HOW TO PARTICIPATE TODAY

Type a Question in the Box

Technical Difficulties?
800 263 6317

Today’s presentation is being recorded and will be provided within 48 hours.
Special Appreciation

- High Meadows Fund
- Grassroots Fund
- Participating Solid Waste Districts
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Food Scrap Composting at Community Gardens

- 3-year pilot project to develop, monitor & evaluate small-scale, self-sustaining food scrap composting systems at community gardens

✓ ≤ 100 cy/yr of feedstocks
INPUTS

BINS OR BIN MATERIALS, TOOLS, EQUIPMENT

FEEDSTOCKS

PEOPLE’S TIME

OUTPUTS

FINISHED COMPOST

ENVIRONMENTAL STEWARDSHIP

EDUCATION

COMMUNITY ENGAGEMENT/ VOLUNTEERISM
COMMUNITY SUPPORT

▪ Effective outreach is key!
▪ Communicate with your community about composting plans
▪ 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 garden volunteers in compost basics
COMPOST SITE MANAGER(S)

• Overall management of the operation
  ✓ Ensure proper system maintenance
  ✓ Source materials as needed, etc.
• Recruits & trains compost team volunteers
• Creates & knows the volunteer schedule
  ✓ Delegates tasks effectively
• Ongoing Communication

Photos: Calahan Community Garden, Burlington, VT
COMPOST TEAM/HELPERS

- Monitoring food scraps/other feedstocks
- Turning compost piles
- Sifting compost
- Distributing finished compost
- Providing education & outreach

Photos: left: Abby Foulk w/ student volunteers at Charlotte Central School, Charlotte, VT; right: neighbor food scrap contributor at La Plaza Cultural, Manhattan, NY
FEED STOCK COLLECTION
ORGANICS

waste Rescue Reduction food Composting scraps
ACCEPTABLE MATERIALS

- Vegetable food scraps, peels
- Fruit food scraps, peels
- Nuts & nut shells
- Dairy, cheese
- Meat* (only in Hot Compost)
- Coffee grounds/filters & tea bags
- Leaves, garden trimmings
- Napkins, paper towels
- Sawdust
- Livestock bedding/manure
QUALITY BEGINS WITH THE GENERATOR
COLLECTION CONTAINERS

- Food scraps
  - ✓ 5 gallon buckets
  - ✓ Tubs
  - ✓ 12-32 gallon cans or carts
- Sawdust storage
Kitchen Collection Buckets

Compostable Liners
COLLECTION MONITORING

- Set designated days & times for food scrap collection/drop off
  ✓ Match collection/drop-off with compost pile building
- Educate participants about feedstocks
  ✓ Onsite orientation & clear signage
SITING CONSIDERATIONS

Food2
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: Materials

Assess Volume of Materials:
- Community need
- People power
- Site capacity
- Permit limits > 100cy/yr. feedstock
- Resources available

Photos: upper left: La Plaza Cultural, Manhattan, NY; upper right: Cornwall School, Cornwall, VT; lower right: Thetford Elementary School, Thetford, VT
COMPOST BINS
3-BIN SYSTEM

Photo Cr.: George McDonald, Maine DEP
WINDROWS & AERATED STATIC PILES

Images Cr.: David Hurd, GrowNYC
COMMUNITY COMPOST PLAN

☑ Composting method
☑ Safety & fire emergency plan
  ☑ Security & vandalism concerns
☑ Monitoring techniques & record keeping
☑ Provisions for controlling odors
☑ Contingency plan
SITE LAYOUT

- Material receiving & mixing area
  - Food scrap drop-off
  - Carbon storage
- Active composting area
- Curing
- Finished compost
SITE

- Year-round accessibility
- Access to a water source is necessary
- Shrubbery, fencing, or cover to block wind
  ✓ Insulation for winter
- Sit bins/piles on ground, grass or vegetated area
  - Tumblers can be mounted
PREPARING FOR WINTER
SET-BACKS

- At least 100’ from wells & potable water sources
- Adequate distance from wetlands, surface water bodies (streams, ponds), & flood plains
  - ✓ Recommended at 200’
- Minimally 200’ away from residences & 50’ from property lines
EQUIPMENT/SUPPLIES

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

▪ Simple, concise words & images
▪ List of acceptable materials at drop-off
▪ Active compost bin/area
▪ Curing compost
▪ Finished compost
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
   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
   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: BIZ@SMPROGMAIL.COM
MANAGING THE COMPOST SYSTEM
Raw materials

