Sustainable Maryland Wednesday Webinars

Backyard Composting

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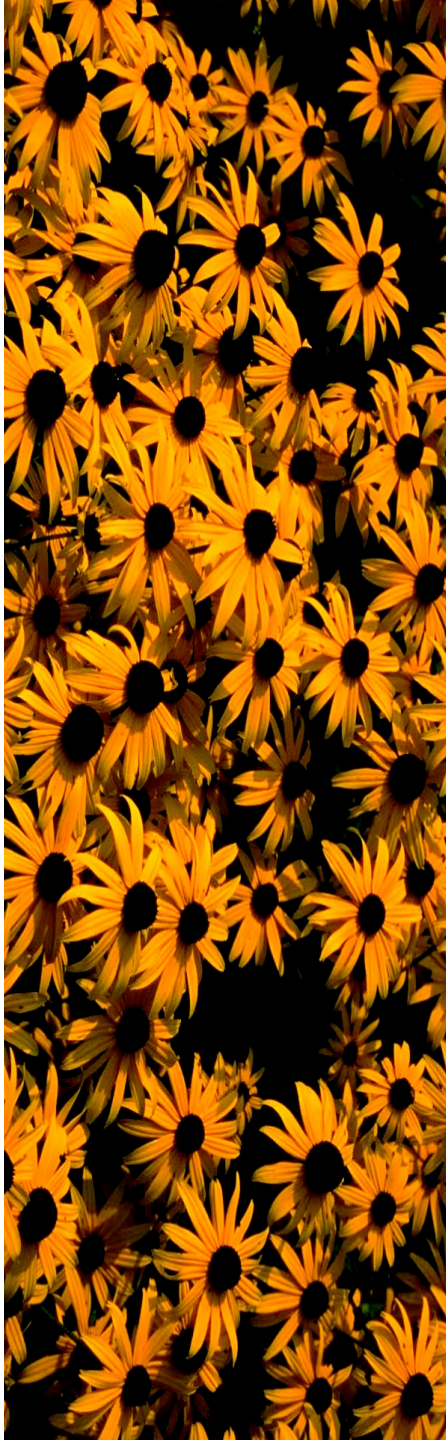
April 6, 2016



Backyard Composting
Waste isn't waste until you waste it!

UNIVERSITY OF MARYLAND 18 56 ENVIRONMENTAL FINANCE CENTER

Sustainable Maryland

- Free & Voluntary program for communities that want to go green and save green!
- We help communities
  - choose a direction for their sustainability efforts
  - Improve access to resources
  - Measure their progress
  - Share success with other communities

Actions for Sustainable Communities:

To become Sustainable Maryland Certified, municipalities must complete and document actions from the list below. To achieve certification, municipalities will need to complete actions worth **a total of 150 points**, including **two Mandatory Actions (M)** and **two of six Priority Actions (P)**, and submit the appropriate documents as evidence that the requirements have been satisfied.

ACTION ITEM	POINTS
COMMUNITY ACTION	
Green Team	
Participate in SMC Green Team Training	5
Create a Green Team	10 M
Complete a Green Team Action Plan	10 M
Conduct Community Barriers and Benefits Assessment	15
Build SMC Resource Center	5
Participation in MD Green Schools	10
Innovative Demonstration Projects	5 to 20
COMMUNITY-BASED FOOD SYSTEM	
Local Food Consumption	
Local Food Fair	10
Local Food Consumption & Preservation Classes	5 per class
Establish Local Farmers Market	15
Promote Local Farmers Market	5
Local Food Production	
Community Gardens	15 P
Spring Transplant Sale	10
Fall Transplant Sale	10
Establish CSA Drop-off Location	10
Innovative Demonstration Projects	5 to 20
ENERGY	
Municipal Energy Audits	10 (1st bldg), 5 (consec bldgs) P
Residential Energy Efficiency	5 to 20+
Wind Energy Project	10
Innovative Demonstration Projects	5 to 20
GREENHOUSE GAS	
Municipal Carbon Footprint (pre-requisite)	15 P
Community Carbon Footprint (pre-requisite)	15
Climate Planning	
Climate Action Plan	10 to 25+
Climate Change Adaptation Element	5
Innovative Demonstration Projects	5 to 20
HEALTH & WELLNESS	
Let's Move	15
Workplace Wellness	
Join Healthiest Maryland Businesses	5
Workplace Wellness Program	5 to 15
Living Well Program	5 per class
Innovative Demonstration Projects	5 to 20
LOCAL ECONOMIES	
Buy Local	
Establish Local Business Directory	10
Promote Local Business Directory	5
Buy Local Campaign	15
Local Business Roundtable	5 per roundtable
Local Business Procurement Notices	10
Economic Analysis of Procurement Practices	15
Local Purchasing Preference Policy	10
Green Business Recognition	
Join Maryland Green Registry	5
Promote Maryland Green Registry	5 points per 2 businesses

