



Implementing food waste diversion activities

Staff from NRRA, NHDES, ME DEP

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Talking Points

- Introduction & Welcome
 - NH Regulations & Permitting
 - Diversion Options
 - Determining the Need
 - Siting & Developing a Program
 - Collection Process
 - Type of Compost You Want to Generate
 - Operating Plan
 - Panel
 - Closing Remarks
- 

Overview of Composting Regulations & Permitting Options

Mike Nork, NHDES

New Hampshire's Composting Regulations

NH Solid Waste Rules, Chapter [Env-Sw 600](#)

Contains requirements for solid waste composting facilities
Underwent significant updates in 2022

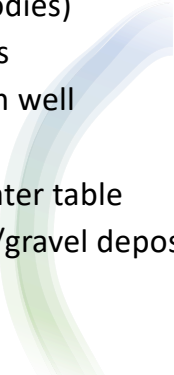
What do the rules regulate, exactly?

- ✓ Facilities that compost food waste, or other compostable "solid waste"
- ✗ Facilities that compost only leaf & yard waste (not considered "solid waste")



Overview of Composting Regulations

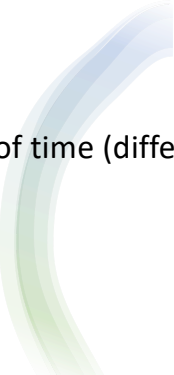
Siting Requirements – [Env-Sw 603](#)

- Min. 250 ft from protected shorelands (public waterbodies)
 - Min. 75 ft from all other surface waterbodies/wetlands
 - Not within the protective radius of public water system well
 - Min. 75 ft from private wells
 - Working surface at least 2 feet above seasonal high water table
 - Working surface at least 2 feet above bedrock or sand/gravel deposits (unless facility uses impermeable pad)
 - Not within a flood plain
- 



Overview of Composting Regulations

Operating Requirements – [Env-Sw 605](#)

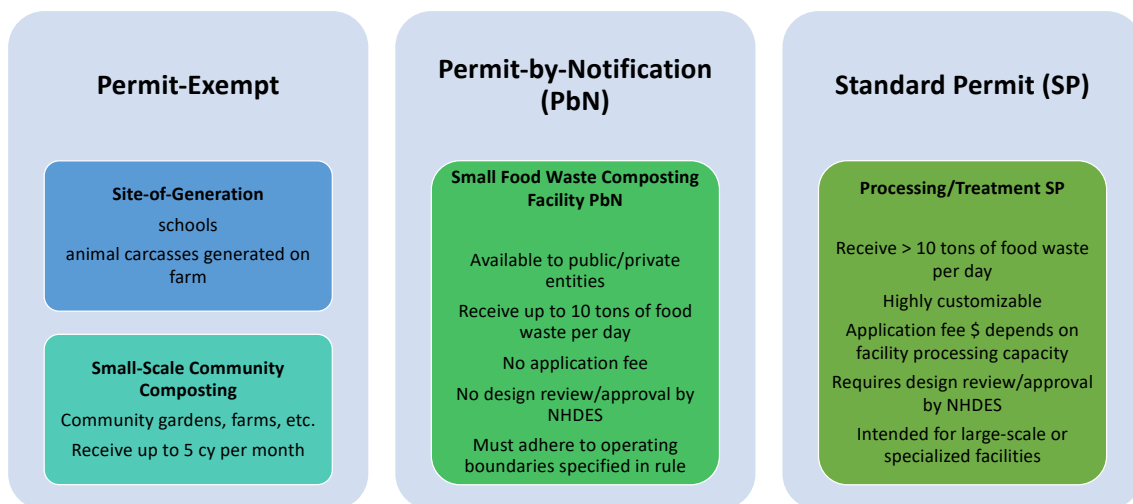
- Limit odors
 - Quickly incorporate or store incoming waste
 - Maintain aerobic composting process
 - Maintain compost process at 131F for specified period of time (different for windrows vs. in-vessel or aerated static pile)
- 

Overview of Composting Regulations

Quality/Maturity Requirements – [Env-Sw 605.04 & 605.05](#)

- Prior to distribution, finished compost must meet quality and maturity requirements
- Quality standards for:
 - Heavy metals
 - Bacteria
 - Inert debris (foreign objects like glass, plastic, metal, etc.)
- Maturity measures how “complete” the composting process is
- Testing for both quality/maturity to be conducted at least once annually.

Permitting Options for a Composting Facility



What to Consider When Choosing Municipal Food Waste Diversion Options

How will food scraps be collected?

- Curbside collection
- Drop-off facility

Where will the food scraps be managed?

- Manage on-site
- Transfer off-site



This Photo
CC BY-SA NC

So we discussed compost facility permitting options in general, but which options would work best for a municipality looking to start a composting program, or another sort of food waste diversion program?

There are two key questions that will help you navigate the options – (1) how will food scraps be collected and (2) where will the food scraps be managed?

With respect to how they will be collected, the options are usually curbside collection vs. drop-off at a facility. This presentation will focus primarily on drop-off options since that is probably a more feasible option when just starting a food waste diversion program. A municipality may look to incorporating curbside collection as the program becomes more established.