- Organic matter - including carbon, chemical energy, protein and nitrogen
- Mineral nutrients - including nitrogen and other elements
- Water
- Microorganisms

Process

- Water
- Heat
- CO₂

Product

Finished compost containing organic matter - including carbon, chemical energy, nitrogen, protein, humus, mineral nutrients, water and microorganisms
ELEMENTS OF COMPOSTING

▪ 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
  ✓ Preferred 50–60%
  ✓ Like a damp sponge
Optimum pH range - 5.5 to 8
✓ Preferred 6.5 – 8.0

Temperature – 120° - 160°F.
✓ Process to Further Reduce Pathogens
✓ 131°F for 3-15 days (f of system)
BASIC RECIPE

- **2-3 Parts Carbon - “Brown” materials**
  - Woody, dry materials- leaves, soiled paper, shredded paper, wood shavings, straw
  - Bulky materials, including branches should be chopped or shredded

- **1 Part Nitrogen - “Green” materials**
  - Green, wet materials, such as kitchen scraps, grass clippings, garden trimmings (no weeds), manures

- **Keep it small!**
  - Mowing, grinding, chipping, or shredding
High Carbon 3 volumes

High Nitrogen 1 volume
RECIPE, CONT.

- A little soil, finished compost, or horse manure

- Moisture
  - Just a little, like a damp sponge
  - Leave lid or cover off during rain
  - Required to keep compost microorganisms alive & active
TIPS

✓ Mix ingredients together to create a better balance—homogeneous mix

▪ Adding food scraps
  ✓ No more than 20%
  ✓ Balance C:N ratio, moisture, bulk density

▪ Observation, temperature, look & feel of compost, trial & error
AERATION TECHNIQUES

- Tumblers: Close lid & rotate
- Piles, bins: Lift materials with forklift
  ✓ Move materials from outside to inside
  ✓ Or, place materials on perforated pipes or pipe through middle
“HOT” COMPOST METHOD

- Enclosed containers
  - Insulate in winter
  - Use larger containers or tumblers
- Covered piles – insulate
- Proper “mix” of feedstocks
HOT COMPOST

- Temperature should rise to at least 120°F
  - ✓ 130°F for PFRP
  - ✓ Turn/rotate materials to achieve heat
    - 1-2 times per week, as needed
BE ONE WITH YOUR COMPOST
MONITORING THE PROCESS

**Observation**

- Are the bins or piles steaming?
- Are materials looking different
  - Is decomposition occurring
  - Materials slowing looking like soil?
- Is the pile uniformly composting?
- Are strong odors present?
MONITORING THE PROCESS

- **Compost feel**
  - ✔ Does the squeeze test indicate that there is moisture in the material
  - ✔ Does it feel like a damp sponge & stick together?
MONITORING THE PROCESS

- *Oxygen*—Smell is the best measure of properly aerated composting
- Unpleasant odor – indicative of anaerobic conditions
  ✓ Pile needs to be turned
MONITORING THE PROCESS

- **Temperature monitoring**
  - ✔ Is the temperature rising appropriately for rapid compost?
  - ✔ Does the temperature rise to 120°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>
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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 & soil
- Cover with lime or sawdust to deter fruit flies & vermin (rodents, bears)
TIPS

- Line bottoms of compost bins with wire mesh
  ✓ To detour vermin
- Use vinegar to wash collection containers
IF CRITTERS BECOME AN ISSUE

▪ Strictly follow the “composting food scraps” tips & eliminate any meat
▪ Discontinue adding food scraps, especially in early spring
▪ Build an enclosure around the compost area
# COMPOST CERTIFICATIONS

| EXEMPT | SMALL  
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<th>(Registration Required)</th>
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<tbody>
<tr>
<td>Composting &lt; 100cy/yr any feedstocks</td>
<td>Compost management area must be &lt;4 acres (does not include finished compost storage areas or leachate/stormwater mgmt. areas)</td>
</tr>
<tr>
<td>Managing &lt;3000 cy/yr leaf/yard/plant/wood &amp; &lt;20% is grass</td>
<td>Composting &lt;5000 cy/yr feedstocks, Including not &gt;2000 cy food residuals/food processing residuals. No animal mortalities, slaughterhouse waste, or offal.</td>
</tr>
<tr>
<td>Managing food residuals in a digester &amp; &lt;1% of design capacity is food</td>
<td>Compost &lt;10,000 cy/yr of solely leaf, yard, &amp; untreated wood residuals</td>
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WHO YOU GONNA CALL?

- VCGN
- CAV
- NERC
- Extension Master Composters
- Solid Waste Management Districts
QUESTIONS?