Composting for the Gardener

Compost happens…..

but not in sufficient quantity or quality for the home gardening aficionado.

Carol Phelps,
Master Gardener

Compost Basics

Carbon + Nitrogen + Water + Oxygen= Humus

Microorganisms do the work and work best in optimal conditions. Ratio of carbon to nitrogen should be 30:1. Process is aerobic, not anaerobic. All life needs water.

Browns: High carbon Greens: High Nitrogen

No effort method for leaves and grass clippings

- Leave it on the lawn.
- Run leaves over with lawn mower and leave them in place.
- If truly an excess, rake and use as mulch.
- Initiative in Westchester County.

Almost no effort method

Pile leaves in woods. Three to five years later, humus at bottom of pile.

Trench method

Planning a new garden bed?

- Pile mix of organic material in spot.
- Cover with cardboard.
- Place garden soil on top.
- Wait 3 to 6 months.

Lazy Lasagna Method

- Start with branches at bottom of pile. Cover with layer of browns.
- Add layer of greens but keep away from edges.
- Spray with water.
- Alternate brown and green layers, by volume 2 parts brown to 1 part green. Keep spraying with water as browns are added.
- When pile is 3 feet high, stop adding new material. Start a new pile. Fluff with spading fork when inspired.
- Humus ready in a year and will sprout weeds.

Hot Compost

- Build pile in fall when supply of browns and greens is higher.
- Pile should be at least 3 cubic feet. 3’x3’x3’
- Mix browns and greens as you build pile, watering as you go.
- Shred material as much as possible. By volume, brown to green ratio should less than 2:1.

Hot Compost, Continued

- Monitor temperature. Want center of pile to reach at least 131°F, 140°F to 160°F better.
- When temperature drops, turn pile, adding supplemental nitrogen, such as blood meal.
- Monitor temperature again, and turn again.
- It’s done, when it looks like dark garden soil crumbles easily and smells like fresh dirt.
- Product ready in 2-3 months of warm weather and relatively weed-free. Process dormant in winter.

Browns	Greens
Leaves	Kitchen scraps
Pine needles	Weeds
Wood chips	Garden trimmings
Hay, Straw	Grass Clippings
Torn newspaper	Herbivore Manure
Hair & pet fur	Blood Meal
	Alfalfa meal

Carbon/Nitrogen Ratios
Selected Brown Components

- Leaves: 50-80 to 1

  Maple: 52:1 Oak: 47:1 Aspen 63:1

  Beech 51:1
- Straw & Hay: 90 to 1
- Sawdust: 500 to 1
- Wood chips & twigs: 700 to 1
- Pine needles: 66 to 1

Carbon/Nitrogen Ratios
Selected Green Components

- Food Scraps: 17 to 1
- Vegetable Scraps and Coffee Grounds: 25 to 1
- Fresh grass clippings: 17 to 1
- Aged chicken manure: 7:1
- General garden waste: 30:1
- Fresh weeds: 20:1
- Rotted manure: 20:1

Don't put in pile	**Why?**
• Dog and cat droppings	Cat especially, toxoplasmosis; other possible diseases
• Meat, bones, oil, dairy scraps	Attracts rats, raccoons, other carnivores
• Diseased plants	Pathogen not killed in composting process
• Biodegradable cups etc.	Never will decompose in home compost
• Magazine paper, paper with colored ink	Metal contamination

Decide for yourself	**Why?**
• Heavy seed heads or weed roots	Okay for hot compost
• Saw dust and grass clippings	If not mixed well with other components, will mat
• Citrus peels	Must cut up in small pieces or will need several times through process
• Avocado pits and egg shells	Good nutrients but will need extra crushing mid- way through process
• Horse manure	Notoriously weedy, even in hot compost
• Shredded white paper/black ink	Bleach to make paper white
• Lots of garlic, onions	Antibiotic effect

Microorganisms do the work

Optimum food: Organic Material with 30 to 1 Carbon to Nitrogen ratio

Optimum water: 40% to 60%

Aerated compost will get optimum oxygen.

Compost Problems

Ammonia odor: Too much nitrogen. Add browns.

Rotten egg odor: Too wet. Add browns and mix.

Not decomposing: Too much carbon. Add greens or supplemental source.

Not decomposing: Not enough water. Turn and add water as you go.

Matted greens, resulting in anerobic activity: Mix pile better.

Set-up to make it work

- Container in kitchen
- Water close-by
- As close to house from house as aesthetically possible
- One outside bin for green stockpile,
  one bin for brown stockpile
- Minimum 2 bins for pile and for turning

Nuts and Bolts of Building Pile in the fall

- Shred leaves and green garden waste.
- Pile on tarp and toss.
- Branches and wood chips in bottom of container.
- Water every six inches or so.
- Finish with insulating layer of shredded leaves.
- Get pile to at least 3 feet, but no higher than 5 feet.

Bin Considerations

- Amount of raw materials your family can generate and aesthetics.
- How will you turn pile?
  - Crank
  - Open or remove one side
  - Climb in
- Aeration
- Purchase or homemade. Plans readily available on internet.

Equipment Needed

Must haves:

- Bins
- Spading fork

Nice to have:

- Compost thermometer
- Leaf shredder

Not needed:

- Special turning tool
- Compost activator

Sources

- Cornell Waste Management Institute
- NYS Department of Environmental Conservation
- Pennsylvania Extension Office
- “Home Composting Made Easy,” Dr. C. Forrest McDowell and Tricia Clark-McDowell