INTRODUCTION TO COMMUNITY FOOD SCRAP COMPOSTING

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Windham Solid Waste Management District

Northeast Recycling Council
Community Composting Project

- 6 States: Connecticut, Maine, Massachusetts, New Hampshire, New York, & Vermont
- **Goal**: Create at least one sustainable community compost site in each state for managing food scraps & other organics
Community Composting

- Produces compost for local use
- Promotes community connections
- Builds resident food waste management awareness & participation
- Can play an essential role in the evolution of food scrap diversion, especially in small town/rural areas
Community Composting, cont.

- Often volunteer run; some staffed
- Garden groups, neighborhoods, nonprofit organizations, public sector, farms, schools, businesses, housing complexes, other
- Range of sizes - 10 sq. ft. – 20,000 sq. ft.
- Range of compost systems
Community Driven Success

- Potential benefits (outputs) & Inputs
- Goals – Guide your decisions
- Opportunities, Needs, Barriers, Concerns?

Group Brainstorm
Science of Composting

Or, how to be a good decomposer manager...
What is Composting? Compost?

- Controlled, aerobic biological process
- Compost is a humus-like, value-added product
  ✓ Organic matter, nutrients, organisms to soil, water holding capacity
It’s all about the Decomposers!
Composting Science Basics

- **Aeration**
  - Oxygen concentrations: 10-14+%  
- **Carbon to Nitrogen (C:N) Ratio**
  - 20:1 – 60:1  
  - Preferred 30:1-50:1  
- **Moisture**: 40 to 65 percent  
  - Like a damp sponge
- **Optimum pH range:** 5.5 to 8
- **Temperature** – 90°-150°F (32°-66°C)
  - If all is well with your pile, temperatures will rise!
  - Process to Further Reduce Pathogens
  - 131°F for 3-15 days (f of system)
Sample Carbon & Nitrogen Ratios of Various Organics

<table>
<thead>
<tr>
<th>Carbon Sources</th>
<th>Carbon:Nitrogen Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yard wastes</td>
<td>50 - 90:1</td>
</tr>
<tr>
<td>Straw/hay</td>
<td>50 - 80:1</td>
</tr>
<tr>
<td>Wood chips/sawdust</td>
<td>250 - 500:1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nitrogen Sources</th>
<th>Carbon:Nitrogen Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable scraps</td>
<td>10 – 30:1</td>
</tr>
<tr>
<td>Fruit scraps</td>
<td>10 – 30:1</td>
</tr>
<tr>
<td>Grass &amp; garden gleanings</td>
<td>10 – 20:1</td>
</tr>
<tr>
<td>Chicken manure</td>
<td>10 – 25:1</td>
</tr>
<tr>
<td>Cow manure</td>
<td>20 – 30:1</td>
</tr>
<tr>
<td>Horse manure</td>
<td>25 – 30:1</td>
</tr>
</tbody>
</table>

What’s your site goal?
How much volume can your site handle?
How much volume can your team handle?
**Brainstorm: Partnerships for Diversion?**
Acceptable Materials

- Fruit & vegetable scraps, peels
- Bread/pastries, pasta, rice, beans
- Dairy products
- Nuts & nut shells
- Coffee grounds/filters & tea bags
- Sawdust
- Leaves, yard/garden trimmings
- Napkins, paper towels
- Livestock bedding/manure
- Straw
Food Scraps Sourcing

- Community gardeners
- Schools
- Businesses
- Nonprofits
- Churches
- Community

• Start collecting small volumes & grow it!
• Year-round, consistent supply of feedstocks!
Barre Town, Vermont

Senior citizen multi-family housing

Image Cr.: Cassandra Hemenway, CVSWMD
Carbon Sourcing

- Woodworkers, town, utility crews, landscapers – sawdust, wood shavings
- Neighborhood, landscapers – leaves
- Farmers – livestock bedding

- Year-round, consistent supply of feedstocks!
- 2-3 times volume than food scraps
- Keep Dry
Community Garden Collection