With respect to where the food scraps will be managed, the options are typically managing on-site vs. transferring off-site to be managed at another facility. Let's delve a little deeper into these options on the following slides...

A graphic with a dark blue background and a lighter blue circle. The text "Municipal Drop-Off Scenarios" is written in white, centered within the circle.

Municipal Drop-Off Scenarios

Manage On-site

1. Municipal Transfer Station w/ existing PbN for Limited Public TS
 - Notification to NHDES
 - Update facility operating plan
 - Comply w/ requirements for “Small Food Waste Composting Facility” PbN
2. Small Food Waste Composting PbN
 - Separate, standalone permit for composting
 - Can be co-located at TS (if space allows) or located at a different site
3. Permit-Exempt Community Composting
 - Option for small-scale pilot project
 - Not intended to be co-located at permitted TS
 - Can expand to permitted facility if operations grow

3 common scenarios for managing on-site

Municipal Drop-Off Scenarios (cont'd)

Transfer Off-site

1. Municipal Transfer Station
 - Confirm that the existing TS permit authorizes collection of source-separated food scraps.
 - Update facility operating plan.
2. Permit-Exempt Food Waste Drop-off Facility
 - Can be used to create “satellite” collection points – not intended to be co-located at permitted TS
 - Collected scraps are usually transferred directly to a 3rd party composter, but could also be transferred to a municipal composting facility.

2 options for transferring off site for processing at a composting or anaerobic digestion facility. Depending on your goals and specific situation, this pathway may be a good fit – especially if you don't have adequate space or labor to manage your own composting facility.



Implementing food waste diversion activities at your facility

Paige Wilson, NHDES



Examples for MUNICIPAL food scrap programs

Collect and Manage On-site

1. Compost at the transfer station (with PbN)
2. Small Food Waste Composting Facility
3. Permit-exempt community composting

Collect and Transfer Off-site

4. Transfer station drop-off. (Picked up by a registered hauler)
5. Permit-exempt community drop-off.

Curbside collection – share available options with residents.



Mike just covered the permit options that are available so just to quickly recap using the same lingo:

There are several options to collect and manage on-site as well as to collect and transfer off-site where the transferring process is done by a registered hauler.

Curbside collection of food scraps was not covered previously because it's not a practice that we see municipalities doing. They might offer general trash pickup but mostly, towns will share curbside services for food scraps that are provided by PRIVATE businesses that are available to their residents.

Now that you've heard the rules, I'm going to share some examples and photos of these 5 options followed by a conversation about curbside pickup options.

1. Compost at the transfer station. Look at permit first. You might be able to use your existing PbN for the transfer station
2. If you are a transfer station with a Standard Permit, you can apply for a "Small Food Waste Composting" PbN. Private businesses can also apply for a Small FWC PbN.
3. Collect and compost at a permit-exempt community composting facility.
4. Transfer station drop off or a permit-exempt community drop-off. – both have the food scraps picked up by a registered hauler to be processed off-site.
5. Permit-exempt community drop-off site ("satellite" location outside of transfer station)
6. Curbside pickup – at a minimum, share available curbside pickup options that residents can pay to subscribe to.



This slide showcases examples of PbN transfer stations that are composting under their TS permit. Meaning they only had to notify DES that they were planning to adjust their practices and start separating food waste to manage it differently.

Town of Hollis – started with a maintaining “pilot” scale to ensure it’s sustainable for their staff capacity. They are keeping participation small and only taking fruit/vegetable scraps. No meat or dairy.

Town of Brookline – started composting food scraps more recently and has taken the same approach where they’re only taking fruit and vegetable scraps. No meat or dairy. They are having folks drop off food scraps with leaf & yard waste. On the map they’ve provided it shows that their pile is located near the brush pile so they’re keeping similar waste items in the same area.

Both towns are part of the Souhegan Regional Landfill District.



The City of Lebanon and the Town of Peterborough both have a “Small Food Waste Composting” permit, which is separate from their transfer station permit. This allows them to compost food waste on site at the transfer station. They needed a separate permit because NEITHER transfer station had an existing PbN where they could simply notify DES about separating food scraps.

Town of Peterborough was permitted in early 2000’s – it’s one of the oldest town FWD sites in NH. According to their 2022 AFR they composted all food waste onsite with their leaf and yard waste.

City of Lebanon – started as a pilot with a select number of their residents a handful of years ago. Because it was so successful and proved to have economic benefits, the program now serves as a regional drop off site for residents in the towns that are served by their landfill. Their service area consists of 22 towns that span across NH and VT.

In Lebanon, residents dump out their collection buckets into a pile in an open area (see photo) that is then incorporated into the compost by staff... whereas in Peterborough, it’s collected in larger bins before being incorporated. CHOICE depends on how much waste is being brought in, the available space, and staff response time to incorporate the material.