ACTION ITEM	POINTS
LOCAL ECONOMIES (CONTINUED)	
Green Business Certification Program	15
Green Purchasing	
Green Purchasing Policy (pre-requisite)	15 P
Evaluate Current Purchasing Practices (pre-requisite)	10
Vendor Preference Statement (pre-requisite)	10
Purchase Recycled Products	10
Purchase Environmentally Preferable Products	10
Implement Waste Reduction Program	10
Innovative Demonstration Projects	5 to 20
NATURAL RESOURCES	
Watershed Stewardship	
Implement Watershed Stewardship/Pollution Prevention Outreach Program(s)	10
Facilitate Engagement in Existing Watershed Stewardship Opportunities	5 per event
Provide Voluntary Opportunities for Citizen Engagement in Watershed Stewardship	10
Provide Incentives for Watershed Stewardship on Private Lands	15
Create a Watershed Plan	20 P
Stormwater Management	
Stormwater Management Program	15 P
Stormwater Manager/Coordinator	15
Stormwater Fee Structure	20
Septic Management	
Septics System Assessment and Inventory	15
Septics System Management Plan	20
Dedicated Septic System Fund	20
Water Conservation	
Develop a Water Conservation Plan	15
Develop a Water Conservation Outreach Program	10
Tree City USA	15
Pet Waste	
Implement a Pet Waste Education Program	5
Develop a Pet Waste Program	5
Adopt a Pet Waste Ordinance	5
Innovative Demonstration Projects	5 to 20
PLANNING AND LAND USE	
Participation in DHCD Sustainable Communities	20
Housing and the Comprehensive Plan	10
Land Preservation	
Conduct Easement Outreach that Encourages Inspection, Evaluation, and Stewardship	15
Build Easement Inventory	10
Innovative Demonstration Projects	5 to 20

P denotes Priority Action M denotes Mandatory Action

To learn more visit
www.sustainablemaryland.com

EFC Environmental Finance Center
www.efc.umd.edu

Please note: Sustainable Maryland Certified actions and points may be subject to change.
Printed on 55% recycled & 30% post-consumer waste paper.

June 2014

Innovative Demonstration Projects

Composting is typically 10 points

Backyard Composting

Grant Program

What are the goals of the Backyard Composting Grant Program?

1) Reduce tipping fees for municipalities
For each dollar invested at least $15 is saved

2) Motivate residents to reduce food waste.
Food wasted is $1,350 & $2,275 per household per year

3) Reducing food scrap & soiled paper waste in landfills increases landfill life & decreases methane emissions

4) Cost effective partnership between the municipality, residents and non-profits. Residents pay $20 per bin. The municipality & Backyard Composting each pay half of the rest of the cost ($6 to $11.50 each).

Backyard Composting History

- Pilot project started in Cheverly, MD in early 2011 — 400 (25%) of our 1,600 single family homes participate.

- A dozen municipalities have implemented the program and received grants including Bowie, Greenbelt, Mount Rainier, Berwyn Heights, Colmar Manor & Brentwood.

- We GUARANTEE municipalities their investment will be returned in reduced tipping fees in one-year or we'll refund the difference.

