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ORGANICS COMPOSTING IN THE WASHINGTON REGION: OPPORTUNITIES AND CHALLENGES

OVERVIEW

- What Is and Why Compost?
- Climate Connections & Other Opportunities
- Regional Activities & Facilities
- Model Programs in Place Elsewhere
- Challenges
- National Capital Region Organics Task Force
- Maryland Statewide Compost Study Group Recommendations

WHAT IS COMPOSTING?

Composting is the aerobic, or oxygen-requiring, decomposition of organic materials by microorganisms under controlled conditions.

During composting, the microorganisms consume oxygen. Active composting generates heat, carbon dioxide, and water vapor.

Composting reduces the volume and mass of the raw materials while transforming them into a valuable soil conditioner.

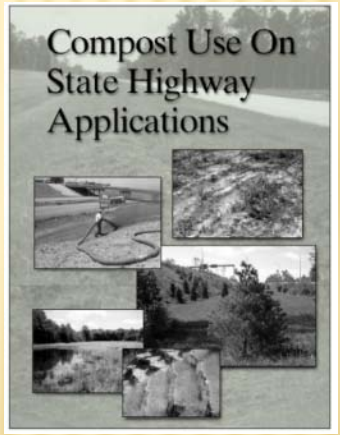
Source: Robert Rynk et al, On-Farm Composting Handbook, 1992.

ORGANIC MATERIALS

- Leaves
- Yard Trimmings
- Brush and Branches
- Food Scraps
- Compostable packaging & paper

COMPOST APPLICATIONS

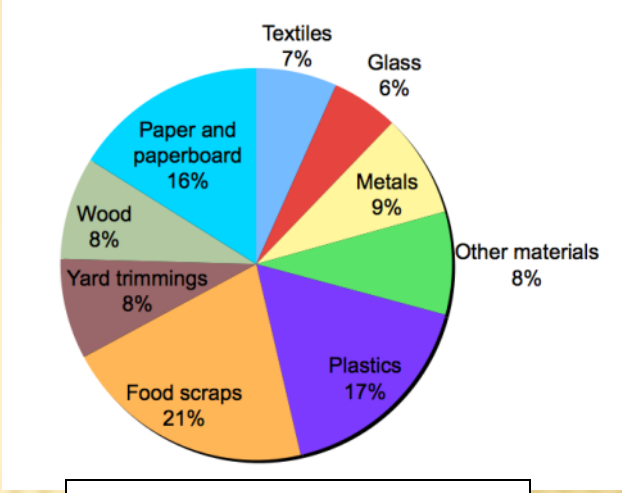
- landscape and nursery
- agricultural and horticultural
- vegetable and flower gardens
- tree and shrub planting
- sod production and roadside projects
- wetlands creation
- soil remediation and land reclamation
- sports fields and golf courses
- sediment and erosion control



BENEFITS OF COMPOSTING & COMPOST

- Reduces Waste
- Improves Soil
  - Creates a rich nutrient-filled material, humus
  - Increases the nutrient content in soils
  - Helps soils retain moisture
  - Reduces or eliminate the need for chemical fertilizers
  - Suppresses plant diseases and pests
  - Promotes higher yields of agricultural crops
  - Helps regenerate poor soils
  - Has the ability to cleanup (remediate) contaminated soil
- Reduces Stormwater Run-off & Soil Erosion
- Cuts Landfill Methane Emissions
- Creates Jobs & Supports Local Economies

U.S. Municipal Waste Disposed (after recycling)



160.9 million tons in 2009

Source: US EPA, 2009 data (http://www.epa.gov/epaoswer/non-hw/muncpl/msw99.htm)

COMPOST: FOUNDATION OF HEALTHY SOIL AND GREEN INFRASTRUCTURE

- Stormwater management (low-impact development)
- Water conservation (the cheapest "new supply" of water)
- Sustainable landscapes
- Sustainable local/regional agriculture

Added benefit of cost-effective waste diversion

Source: David McDonald, Seattle Public Utilities & Washington Organic Recycling Council, Soils for Salmon Project.