Some examples of permit-exempt programs include:

1) The Tuftonboro Community Gardens which primarily takes food scraps from residents who have designated plots in the garden. They have a 6+ bin areas where some hold feedstocks and others are to separate the stages of the composting process (active vs. intermediate vs. curing). Compost is used to help nourish the garden beds.

2) Work Song Farm (Hopkinton) – started a composting program in 2022 with the support from CAV’s grant focused on building permit-exempt on-site farm composting programs. Tapped into their CSA network of people who are already coming to the farm for their vegetables and now have expanded to the point where they are applying for a PbN permit. (hence the “**”) Their operation has blown up.

SO this goes to show that these permit-exempt operations can happen in different settings.

CAV On-Farm Composting Project – Natasha Duarte and project steering committee provide technical assistance. Other NH farms involved to date:

- Highwater Farm (Bartlett)
- Sweet Beet Farm (Bradford)
- Open Woods Farm (Grafton)

4. Transfer Station Drop-Off Sites



City of Dover



City of Portsmouth



Transfer stations have been adding drop-off stations to collect food waste generated from households. We've seen this as a more popular options because the collection bins are emptied by a (registered) hauler that brings the food scraps to be managed elsewhere.


The transfer station makes the decision not to do the composting on-site. This may be because of lack of space, limited staff time to manage a compost pile and get the proper training, or misconceptions from the public or town officials.




Here are a few examples of permit-exempt community drop off sites. These are “Satellite” locations in the community, outside of the transfer station. These “satellite” sites don’t need a permit as long as they operate within the Env-Sw rule parameters.

Concord Co-Op has drop-off bins that are picked up by Renewal Garden & Compost.
 Monadnock Food Co-Op has a few bins that are picked up by Elm City Compost (Keene).

This provides an option for community members when the transfer station might have a drop-off option.



Curbside Pickup – Private Haulers



NH HAULERS

- Elm City Compost (Keene)
- Grow Nashua
- Mr. Fox Composting (Southeast NH)
- Renewal Garden & Compost (Greater Manchester Area)
- WeRecycleFood.com

OUT-OF-STATE HAULERS, SERVING NH

- AgriCycle
- Black Earth Compost
- Bootstrap Compost – only Manchester, NH
- City Compost
- Vanguard Renewables

<https://mrfoccomposting.com/>

This is a list of the private haulers that we know exist right now. There are no municipalities providing curbside pickup at this time but it is allowed in our rules.

AUDIENCE QUESTION – Are there any food waste haulers in the room that don't see their name up here??

The private haulers based out of NH are serving most of the southern part of the state. We recognize that there is a need for more haulers in the central, lakes region area and northern NH. We're hoping that with the growing interest in food scrap diversion, more haulers will pop up to take advantage of the opportunity. AgriCycle and Vanguard Renewables have started to expand their service area up to the Plymouth/Holderness NH area.


To be clear, before you sign a contract with a private hauler, be sure to check with a staff member in the SWMB to ensure that they are a registered hauler that is authorized to take your waste.



We described the permitting options available as well as examples of how some municipalities that are diverting their food waste through those pathways.

You may be thinking about “OK, what is going to work for my town?” BUT we’re going to back track a little. Before making a program shift, you must determine the need in your community and collect data to support any claims you make.

COLLECT DATA



Gather data specific to your community.
Look at neighboring towns.

Supports your decisions and changes to the program structure.


Gain town support:

- Residents, committees/boards, department staff
- Spark conversation in the community
- Show decisionmakers there is an interest/need

Collect data to support your decisions!! Gather data from within your town and also from looking at neighboring towns.

Gain support from town committees like selectboard, planning board... but also support from residents and town staff like department of public works.


- Spark conversation in the community and use word-of-mouth to get people interested and start asking questions
- Show decisionmakers that there is an interest/need



How can data be collected?

- Audit – weigh the waste
- Research – guidance from experts, facility site visits, online resources
- Surveys
- Pilot project to “test the waters”


→ Full Cost Accounting (FCA) assessment to understand and compare the costs of different management methods.



Alexandria Selectboard & Tarnworth Recycling Project members had a joint site visit to the Gifford Transfer Station.

1. AUDITS – weigh the waste. There are resources available online to help you do an audit.
2. RESEARCH
 1. Use subject matter experts (DES, Mark King, NRRRA, RPCs, neighboring towns, etc.)
 2. Go on site visits to other facilities, bring municipal officials
 3. Explore online resources and learn from other experiences to get ahead of what issues might come up.
3. SURVEY
 1. Survey the community to gauge interest in food waste. Send out a short survey. Use town meeting.
 2. Pre- and post-surveys
4. PILOT PROJECT
 - Test the waters. Figure out what your facility has the capacity to manage.
5. FULL COST ACCOUNTING
 - FCA is a tool that can help you understand the costs of running your facility for different scenarios.
 - Compare the costs of continuing to dispose of food waste with regular trash vs. composting on-site vs. working with a hauler.
 - You can also use to project cost savings by plugging in numbers that support a waste diversion goal you’re trying to meet.

Understand the costs of composting both with on-site and with vendors. Full Cost Accounting is a tool that can help you understand the costs of running your facility for different scenarios.