- The expected savings for the $6 to $11 municipal investment per bin is $147.50 in saved tipping fees over ten years. (.25 ton composted x $59 per ton x 10 years)

How the Grant Program Works

- The actual cost per bin is $29. Shipping costs are between $3 and $14 depending on volume and shipping location.
- Residents must purchase the bins for $20 each.
- We fund up to 25% ($6 to $11.50) of the $32 to $43 cost of each compost bins includes shipping.
- The municipality also invests the same $6 to $11.50 per bin plus the residents $20 portion up front. The municipality reimburses itself the $20 as residents purchase the bins.
- Whenever possible, we set up joint purchases between several municipalities to increase the purchase volume, which reduces the shipping cost per bin.

How the Grant Program Works

- To request funds send an e-mail with how many bins you'd like to purchase to: dalexander@nieinstitute.org
- You can collect funds in advance from residents, or not
- Determine Who Will Be Responsible for Implementation - The municipality, a Green Team, a non-profit, a community group or even an individual can take responsibility for implement the Backyard Composting program.
- Compost Bin Order Forms with $20 resident payment
- Keep a spreadsheet database of resident orders
- Ask for Donation/Grants from Local Businesses, Non-Profits & Individuals to increase funding available

Main Municipal Concerns

Does compost stink?

- No, if residents avoid composting meats, dairy & oils
- Compost should have pleasant odor like humus in woods
- Mild odor may occur if the compost pile is too wet causing anaerobic conditions
- The simple solution is to aerate the pile with a fork or compost tool. We provide a composting guide for residents.

Are vermin an issue?

- We have not experienced any vermin other than a crafty raccoon that learned how to open the bin door. The simple solution was to turn the door toward a tree.

- To be safe residents can dig down a few inches so the compost bin bottom edge is below ground level.

Manufactured one-piece bin from EnviroWorld is Rodent-Proof

- Main body of bin is one single piece
- Top and side door are included
- Screws are supplied to pin the bin solidly to the ground to keep rodents from entering
- EnviroWorld 10-year warranty (lasts longer)

How much food scraps & soiled paper waste will be composted per bin?

- The National Composting Council estimates the average U.S. household generates 650 lb of compostables each year.
- Backyard Composting uses a more conservative estimate of 500 pounds will be composted per resident bin.

- Limited landfill space should be reserved for materials that cannot be recycled or composted
- Garbage handling is the 4th largest expense for many cities.
- Backyard composting reduces those costs.
- Each household composting 500 pounds of waste saves $14.75 a year in tipping fees (at $59 per ton rate).

Home | FAQ | Grants | Bin Vendors | News | Contact | Donate

Backyard Composting

Waste isn't waste until you waste it!

Our mission is to promote backyard composting as an easy, cost-effective way to divert residential organic waste from landfills.

Our model for backyard composting cost municipalities $1 per year per household, less than a single residential trash pickup. Residents invest $2 per year and Backyard Composting invests $1 in grant funds per year. (Amounts are 10-year average costs.)

Our conservative estimate is an average of 500 pounds of organic waste — food scraps, soiled paper and other organics — will be composted per bin.

At current tipping fees around $59 per ton (in our area), for each $1.00 invested the municipality will save $14.75 each year. Resident's $2 investment will result in huge food waste savings plus up to $50 of high-quality compost each year compared with purchase at their local big box or garden store. Those are outstanding returns on investment.

Sometimes simple solution are good ones. It's not that we're against other kinds of composting and diversion of organics. Residential pickup with delivery to a compost facility, bioreactors, anaerobic digestion and other systems all have their place. The problem is that they cost a fortune, both their overall cost and the cost per household. In a time of limited municipal and state budgets, it's hard to fund these multi-million dollar projects.

With backyard composting there are no ongoing costs for trucks, sifters grinders, composting systems, delivery of finished compost, plus no extra energy used or CO2 emitted in the process — you get the idea. Landfill lifespans are also extended and methane release is reduced.

We just take the compostable items out to the backyard compost bin and we're done. Nature does the rest. In 3 to 6 months we have black gold to amend the soil in our gardens and mulch around bushes and trees. The soil will hold much more water for plants and reduce runoff.

We also support community composting projects. Contact us for details.