US Composting Council

USCC factsheet:

Using Compost in Stormwater Management

Precipitation falling on the Earth and flowing over and through the soil is a major source of water pollution. While the precipitation is natural, what happens to it after it falls is dramatically affected by human activity. For example, in the Piedmont Region of Pennsylvania, of the 45" of rain that falls during the average year, 25" would be expected to be returned to the atmosphere by vegetative evapotranspiration, 12" would infiltrate deeper into the ground, and only 8" would runoff over the surface. Yet after development, as much as 95% might leave as surface runoff (PA DEP, 2006).

Figure 1. Natural stormwater cycle

Increased runoff leads to increased erosion, more frequent and more intense flooding, habitat and species loss, higher pollutant loads, and water quality degradation. While the emphasis in stormwater management over the past 50 years has been on "peak rate" control, that is, detaining stormwater so that the highest rate of flow was no more that what would have been expected before the development (hence the ubiquitous detention basins in modern landscapes), there is a paradigm shift underway that recognizes that the most effective storm water management will be one that attempts to emulate natural processes. Thus management practices that emphasize the roles of soils and plants are gaining prominence. These practices are

Figure 2. Effect of development on stormwater

enhanced, ... of good qua...

Stormwa... utilize c...

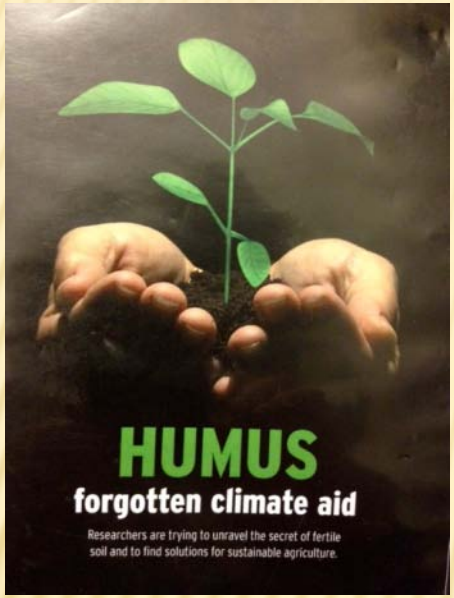
Stormwater ... divisions, c... construction ... term, the p... will continu... reduce the ... called low-i... design and ... water hydro... LID manag... flow rates ... increasing infiltration thereby decreasing pollutant loads entering water bodies. Incorporating compost into these practices can dramatically lower runoff volume due to improved water holding capacity, healthy vegetation/biomass, and increased infiltration.

LID Stormwater practices that include or benefit from the use of compost include:

Rain gardens and/or Bioretention Systems[2]

Figure 3. A rain garden in Maplewood, MN

COMPOSTING: CLIMATE PROTECTION



- Prevents landfill methane emissions
- Stores carbon
- Improves soil's ability to store carbon
- Substitutes for energy-intensive fertilizers, pesticides, fungicides
- Improves plant growth, and thus carbon sequestration
- Reduces energy use for irrigation

CHANGING CLIMATE – A DRIVER FOR AMENDING SOIL WITH COMPOST

- Intense storm events – stormwater loading, flooding, wind damage
- Precipitation variability – alternate drought and flooding
- Agricultural productivity – soil loss, weather

Source: David McDonald, Seattle Public Utilities & Washington Organic Recycling Council, Soils for Salmon Project.

COMPOSTING = LOCAL JOBS

On a per-ton basis, composting sustains 4 x more jobs than landfills or trash incinerators

- Organics do not ship well
- Composting is small-scale
- Jobs are local
- Compost products are used locally
- Dollars circulate within local economies
- Local = good for local economies
- Composting linked to urban food production
- Composting diversifies farm products and saves money

Institute for Local Self-Reliance

WHY NOT HERE?