Pilot Example: Town of New London

- Survey
- Pilot (7 months)
 - 20 households diverted 3 tons
 - New London DPW Revolving Recycling Fund
 - Renewal Compost picks up 64-gallon totes from transfer station
\$37/pick up (1 tote) or \$69/pick up (2 totes)
- Expanded (2023 Town Warrant Article)
 - Allocated \$12,000 to add 140 more households
 - Application process to participate
 - Costs \$104/week
 - Avoids \$3,000/year in landfill tipping fees

Survey – Master Plan 2020 survey indicated that people were interested in food waste. WRC then distributed a shorter survey that just targeted food waste to confirm the interest and get more specifics about what people were looking for.

PILOT – October 2022 – April 2023 (7 months)

20 households diverted 3 tons of food scraps

Funds sourced from New London DPW Revolving Recycling Fund

64-gallon tote for transfer station - \$80


Renewal Compost picks up from transfer station and hauls to farm in Derry, NH

\$37/pick up (1 tote) or \$69/pick up (2 totes)

EXPANDED – started June 1st, 2023

- Town warrant article passed that allocated \$12,000 to support the operation costs.
- Opened up the program to 140 more households – so a total of 160 households participating
- WRC committee decided to require residents to submit a basic application in order to participate. This helped the town keep the program within their budgeted capacity and also to see if participants had any prior knowledge about what is compostable.


NOW a total of 160 households participate (10% of town population) – they’re dropping off about 4.75 tons/month (1+ ton/week)



Full Cost Accounting (FCA)

Understand the costs of running your facility under different scenarios.
Fine-tune your program.

- *What's cost effective vs. cost prohibitive?*
- Plan for investments.
- Plug in hypotheticals, make comparisons.
- Justify changes.
- Explain costs to residents more clearly.



If you REALLY want to run through your program with a fine-tooth comb and get some concrete data about the economics of running your facility, do a FCA assessment.

This is a tool that can be used if you're looking at making some more widespread changes - not just with food waste, but maybe also looking at your recycling programs, planning AHEAD for investments in new equipment, use of staff time, etc.

Understand the costs of running your facility under different scenarios. – Recycling vs. Composting vs. Incineration vs. Disposal

Fine-tune your program.

Identify:

What's cost effective vs. cost prohibitive?

Where are the current inefficiencies?

Plan for investments.


Plug in hypotheticals, make comparisons.

Justify changes.


Explain costs to residents more clearly.

Benefits of FCA:

- Identify the costs of MSW management
- See through the peaks and valleys in MSW cash expenditures
- Explain MSW costs to residents more clearly
- Adopt a businesslike approach to MSW management
- Develop a stronger position in negotiating with vendors
- Evaluate the appropriate mix of MSW services
- Fine-tune MSW programs



Information to Bring SW Facility Managers, Part II
Full Cost Accounting & Volunteers



Checklist

- Copy of annual solid waste report (tonnage for MSW, C&D, recyclables, compost, etc.) as submitted to NHDES.
- Solid waste revenue figures (bulky waste fees, permits, bag sales, grants, etc.)
- Property & liability insurance expense for the town (should be shown in budget)
- Workers comp & unemployment insurance for the solid waste department employees
- Debt service for solid waste facilities (landfill, buildings, vehicles, equipment, etc.), if any.
- Copy of the town's capital asset list, if available, or a list of all equipment used at solid waste including purchase price, year of purchase, and useful life.
- Copy of the town's capital improvement program, if available, or a schedule of planned equipment purchases for solid waste.
- Sum total of Wages & benefits for management/administrative staff including:
 - Town Manager
 - Finance officer/bookkeeper
 - Human resources director
- Total number of employees working at Town Hall
- Number of Town Hall employees who perform functions for solid waste (payroll, HR, admin, oversight, permit/sticker sales, etc.)
- Sum total of Operating costs for Town Hall building (heat, electric, maintenance, phone, etc. usually acct 4194)
- Total administrative budget for the town (usually accts 4130 & 4150)
- Total general fund expenditures for the town
- Balances of any C&D, SRF the town has for solid waste, plus info on source of revenue, and amounts received / expended in the year of interest.

Download FCA worksheet from NHDES website.

Gather data from:


- Town administrator
- Town report
- Facility manager/staff
- Facility spreadsheets

This is a snapshot of the checklist for data that you should gather in order to complete the FCA worksheet. Which, the worksheet is available to download off the NHDES website. The worksheet has all of the formulas created so all you have to do is plug and play. The formulas will do the math/calculations and auto-populate the spreadsheet in other places.


The data includes – annual solid waste tonnages, revenue figures, employee salaries for those working at the facility as well as those in the town hall that may help with administrative oversight... it really looks at ALL of the moving parts that contribute to operation costs.

NRRA is also available to help with completing the FCA.

<https://www.des.nh.gov/search?keys=full+cost+accounting>



Information to Bring SW Facility Managers, Part II
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Gather data from:

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- Facility spreadsheets

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Developing and Siting a Compost Program



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How do I start a Compost Program?



