

Home Composting: *basic guidelines and best practices*

Sustainable Sharon Coalition
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What composting is...

Composting is a controlled process of decomposition of organic material. Naturally occurring soil organisms recycle nitrogen, potash, phosphorus, and other plant nutrients as they convert the material into humus.

Humus is dark, organic material that forms in soil when plant and animal matter decays.



Why Compost?

- **Reduce waste** requiring disposal
- **Reduce greenhouse gas emissions** and sequester carbon in the soil (as humus)
- **Recycle nutrients** and organic matter for plants
- **Save money** in avoided disposal costs and reduced purchases of soil amendment



Wasted: How America Is Losing Up to 40 Percent of Its Food from Farm to Fork to Landfill

AUTHOR

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Natural Resources Defense Council



21%

of waste in landfills is
food waste

40%

of all food produced in
the U.S. is thrown away



1 in 7

people is food insecure, lack-
ing access to adequate food



\$1,500

/year
What a family of 4 spends
on wasted food

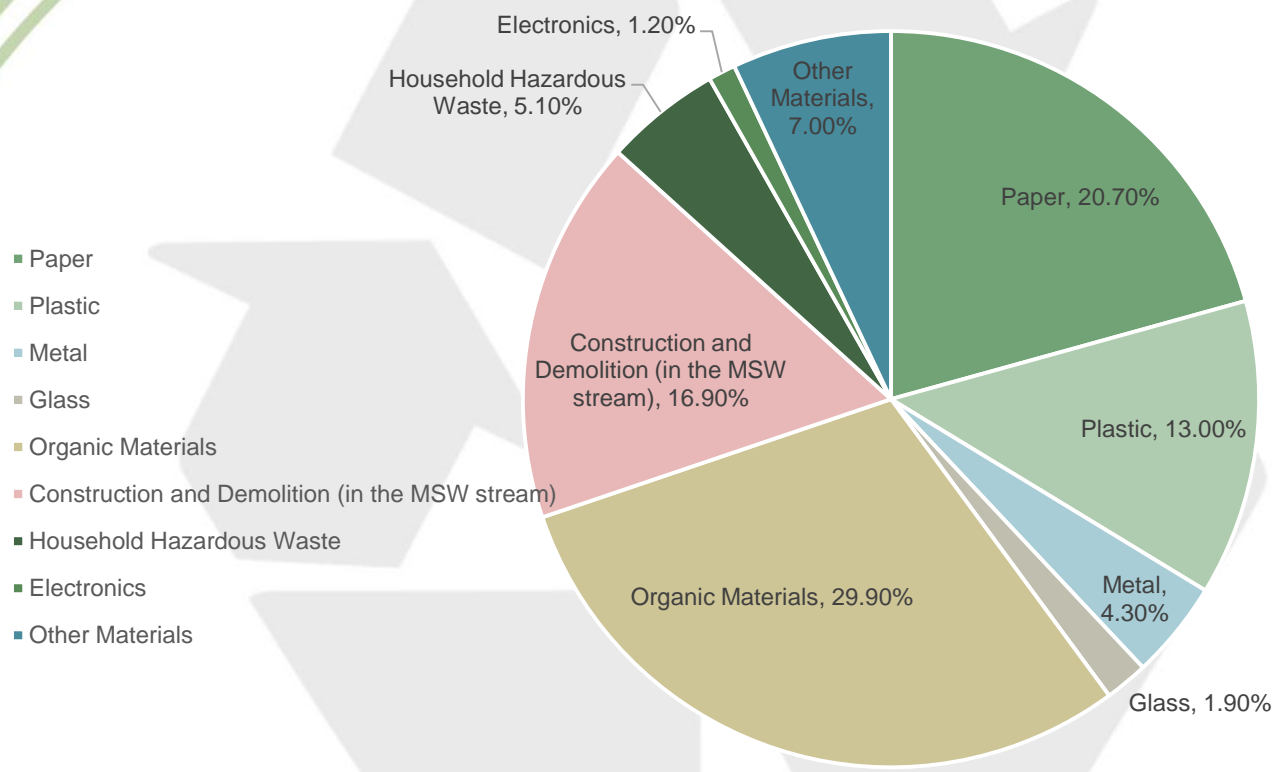


Credit: Sean Parsons

How Much Compostable Material is in the MA Waste Stream?