Maine produced compost sold at Maryland retail outlets

RESIDENTIAL COLLECTION

- Collection systems can be by
  - public crews
  - public contractors
  - private haulers
- Collection methods can be by
  - Vacuum trucks (leaves)
  - Clear plastic bags
  - Compostable paper bags
  - Loose in reusable cans or carts

LOCAL GOVERNMENTS RESIDENTIAL

- Leaves only
  - DC
  - City of Alexandria
- Leaves & Garden Trimmings (Only Spring and Fall)
  - Arlington County
- Year Round Leaves and Yard Trimmings (grass)
  - Most other counties
- Food Scraps
  - Howard County pilot

LOCAL GOVERNMENT COLLECTION METHODS

- Compostable paper bags or loose
  - Montgomery County
  - Loudoun County
  - Arlington County
  - Cities of Falls Church, College Park, Manassas, Takoma Park
  - Prince George's County (1/1/2014)
- Plastic Bags
  - Fairfax County
  - Prince William County

OTHER PROGRAMS

- Grasscycling with mulching mowers
- Backyard composting
- Food donation

COMPOSTING FACILITIES

- Both government and private
- At capacity limit on nearby grass and leaf composting facilities
- Food composting is the next frontier in increasing recycling rates
- Extremely limited food composting capacity for the region
- MD regulations are not friendly to composting food

MAJOR GRASS AND LEAF COMPOSTING FACILITIES

- Prince William Co. Balls Ford Road
- Prince George's Co. Western Branch
- Montgomery Co. Dickerson
- Frederick Co. Reichs Ford Road
- Loudoun Composting (private)
- POGO Organics (Olney)
- Recycled Green (Woodbine)

MAJOR FOOD COMPOSTING FACILITIES

- Recycled Green (closed to food December 2011)
- Peninsula Compost – Wilmington, DE
- Prince William County Balls Ford Road (no meat, low volume)
- Chesapeake Compost Works – Baltimore (just opened, low volume)
- Prince George's County Western Branch – (pilot 7/1/14, full scale 12/31/15)
- Howard County at Alpha Ridge Landfill (under construction)
- Freestate Farms (private) in Fauquier County (under development)

Peninsula Compost

Chesapeake Compost

UNIVERSITY OF MARYLAND


Don't have a tray?
Use the
three-compartment
waste separation
stations
COMPOST
RECYCLING
LANDFILL
Keep campus clean:
Do not take
your waste
outside.
Use the
three-compartment
waste
separation stations


Don't have a tray?
Use the
three-compartment
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COMPOST
RECYCLING
LANDFILL
Keep campus clean
Do not take
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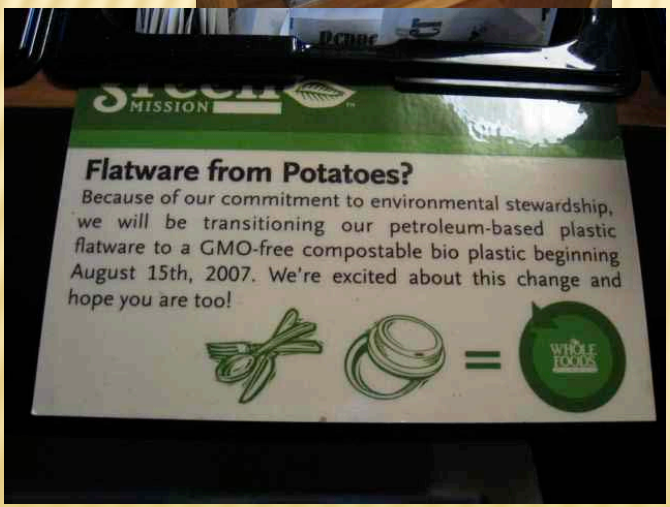
outside.