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Step 1: Getting Started

- Decide if Composting is right for your Community
- Do you want to reduce the amount of trash you generate?
 - Do you have or want to develop a school/community garden?
 - Do you want to save your money?
 - Do you want to develop an educational program that promotes sustainable environmental practices?
- Develop your “Compost Team”



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Step 2: Contact NHDES—Why?

- We have seen and done a lot!
- Division of Sustainability can help communities develop sustainable practices to reduce the amount of food scraps that are generated and wasted annually.
- Engineering & Permitting Section swmbpermitting@des.nh.gov
- Materials, Management, Education & Planning solidwasteinfo@des.nh.gov



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Step 3: Hold Your First Team Meeting

- Objective-Determine Team dynamics and how group will function
 - Focus on good communication
 - Clear definition of roles
 - Positive reinforcement
 - Commitment to education-based program
- Determine **Key Roles** and Responsibilities (ex. School)
 - **Compost Coordinator**: Interested, motivated person—VIP!
 - **Compost Monitor** (Usually Food Services staff member)
 - **Sorting Monitor** (Can be teacher, custodian, parents or students)
 - **Compost Collector** (Usually science teacher or custodian)
 - **Site Monitor** (Custodial Staff)



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Step 4: Conduct a Characterization study

- Several Days Before:
 - Gather equipment: 5-gallon Buckets, Set of Scales, calculator, gloves, hand sanitizer, aprons and tarps.
 - Choose a location to do the collecting and sorting (adorn with proper signage).
 - Meeting is held to fully discuss process.
- Day of Study:
 - Survey of food in storage (focusing on expiration dates).
 - Collecting and sorting begins (weights recorded separately for breakfast and lunch).
 - Collected (compostable) material weights are totaled for each day of a five-day period and then a final total is determined for the week.
- Evaluation Phase:
 - Discussions held about how things went, possible improvements for future.
 - Results (weights) are used to help decide on collection system (**Step 5**) and compost system (**Step 6**).



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Conducting the Residual Characterization



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Step 5: Choosing a Collection System

- Setting-up the Collection area:
 - Clearly marked with good signage.
 - Efficient.
 - “Sorting Monitors” and positive feedback help reinforce good behaviors.
- Choosing the Container:
 - Based on size, cost and overall ease of use.
 - Match container to total weights generated by Characterization study.
 - Easily handled by students.
 - Easily cleaned.
- Time Budget:
 - Figure on 30-45 minutes per day and 1-1.5 hours extra per week for composting.
- Time to Run the Collection!



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Collection and Storage



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Daily task (30-45 Minutes)

- Collect compost material
- Weigh compost material (optional)
- Take to compost site
- Take compost temperature
- Mix in new ingredients
- Add bulking material
- Clean up



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Weekly Task

- Maintenance of bins
- Turn piles
- Troubleshooting
- Supplying bulking material



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Step 6: Designing a Compost System

- Locate a Suitable Site:
 - Away from people
 - Dry
 - Shady to partly shady
 - Flat with well-drained soils
- Pick a System:
 - Bins
 - Piles
- Build it and Start Composting!

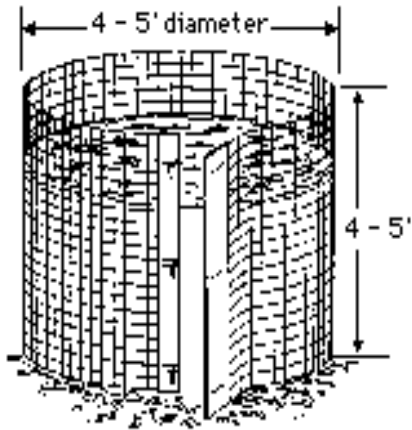


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Simple Bins



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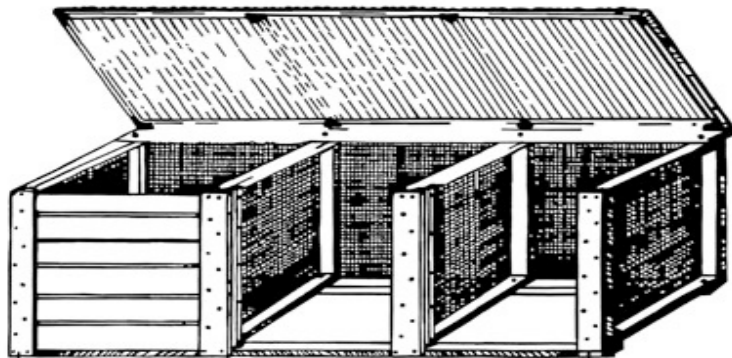


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Backyard Compost Bins 3 Bin System



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Backyard Compost Bins “Tumblers”



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Open System



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Step 7: Curriculum (ex. Student Based)

- Pre-K, Kindergarten and 1st grade:
 - Draw pictures of compost critters
 - Read compost related stories and act out roles
 - Play with stuffed critters
- 1st-3rd grade:
 - Dig into piles to investigate how they work
 - Worm Bins
- 4th and higher:
 - Science-based learning, such as: Weights and Temperature graphing