For residents, the biggest benefit to composting is that it helps them monitor and then reduce their food waste with losses estimated at between $1,350 & $2,275 per household each year*.

We GUARANTEE municipalities that their investment in the compost bins from their tipping fee budget will be returned in reduced tipping fees in one-year or we'll refund the difference.

Backyard Composting Workshop

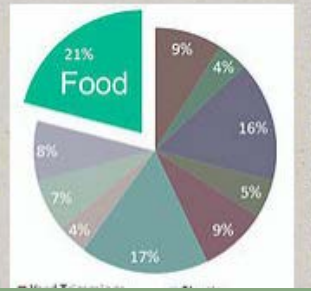
Learn how to compost and how to implement the Backyard Composting Program in your Town or Community! (PPT slides)

Compost Guide & Resources

Our compost guide is short, but sweet. It provides the basic information needed to start backyard composting. You can also download flyers, sign-up forms, past stories and other materials to help you get started (ZIP file-25MB).

Turning Trash to Teasure

Gazette story about the grant model for Backyard Composting.



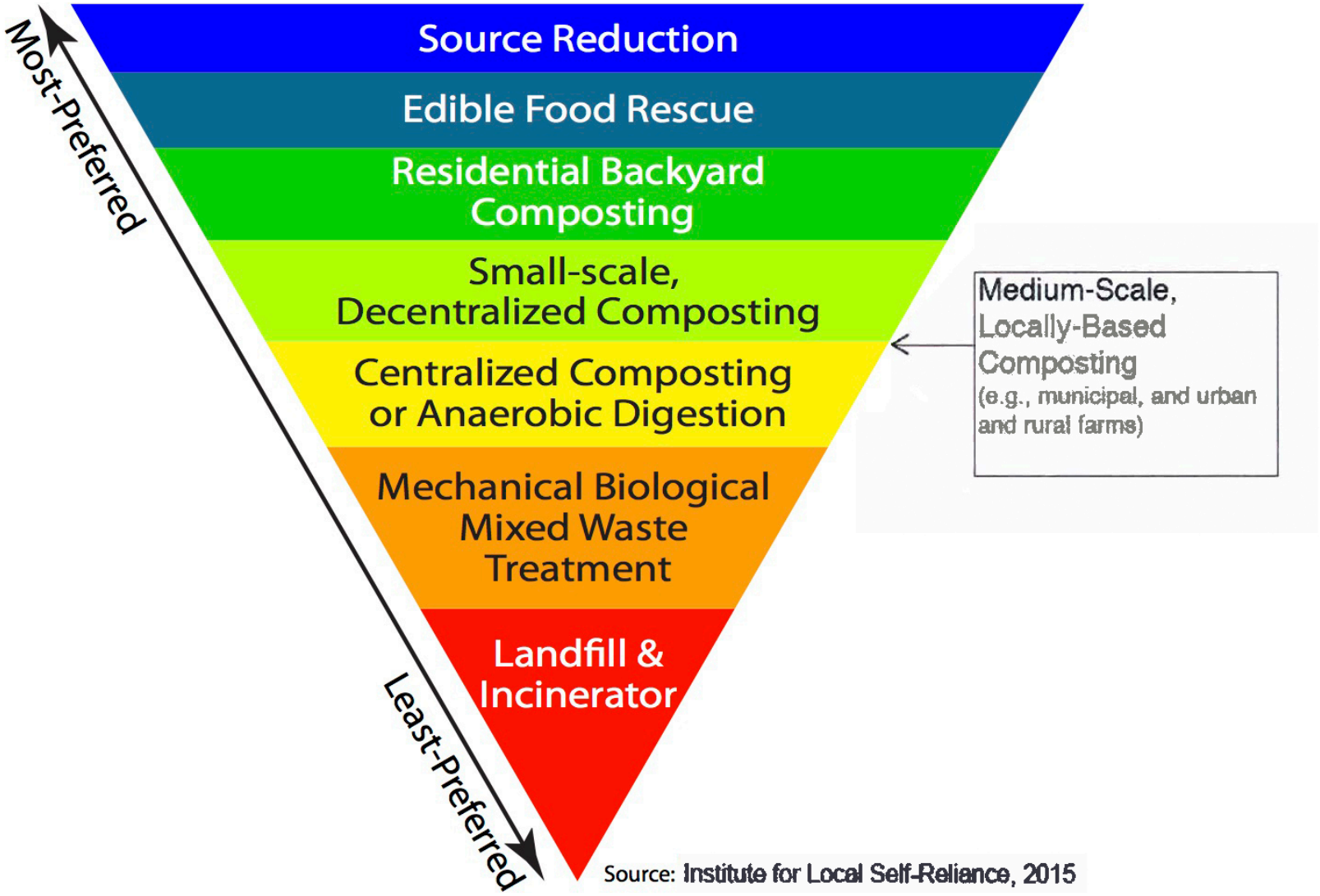
EPA Waste Chart

Food scraps make up the largest percentage of waste dumped into municipal landfills. Soiled paper products also makes up a significant percentage.

Composting food scraps & soiled paper products — paper towels, napkins, tissues and paper food containers — to reduce landfill waste is the focus of our backyard composting efforts.

Learn more at www.backyardcomposting.org

Hierarchy For Reducing & Recycling Food Scraps And Other Organic Discards



What do you need to make compost?

- Decomposers – Your composting work crew — bacteria, fungi, actinomycetes, mold, nematodes, protozoa, rotifers & worms — do all the work for you.
- Food for the decomposers Organic materials — food scraps, soiled paper & yard waste — to be composted.
- The right amount of air, water, and warmth to keep the work crew happy.