The quality of the collected materials is vital to success!!
Farmer’s Markets

Farm-based collection

Images Cr.: BioCycle.net

Image Cr.: Elements Mountain Compost
Community Collection by Bike

Pedal People
Northampton, Massachusetts
Basic Recipe

- **2-3 Parts Carbon - “Brown” materials**
  - Woody, dry materials: wood shavings, leaves, soiled/shredded paper, straw, animal bedding

- **1 Part Nitrogen - “Green” materials**
  - Fresh, “wet” materials: food scraps, grass clippings, garden trimmings (no weeds), manures

- **Keep it small!**
  - ✓ Mowing, grinding, chipping, or shredding

**Tumblers - 1 Part C: 1 Part N**
Wood shavings recommended

**Does your site have enough of the right mix?**
Recipe, Cont.

- A little soil, finished compost, or horse manure
  - Inoculates composting materials
- Moisture
  - Squeeze test - like a damp sponge
  - Keeps microorganisms alive & active
General TIPS

- Mix ingredients together to create a homogeneous mix

- Adding food scraps
  - Balance C:N ratio, moisture, bulk density
  - Proper aeration

- Observation, temperature, look & feel of compost, trial & error
What’s Right for your site?
System Considerations

Photos: upper left: Bakersfield Elementary Middle School, Bakersfield, VT; lower left: Red Hook Community Farm, Brooklyn, NY (photo credit NYC Master Composter Manual, DSNY); upper right: Charlotte Central School, Charlotte, VT; lower left: La Plaza Cultural, Manhattan, NY
System Considerations

Available materials
Community need/goals
People power/skills
Site capacity
Permit/regulatory limits
Resources available – funding, supplies, etc.

Charlotte Central School, Charlotte, VT;
Red Hook Community Farm, Brooklyn, NY
(photo credit NYC Master Composter Manual, DSNY)
Tumblers
Jora & Aerobin
Compost Bins
3-Bin System

Photo Cr.: George McDonald, Maine DEP
Windrows

New York City

Images Cr.: David Hurd, GrowNYC
Aerated Static Piles

New York City

Images Cr.: David Hurd, GrowNYC
Site Plan

✓ Composting method
✓ Be a good neighbor!
✓ Safety & fire emergency plan
  ✓ Security & vandalism concerns
✓ Monitoring & record keeping
✓ Provisions for controlling odors
✓ Contingency plans
Site Plan, cont.

- Year-round accessibility
- Sufficient space for compost system
- Access to a water source is necessary
- Shrubbery, fencing, or cover to block wind
  - Insulation for winter
  - Helps block view
**Site Layout**

- Material receiving & mixing area
  - Food scrap drop-off
  - Carbon storage
- Active composting area
- Curing
- Finished compost
Go with the flow!!

Image Cr.: NYC Master Composter Manual/DSNY
Site Preparation

Image Cr.: Cassandra Hemenway, CVSWMD
Equipment/Supplies

- Shovel and pitch fork
  ✓ Or, bobcat/tractor
  ✓ Trowels for tumblers
- Covered area for carbon storage
- Thermometer
  ✓ For hot composting
Best Management Practices

Set-Backs

- 3 feet from side lot lines
- 10 feet from the front & back lot lines
- Adequate distance from water sources & water bodies
- Consideration of neighbors
BMPS, cont.

- Operated so as to minimize odors, prevent run-off, and not harbor or attract wildlife
- Screened from view from public & adjacent neighbors using plants, trellis, or fencing
- A neat site appearance is important
Bennington, Vermont

- In town at Rec Center
- Nearby residents
- Highly visible
Montpelier, VT

• Highly visible
• In town neighborhood
Ludlow Community Compost Site

Jora – Active Composting

Signage

3-Bin System

- Hidden from public view
- Relatively isolated
- Limited winter access

Food scrap collection bins & carbon storage
Fort Community, Burlington

Carbon Storage

Food scrap Tumbler

3-Bin System
The Dirt Factory Community Composting Facility In University City, Pennsylvania

Food Scrap Mixing/Active Composting

Curing, Screening, Finished
PROCESS & MANAGEMENT & MONITORING
Filling & Mixing in Tumbler