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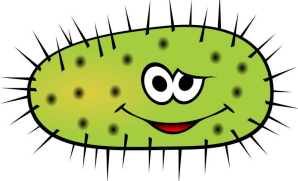
Compost

greens & browns

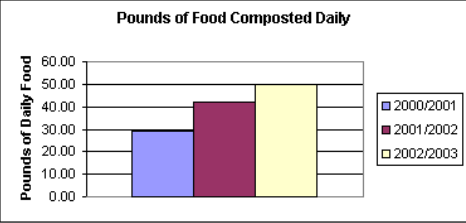
- ✓ veggies / grass
- ✓ fruits / leaves
- ✓ coffee grounds
- ✓ tea bags
- ✓ bread

No: meat, fat, cheese, poop



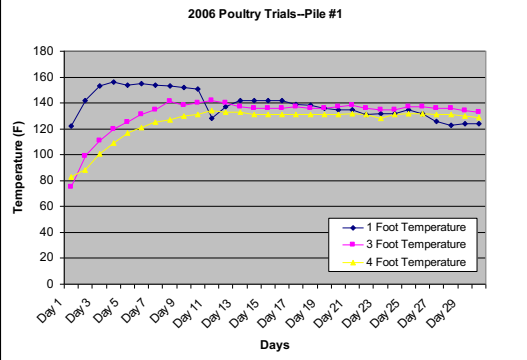


Pounds of Food Composted Daily




Year	Pounds of Daily Food
2000/2001	30.00
2001/2002	42.00
2002/2003	50.00

2006 Poultry Trials--Pile #1



Days	1 Foot Temperature (F)	3 Foot Temperature (F)	4 Foot Temperature (F)
Day 1	120	80	75
Day 3	155	110	105
Day 5	160	130	125
Day 7	155	140	135
Day 9	150	140	135
Day 11	150	140	135
Day 13	140	140	135
Day 15	140	140	135
Day 17	140	140	135
Day 19	140	140	135
Day 21	140	140	135
Day 23	140	140	135
Day 25	140	140	135
Day 27	140	140	135
Day 29	140	140	135




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Step 8: Composting!

- Material Preparation and Mixing:
 - Pick compatible feedstocks (carbon sources) such as Horse Manure or Leaves.
 - Prepare feedstocks for mixing by chipping, shredding or grinding.
- Fill Bins/Pile Formation:
 - Bins should hold at least 1 cubic yard and piles should hold a minimum of 5 cubic yards (8 ft. high by 10-12 ft. wide).
- Monitoring Activities:
 - Temperature
 - Moisture/Leachate
 - Odors and Vectors
- Turning:
 - Physical process by which pile/bin ingredients are homogeneously mixed to:
 - Enhance physical breakdown of materials.
 - Re-oxygenate contents by “fluffing” material and enhancing pore spaces.
 - Redistribute moisture.
 - Based on temperature monitoring feedback.
- Evaluation:
 - Compost process is evaluated for optimal performance and corrected prn.



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The top-left image shows a wire mesh compost bin filled with dark soil and straw. The top-right image shows a metal drum tumbler on a metal stand. The bottom-left image shows a wooden three-stage bin with labels: "Add-to Pile", "Closed", and "Finished Compost". The bottom-right image shows a black plastic bin on a metal stand.

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The top-left image shows a red tractor with a front loader moving a large pile of dark compost. The bottom-left image shows a red tractor with a front loader moving a large pile of dark compost. The right image shows a red tractor with a front loader moving a large pile of dark compost.

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Step 9: Collecting and Using Feedback

- Tracking data is allows you to show how the program is benefitting you.
- Two most valuable data sets:
 - Weights of recovered food scraps.
 - Daily temperatures of compost piles.
- Graphing data is also a valuable educational tool for school-based operations!

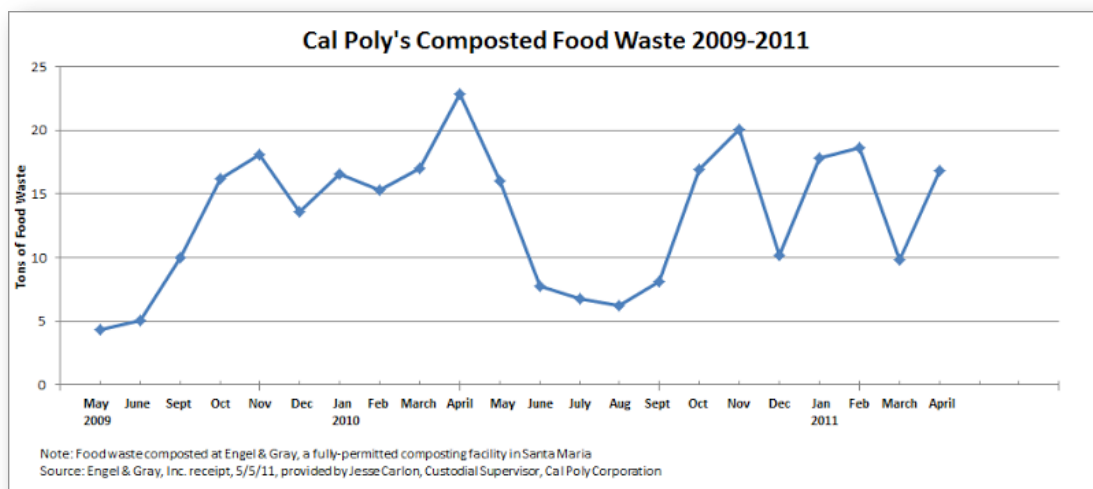


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Example—Compost Data



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Step 10: Using the Finished Product