MSW Waste Characterization: SeMASS 2016



How many ways are there to compost?

- Many, including:
- On-site in bins, containers, buckets, worm bins, and piles
- Municipal and on-farm in windrows, piles or drums
- Commercial systems in enclosed containment vessels
- Aerobically, which produces CO₂ and humus
- Anaerobically, which produces CH₄ (methane) and happens inside our stomachs



A few examples of bin types



Turning Bins



A series of three or more bins allows you to make compost in a short time by turning the materials on a regular schedule.

Earth Machine



New Age Composter



Barrel Bin



These bins can easily be made from plastic garbage cans.



Wire Bin



Wire bins can also be made for composting.

Who does the majority of the work...

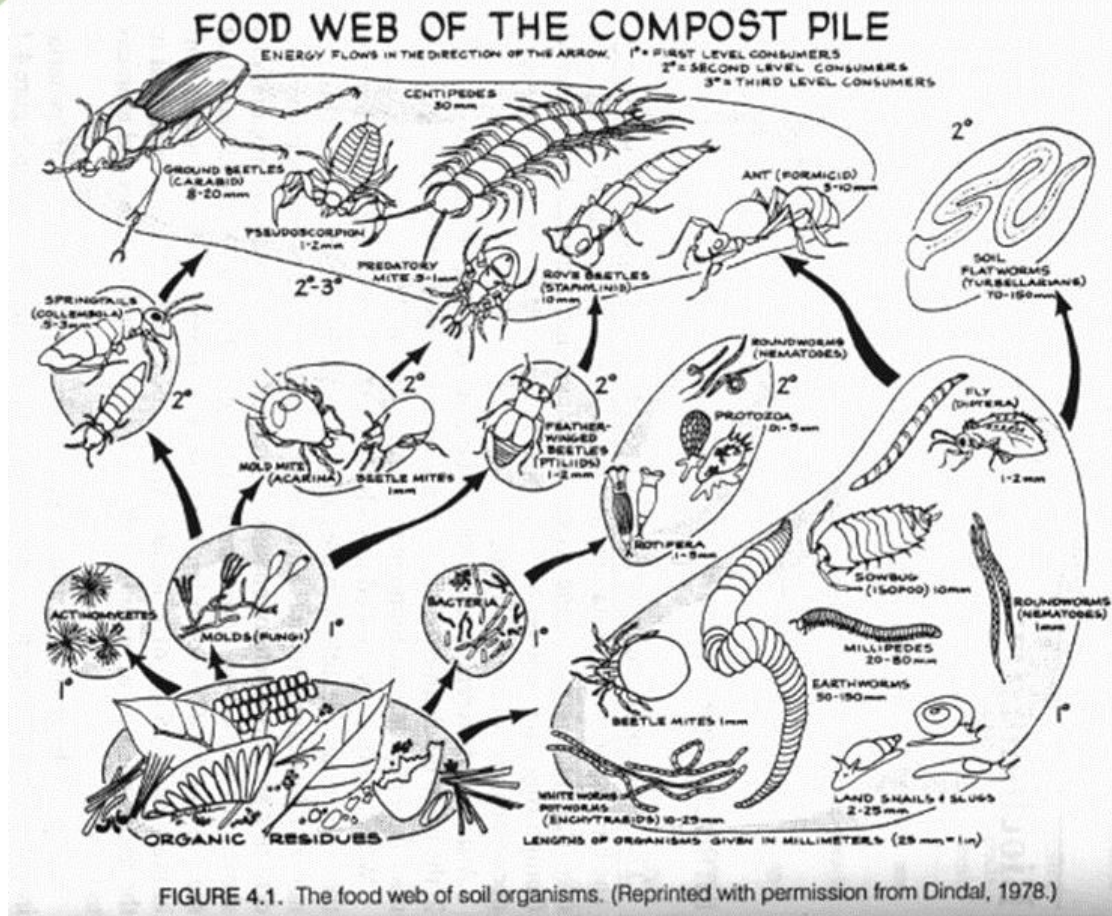


FIGURE 4.1. The food web of soil organisms. (Reprinted with permission from Dindal, 1978.)