Where do the decomposers come from?

If you add it, they will come…

- Soil
- Leaves
- Compostables
- Active Finished Compost
- Starters and/or Additives

Each of these will add microorganisms to the compost pile

Food for Your Decomposers

Your compost workers will thrive if you give them a balanced diet: 25-30 part carbon to 1 part nitrogen.

- Composting is effective if decomposers are fed a mix of higher & lower carbon materials.
- High carbon organic wastes are known as "**browns**" 30-200 parts carbon to 1 part nitrogen
- Low carbon organic wastes are known as "**greens**" 10 - 30 parts carbon to 1 part nitrogen
- Mix of food scraps, soiled paper & some leaves or yard waste provide a food balance and aeration.

Food for Your Decomposers

All organic materials will compost, but not all should be added to a backyard compost pile

Organic wastes that <u>should</u> be composted include:

Browns

- Paper towels
- Napkins, tissues
- Leaves, branches
- Egg, nut shells
- Wood chips, sawdust

Greens

- Kitchen Scraps
- Garden Trimmings
- Coffee grounds, tea
- Manure, Hair (any)
- Used potting soil

Materials to avoid…

Avoid organic materials that could cause problems during or after composting

- **Meat, fish, dairy products, cooking oil, fat, grease (create odors, attract pests, potential pathogens)**
- **Hard to kill weeds (bindweed, quackgrass) and weeds that have gone to seed (could infest garden area when compost is used).**
- **Inorganic waste: plastic, metals, chemicals, paints, etc. Unsure? Don't compost it!**

Materials to avoid…

Cat, dog or human waste
(attracts pests, could spread disease)

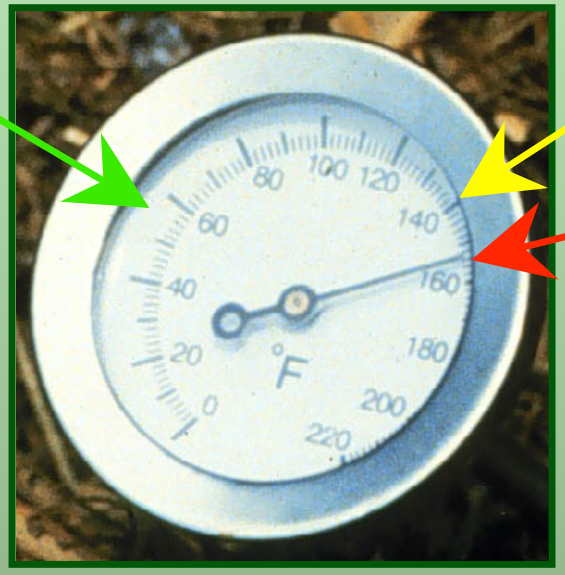
Diseased or insect ridden plants
(could infect or attack garden plants when compost is used)