COMPOST
PLEASE, NO STYROFOAM
FOOD SCRAPS
SOILED PAPER
WAXED PAPER
PAPER CONTAINERS
terps leave small footprints


Attention:
Reeses Puffs
Cereal
is now located on
the Peanut Butter
Station next to
Luigis
Other cereals we
have with nuts
are: Honey Nut
Cheerios and
Peanuts Cereals


COMPOST
TRASH
recycler
compost

WHOLE FOODS: EXAMPLE OF PRIVATE SECTOR ACTIVITIES



URBAN FARM COMPOSTING – ECO CITY, EDMONSTON, MD

SAN FRANCISCO: COMPOSTING, THE HEART OF ITS ZERO WASTE STRATEGY

COMPOSTING & RECYCLING COLLECTION SYSTEM DESIGNED FOR HIGH DIVERSION

Glass and Plastic Bottles
Aluminum and Steel Cans
5%

Recycled Paper
21%

Food Scraps
20%

Yard Trimmings
5%

Compostable Paper
10%

Construction and
Demolition Waste
25%

Other
15%

Courtesy of City of San Francisco

EASY TO UNDERSTAND PROGRAM

Courtesy of City of San Francisco

DESIGNED FOR EASY PARTICIPATION

Kitchen Pail

Labeled Lids

Wheeled Cart

Courtesy of City of San Francisco

SEATTLE: COMPOSTABLE FOODSERVICE WARE

HIERARCHY OF FOOD RECOVERY OPTIONS

- Source reduction
- Donation to food banks
- Food to animal feed and direct land application
- Subsidized distribution of compost units and intensive training for residents
- Shared, small-scale, decentralized composting systems for residences and businesses
- Use of discarded organics for production of liquid fertilizers and other value-added products
- Centralized composting of food residuals through drop-off or curbside collection programs

Source: US EPA

Source: Richard Anthony Associates and Gary Liss Associates, Zero Waste Action Plan for the City of Glendale, California, December 2010.

CHALLENGES TO EXPANDING COMPOSTING

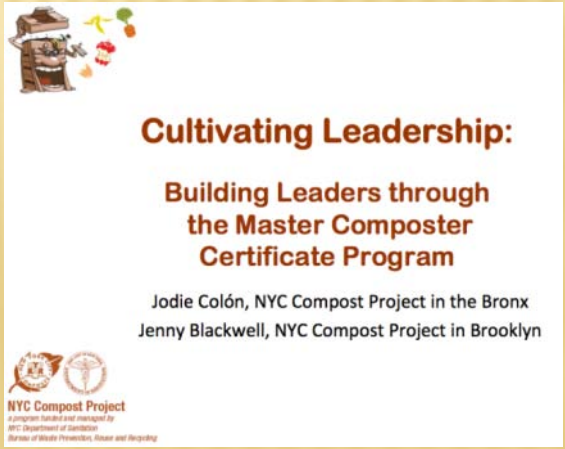
- Lack of collection infrastructure
- Lack of composting capacity
- Siting difficulties
- Lack of regs/permitting to facilitate compost operations
- Zoning regulations
- Competition with cheap disposal
- Lack of leadership

System planned for Howard Co.

Photo courtesy ECS

NATIONAL CAPITAL REGION ORGANICS TASK FORCE

- Recommending regional policies
- Facilitating Master Composter Training Program
- Promoting compost-amended soil policies (modeled after Washington state's *Soils for Salmon* project)
- Participating on MD Statewide Compost Study Group
- Creating a MD/DC state chapter of US Composting Council
- Networking



MD STATEWIDE COMPOST STUDY GROUP: DRAFT RECOMMENDATIONS (SELECT)

- Adopt a hierarchy for food scrap recovery
- Update and streamline regulations/permitting
- Adopt performance-based permitting regs
- Promote on-farm composting
- Build and maintain comprehensive web site
- Share best practices
- Characterize how much organics generated
- Build markets for compost
- Promote compost and compost-related products as best management practices for controlling stormwater run-off and erosion
- Target large generators by providing resources and technical assistance
- Share sample zoning ordinance language

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