- Excellent Soil “Conditioner”.
 - Provides organic matter.
 - Trace amounts of nutrients—N, P, K.
 - Excellent water-holding capacity.
 - Decreased soil compaction/increased infiltration.
 - Enhances biological activity in soil.
- Testing shows quality and improves Marketability.
- Marketing product can help promote interest in project and community buy-in.



PUBLIC’S PERCEPTION OF COMPOST*

- FERTILIZER [Not Really....]
- NITROGEN/ PHOSPHORUS/ POTASSIUM SOURCE
- MULCH
- POTTING SOIL
- **SOIL AMENDMENT**
- SOIL BUILDER



* *Know the compost you are producing and what your customer needs are!*



Promotions...



Occasionally, "Things Go Wrong".....



Nuisance Problems

- Nuisance problems are the No. 1 complaint about compost sites.
- Engineering and technology to correct nuisance problems is often expensive and sometimes ineffectual.
- These are “people problems”
- Prolonged nuisance conditions have led to site shutdown.



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Nuisances

- Odors
- Vectors
- Leachate
- Poor Drainage



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Final Thoughts

- All composting should be done in a nuisance-free and environmentally sound manner.
 - Minimize odors (stay away from garbage storage areas).
 - Minimize Attraction of Vectors (i.e., rodents and other pests).
 - Avoid siting compost piles in wetlands or other sensitive areas.
 - Pick well-drained, low pedestrian-traffic area.
- Be sure to follow recommendations on what types of food scraps can be composted and what your permit allows.
- Repair Vector damage to prevent odor releases and further Vector attraction



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Questions???



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Collection at Home

- Container with lid for kitchen collection
- Store in fridge or empty frequently
- Bucket can be used for transportation




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Collection at Home

- Container with lid for kitchen collection
- Store in fridge or empty frequently
- Bucket can be used for transportation



Use container with tight fitting lid for kitchen collection
Can store in fridge or empty frequently to bucket with lid
outside to reduce odors and fruit flies

NRRA sells option on the left through compost bin sale;
municipalities can purchase at discount and sell or give
away to residents






Many communities require compostable bags to reduce odors and mess when delivering to collection site


Ex. one of these options required in Bedford, Durham, and Lebanon

Exeter says use of these are optional

Collection and Storage at Facility

- Put directly on compost pile (ex. Durham)
- Collect in 64-gallon totes (ex. Littleton)
- Collect in large bins (ex. Bedford)



Put directly on compost pile for leaf and yard waste (ex. Durham composts on site)
 Collection bin/tote (Littleton, NH to Meadowstone Farm; 64 gallon totes common)

Large bin (Bedford to Renewal Compost)

Cart often used for curbside pickup

Tip: If material brought in non-biodegradable plastics bags, having trash can adjacent to food scrap collection container for easy disposal

Facility Storage Tips

- Lock/secure bins when unattended
- Add sawdust layer to reduce odors and larvae
- Add clear signage
- Ex. New London



Lock or otherwise secure bins at night and when unattended to prevent contamination; make sure bearproof (ex. bring inside locked transfer station when not open)

Cover scraps with thin layer of sawdust to reduce odors and fly larvae

Add signage to containers

Curbside Collection

- Convenience for residents increases participation
- Weekly pickup recommended
- Use private contractor or municipal equipment and staff



No towns in NH currently offering curbside, though some private businesses offer curbside pickup for paying residents

Municipal curbside convenience often increases participation

Can either rely on contractor to provide containers and transportation; or town can use existing trucks and municipal employees for collection

Could give residents sticker to put on any trashcan to mark it as an “organics bin”

Weekly pickup required for food scraps; could reduce costs by having trash pickup every other week

Could also haul in split-body truck

Will discuss examples as case study

Costs for Residents

- Storage container at home
- Compostable bags if required
- Municipal drop-off typically free
- Fee for private curbside pickup



Most (if not all) NH towns offer collection free of charge
Lebanon charged annual fee when starting pilot, now free to residents



Costs for Municipalities

- Staff time (more if compost on site)
- Fee for private hauling service
- Fuel and equipment if composting on site
- Buckets and bags (if providing to residents free or discounted)
- Curbside more expensive



Staff: important to have limited access to containers with staff able to monitor materials to reduce contamination, as well as answer resident questions about acceptable materials

Fee for service: per ton or per container; often weekly pickup
Will share some examples, but can't go into deep dive b/c so specific to individual community program