Bin is Aerobic Composting

- Bins compost using decomposers that need air (oxygen)
- It's the fastest way to make high-quality compost
- Produces no foul odors
- Aerobic decomposers can produce heat
- But adding materials a little at a time doesn't (slow composting)

Large Pile Aerobic Composting and Temperature

- Active composting occurs in the temperature range of 55°F to 155°F
- Pile temperature may increase above 140°F but this is too hot for most bacteria and decomposition will slow until temperature decreases again.
- Need 1 yard+ compostables



- A thermometer is a nice tool but is not essential for hot composting

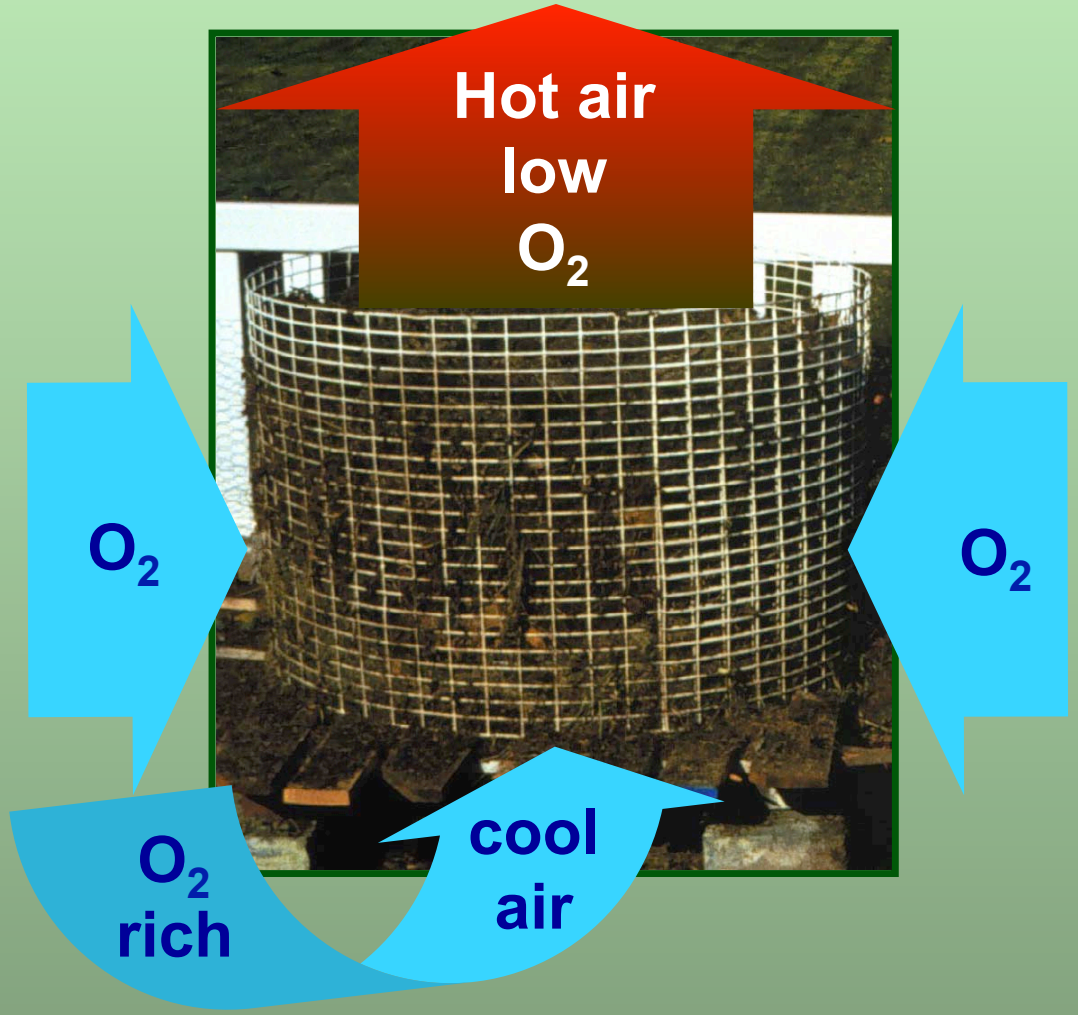
Does my compost pile have to get hot?

