → fewer GHG emissions
Benefits of Using Compost

- Improves soil texture
- Makes it easier for water to infiltrate soil
- Adds nutrients slowly, and at levels that won’t harm plants
How to Use Finished Compost

- Incorporate 2” to 3” into new flower and vegetable beds
- Work 2” to 3” into top 6 inches of soil before seeding turfgrass
- Use 30% compost in soil mix for container plants
What is Vermicomposting?
Vermiwhat?

- Vermicompost- castings (poo) from worms that makes the greatest plant fertilizer in the world
  - It’s black, earthy-smelling, nutrient-rich humus
- Vermiculture- the cultivation of a worm and microorganism environment that leads to the production of worm castings
Why vermicompost?

- Breaks down stuff and turns into free fertilizer
- Gets rid of what would otherwise go to dump
- Helps to make you feel good
- Worms are cute, in their own special way
What’s a Red Wiggler?

- *Eisenia fetida*-  
  “I SEE nee a  FET id a”  
- Very different from an earthworm  
- Most commonly used worm for composting
  - Tough
  - Withstands handling
  - Can be bought on internet anytime of year
Worm Sex Ed

- Worms are hermaphrodites
- Worms have ovaries and testes
- Worms join together head to tail in a slimy pouch and exchange sperm
- After mating, the worms separate and eventually form an oval shaped cocoon
- Cocoons are about 1/8” long
- Two or more sexually immature worms hatch from a cocoon
Essential Ingredients for a Worm Bin

- Opaque container
- Ventilation
- Drainage holes
- Composting worms
- Bedding
- Food
- Water
Worm Bedding

- Shredded newspaper
- Leaf mold
- Animal manures (only pastured animals)
- Coconut fiber (coir)
- Wood chips
- Peat moss (not a good choice)
- Soil (only a handful when starting out)
How many Red Wigglers do I need?

- Worm: garbage ratio (2:1)
  - 1 lb of worms for ½ lb of daily garbage,
  - 1 lb of worms for 4 square feet of surface area
- 1 lb of worms for 1 lb of daily garbage,
  - 2-3 lbs of worms in a six cubic foot bin
Where do I put the bin?

- 59-77F optimum
- Above 86F BAD, below 50F BAD
- Should be moist, not wet
- pH 5-9
- Needs good ventilation
Where do I put the bin?

Think convenience:
- Kitchen
- Patio
- Balcony
- Basement
- Garage
- Make it into a coffee table
Varieties of garbage

- Vegetable waste
- Tea bags, coffee filters and grounds
- Noodles and egg shells
- Watch out for citrus fruits - too much acid is bad
- Avoid meat waste and bones
- Just say no to Fido or Felix’s poo
- Just say no to non-biodegradables
How do worms control the population?

- Young dudes compete for food
- They excrete castings and it is toxic to their own kind
- When the old guys die, they rapidly decompose, so you don’t find dead worms all over the place
- They pretty much self regulate
Some problems

- Excess water
  - Drain and catch
  - Add dry bedding
  - Suck up with a turkey baster
  - Pour off and drain
  - Make a peat-moss or coconut fiber worm
Inside My Worm Bin
How do plants benefit from worm bins?

- Use as top dressing on pots or throw into your garden
- It’s powerful fertilizer but it won’t burn your plants
- Put it into a sock, let it soak in a 5 gallon bucket (like a tea bag) and reuse up to 5 times for watering
Learn More! Resources:

**Print**
- Appelhof, Mary. Worms Eat My Garbage.

**Internet**
- NC Division of Pollution Prevention and Environmental Assistance. [www.p2pays.org/compost](http://www.p2pays.org/compost)
- Rhonda Sherman, NC State University. [www.bae.ncsu.edu/people/professionals/sherman/](http://www.bae.ncsu.edu/people/professionals/sherman/)