Food scrap composting – Carbon is your friend!
Mixing Food Scraps in Bins

Food Land Opportunity - Chicago

Nola Greens – New Orleans
Mixing into Windrows

Earth Matters - NYC
Monitoring & Troubleshooting

- **Observation**
  - ✓ Are the bins or piles steaming?
  - ✓ Are materials looking different?
    - ✓ Is decomposition occurring?
  - ✓ Materials looking like soil?
  - ✓ Is the pile uniformly composting?
Compost feel

✓ Does the squeeze test indicate that there is moisture in the material
✓ Does it feels like a damp sponge & stick together?
✓ Is the material too wet/slimy?
Monitoring, cont.

- Smell is the best measure of properly aerated composting
- Unpleasant odor – indicative of anaerobic conditions
  - Pile needs to be turned
  - Check moisture levels
Temperature monitoring

✓ Is the temperature rising appropriately for rapid compost?
✓ Does the temperature rise to 90°F
✓ Maintain for PFRP (131°F...ideal)
# LOG BOOK

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Composter Name(s)</th>
<th>Moisture Rating</th>
<th>Odor Rating</th>
<th>Temp 1</th>
<th>Temp 2</th>
<th>Turned (Y/N)</th>
<th>Other Actions Taken</th>
</tr>
</thead>
</table>
Quality Assurance

- Observe, monitor, sample, analyze, test
- *Keep accurate compost records*
  - ✓ Track feedstock sources & materials
  - ✓ Track turning frequency, temperature
  - ✓ Track compost phases (Active, Curing)
  - ✓ Odor issues & other problems
- Train the Team!
Tips

- Have an adequate amount of carbon
- **Always** cover food scraps with carbon (sawdust/shavings) & soil
- Cover with lime if issues with fruit flies & wildlife (rodents, bears)
- Line compost bins with wire mesh
Tips

▪ Enclose compost area if needed
▪ Repellents – noise, ammonia soaked rags
▪ Remove all food sources (bird feeders, trash cans) from area!!
▪ Stop incorporating food scraps in spring, if necessary
Community Support

- Effective outreach is key!
- Communicate compost plans with your community, town officials, Board of Health
- Adopt a good neighbor policy

- Engage & act upon complaints & issues
Compost Site Management

- Roles & Tasks
  - Site Manager(s)
  - Compost Team/Helpers
- Seek partnerships
- Train all volunteers/staff in compost basics
Compost Site Manager(s)

- Overall management
  ✓ Ensure proper system maintenance
  ✓ Source materials as needed, etc.
- Recruit & train team
- Create & know volunteer schedule
  ✓ Delegate tasks effectively
  ✓ Ongoing Communication

Photos: Calahan Community Garden, Burlington, VT
Compost Team/Helpers

• Monitor feedstock collection
• Provide education & outreach
• Monitor & maintain compost system

Photos: Nneighbor food scrap contributor at La Plaza Cultural, Manhattan, NY
Signage

Food Scraps you can add to the compost bin:

- Fruit & vegetable scraps (remove PLU stickers!)
- Egg shells
- Leftover vegetarian meals
- Coffee grounds & unbleached coffee filters
- Dirty unbleached paper napkins & towels

Do NOT add these to the bin:

- Meat & fish
- Grease
- Diseased plants
- Plastic bags, metal, fruit stickers, glass
- Bones
- Dairy products
- Greasy food
Welcome to La Plaza Cultural Compost Site

Compost Instructions
Please follow these simple steps when composting with us:

1. Before you leave your house, chop your food scraps between 1 to 3 inches.

2. Dump your food scraps inside a metal can. Pick the one that is the fullest.

3. Cover your scraps with browns. Browns are found in adjacent plastic bins.

4. Mix scraps and browns well together. Mixer is hung in fence to make mix fluffy.

5. Top with a fine layer of browns. No food should be exposed.

6. Replace lids on metal can and plastic bin. Enjoy the garden!

Questions? Contact us at compost@la-plaza.com.
Signage

KITCHEN WASTE

Put food scraps into the plastic buckets in bin.
Down to Earth Community Garden
St. Albans, Vermont
Special Appreciation

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