What can be composted?

- Anything that was once alive, including:
- Food scraps;
- Paper and paper products (paper plates, napkins, cardboard, coffee filters, etc.);
- Yard waste – leaves, pine needles, grass clippings, weeds, prunings, woodchips, sawdust;
- Seaweed and the list goes on **but exactly which organic materials are composted depends on the composting system used.**



Leaf & Yard Waste Composting

- Typically high-carbon material (leaves, trimmings) which are the least odorous compared to food scrap composting
- Grass clippings increase the odor potential



Food Scraps

- Greater potential for odors than leaves and yard waste
- Higher moisture content – requires management of “free water” to reduce odors and manage nutrients
- Type of material accepted influences odor, pathogens and moisture content
- Fruit, vegetables – least odorous
- Meat, dairy – more odorous and pathogenic



Masterfile

WHAT YOU CAN AND CAN'T COMPOST IN YOUR BACKYARD

CAN BE COMPOSTED



- Cardboard (uncoated, small pieces)
- Coffee grounds and filters
- Eggshells
- Fireplace ashes (from natural wood only)
- Fruits and vegetables
- Grass clippings
- Hair and fur
- Hay and straw
- Houseplants
- Leaves
- Newspaper (shredded)
- Nutshells
- Paper (uncoated, small pieces)
- Sawdust
- Tea bags
- Wood chips
- Yard trimmings

SHOULD NOT BE COMPOSTED



- **Black walnut tree leaves or twigs** (release substances that might be harmful to plants)
- **Coal or charcoal ash** (might contain substances harmful to plants)
- **Dairy products and eggs*** (create odor problems and attract pests such as rodents and flies)
- **Diseased or insect-ridden plants** (diseases or insects might survive and be transferred to other plants)
- **Fats, grease, lard, oils*** (create odor problems and attract pests such as rodents and flies)
- **Meat or fish bones and scraps*** (create odor problems, attract pests such as rodents and flies, and might also carry pathogens)
- **Pet feces or litter*** (might contain parasites, bacteria, germs, pathogens, and viruses harmful to humans)
- **Yard trimmings treated with chemical pesticides** (might kill beneficial composting organisms)

*These materials should not be composted at home but may be accepted by your community curbside or drop-off composting program. Check with your local composting or recycling coordinator.

Recipes

- Are you a good composter? (If not, learn the science - principals of decomposition)
- Composting is also an art – must have a feel for it – what to mix with what; what to add next, how to keep it working well, without odors and pests.
- If successful, you end up with good quality compost.



Moisture

- Should be about 50%
- Balancing act
 - High Carbon materials usually dry, need moisture
 - High Nitrogen materials usually wet, need bulking
 - When food scraps sit, they release moisture into stinky puddles
 - **Much** better to avoid odor development than to have to make odors go away