- Good compost can be made in a pile that never gets hot, but…
  - Decay will be slower and it will take longer to make compost
  - Not enough air, to little or too much water, or too many browns in the mix could all keep a pile from heating.
- High pile temperature provides the benefits of
  - The most rapid composting
  - Killing pathogenic (disease causing) organisms
  - Killing weed seeds

Getting air to your decomposers

Warm air rising through the pile draws fresh air in from bottom and sides

Wind can stimulate aeration



Water

- Rapid decomposition requires optimum water content
  - If too dry, bacterial activity will slow or cease
  - If too wet, loss of air in the pile will lead to anaerobic conditions

- As wet as a squeezed out sponge
- Pile water content should be at 40-60%
- If too dry, add water as you turn the pile
- If too wet, add browns and/or turn the pile

When is compost finished?

Compost is mature when

- The color is dark brown
- It is crumbly, loose, and humus-like
- It has an earthy smell
- It contains no readily recognizable feedstock
- The pile has shrunk to about 1/3 or less of its original volume

Where should I put my compost bin?

- Sunny area will help keep the bin warm year-round, but you may need to add water in the summer
- Water available
- Good drainage
- Be a good neighbor - keep bin out of view, no odors
- Adequate work area around the pile
- Area for storing compost

Compost Troubleshooting
Odors

Odors are the most frequent, but easily avoidable composting problems.

- **Rotten odor**
  - Putrid smell or rotten egg smell
  - Usually results from anaerobic conditions
  - Excess moisture, compaction
  - Aerate pile, add dry porous material — browns like leaves or cardboard & mix in to absorb moisture of food scraps
- **Ammonia odor**
  - Too much nitrogen (wet greens)
  - Add high carbon material (browns), aerate pile

Benefits of compost
Promotes soil health

- Supplies organic matter to soil
- Attracts earthworms
- Stimulates beneficial soil microorganisms
- Increases soil water retention capacity
- Increases soil nutrient retention

Benefits of compost
Promotes soil health

- Improves soil tilth and friability
- Improves soil drainage
- Amends heavy clay soils
- Suppresses soil-borne plant pathogens (diseases)
- Compost is considered a soil amendment, but provides nitrogen & 40 trace nutrients

Questions?

Backyard Composting

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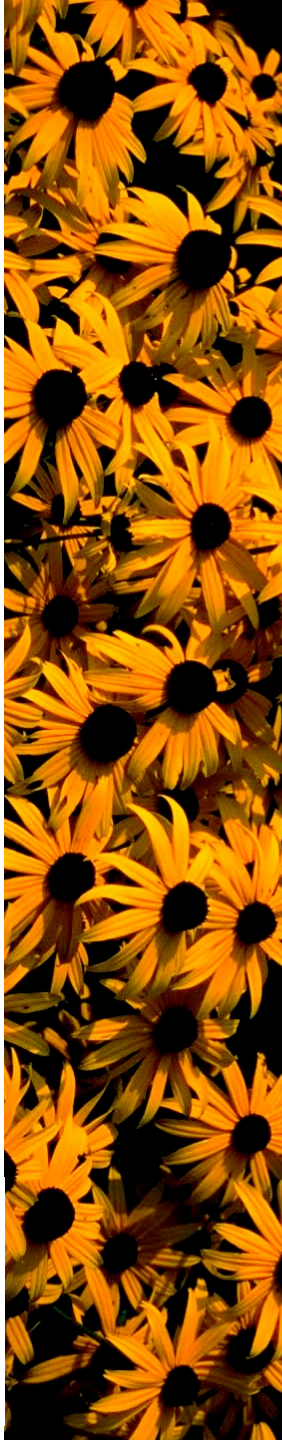

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