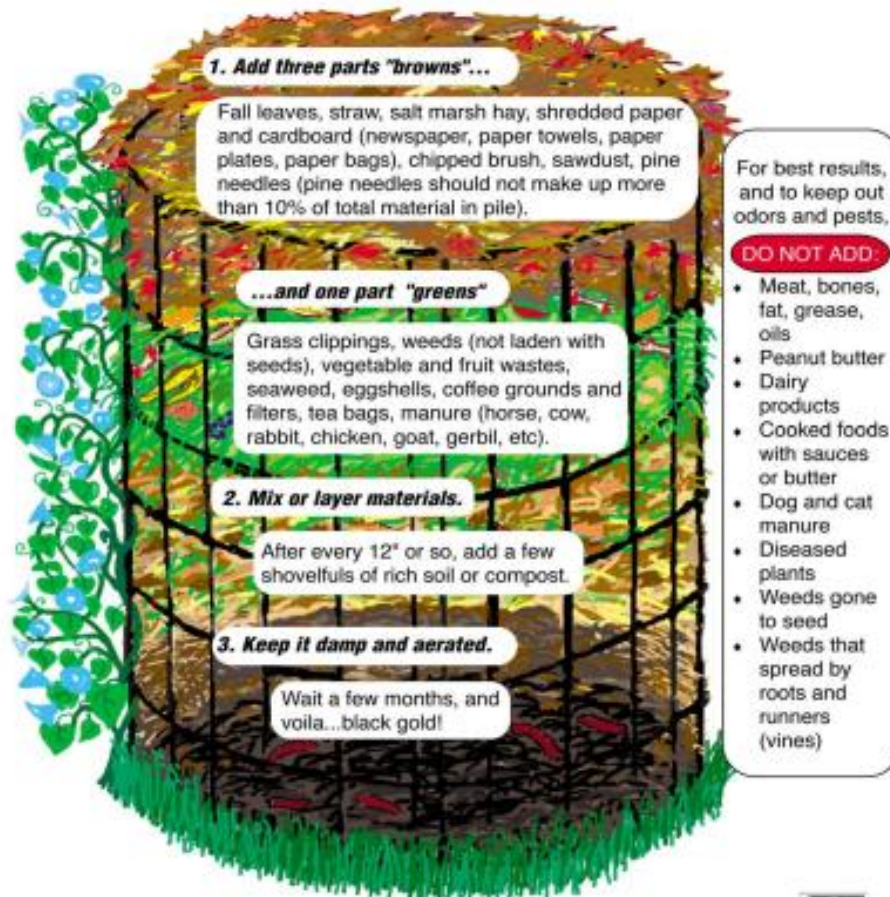
Be prepared for moisture

Have adequate carbon to mix into and cover food



Composting is easy!

To make compost, just follow these simple steps:



Composting at my house



Layer of leaves for carbon
and to reduce odors



Harvesting finished compost



Composting at Bri's house



Yes, composting is easy
and rewarding!



Resources



Web Sites

<http://www.mass.gov/eea/agencies/massdep/recycle/reduce/composting-and-organics.html>

<http://compostingcouncil.org/admin/wp-content/uploads/2010/09/BMP-for-FW-to-YW.pdf>

<http://cwmi.css.cornell.edu/composting.htm>

http://www.ct.gov/deep/cwp/view.asp?a=2718&q=325344&deepNav_GID=1645www.mastercomposter.com

Soil and Compost Testing Laboratory

University of Massachusetts

Amherst, MA 01003-8010

413-545-2311; 413-545-1931 fax

<http://soiltest.umass.edu>



Books

- Minnich, J. and Marjorie Hunt. 1979. *Rodale Guide to Composting*, Rodale Press, Emmaus, PA
- Appelhof, Mary. 2000. *Worms Eat My Garbage, 2nd Ed.* Flower Press, Kalamazoo, MI.

Journals

- *Biocycle*, pub. JG Press, Emmaus, PA.
- *Organic Gardening*, pub. Rodale, Inc., Emmaus, PA.

Testing

- Seal of Testing Assurance (STA) offered by US Composting Council tests for:
 - pH
 - soluble salts
 - nutrient content (total N, P₂O₅, K₂O, Ca, Mg)
 - moisture content
 - organic matter content
 - bioassay (maturity)
 - stability (respirometry)
 - particle size (report only)
 - pathogen (Fecal Coliform or Salmonella)
 - trace metals (Part 503 regulated metals)



Testing (continued)



• University of Massachusetts Extension offers Compost Analysis

- pH
- Soluble Salts (Electrical Conductivity)
- Bulk Density
- Percent Solids
- Moisture Content
- Organic Matter
- Total Nitrogen, Organic Nitrogen, Nitrate Nitrogen, Ammonium Nitrogen
- Total Carbon
- Carbon:Nitrogen (C:N) ratio
- Total Phosphorus, Potassium, Calcium, Magnesium
- Micronutrients (mg/kg): B, Zn, Cu, Fe
- Metals (mg/kg): Pb, Ni, Cr, Cd

<http://soiltest.umass.edu/>