Case Study: Hollis, NH

- Minimal staff time required (staff onsite with machine when on duty so no extra expense)
- Two trash cans for collection
- Compost on site (no meat or dairy)



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Case Study: Lee, NH

- Minimal staff time required
- Buy compostable bags for residents (5 to 8 cents each)
- Mr. Fox Compost
- Two 64-gallon totes picked up weekly
- \$144 monthly for four weekly pickups



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Case Study: Pelham, NH

- Minimal staff time required
- Two 64-gallon totes picked up weekly
- Vanguard Renewables
- \$219 monthly



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Case Study: Hamilton, MA

- Population 7,765 people
- Each resident received kitchen counter collection container and 13-gallon compost container
- May use paper bags or BPI certified compostable bags
- Weekly organics pickup (separate from weekly trash pickup)
- Taken to local Brick Ends Farm and turned into compost



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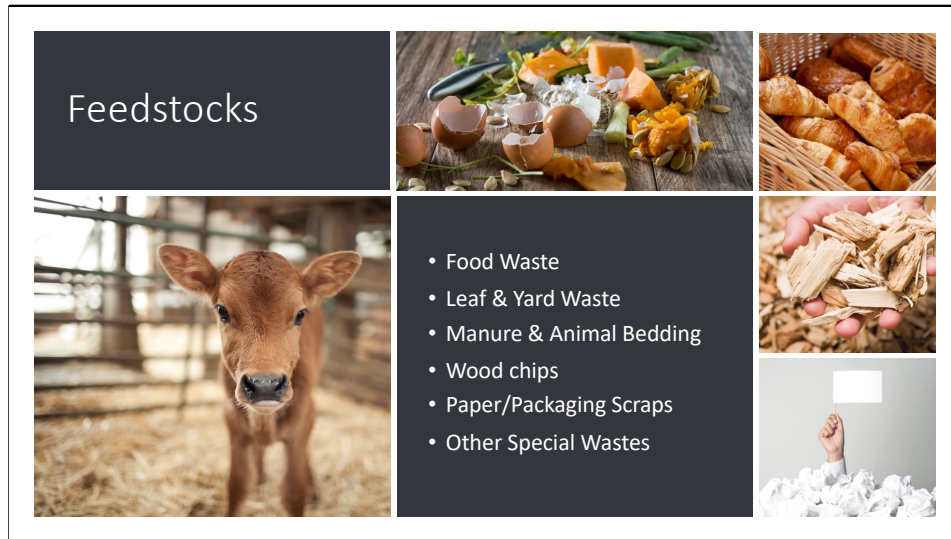


- Tara (10 min)** - For on-site composting, how to identify the type of compost you will be producing at your facility? Think about feedstocks available to you, logistics, etc.
- What are you going to do with the compost? Sell? Free?



OK. You have decided that you are going to compost on-site at your facility. What are you going to do with that compost?

- Use it on-site for beautification projects.
 - You can bag it and sell it for profit.
 - Allow facility users to take it from the facility.
 - Use it in municipal projects.
 - It can also be used as erosion control on site, even on the landfill. This would promote vegetation on slopes and to prevent erosion.
 - There could be other possible applications that require additional permitting.
-
- Compost can be used at any stage (C:N – 25:1 or less):
 - Solvita book.



Once you determine what you are doing with the compost, you will need to look at your feedstocks and develop a recipe that makes the most sense for the usage of the compost.

The type of compost you are creating, ESPECIALLY compost you want to sell, the more your recipe needs to be refined and defined.

There are other “special wastes” that may require an additional permit. For example you may be looking at incorporating biosolids.

If that is the case then there is an entire separate set of regulatory requirements that you will need to follow and possibly a second permit from the NHDES Residuals Management Section. This is just one example of some outside the box items that you may need to compost.

Compost can be used at any stage



Baby compost (fresh!)

Direct Land Application



Junior compost

Crop Use for hay or corn



Mature compost (tired.)

Gardening

Keep in mind that compost may be used at any stage, it does not have to be mature. The caveat is that the C:N Ratio must be 25:1 or less.

- Compost can be used at any stage (C:N – 25:1 or less):
- First Stage: Crop use for hay or corn
- Salt tends to reduce
- End Use: For Gardens

Resources

- [US Composting Council](#)
 - [STA Certified; Tools; Guidance Documents](#)
- [NRRA Food Waste Diversion Toolkit](#)
- [Maine Compost School](#)
- [SOLVITA](#)

US Composting Council: Fact Sheet; Education; Tools; STAC Testing Assurance Page

Maine Compost School

NRRA – Food Waste Diversion Toolkit <https://www.nrrarecycles.org/waste-diversion-reduction-toolkits/composting-toolkit>

Solvita table/book

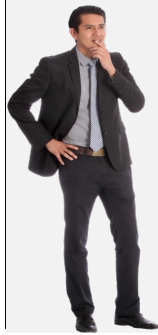
Operating Plans

- All permitted solid waste facilities in NH are required to have an up-to-date Operating Plan.
- Env-Sw 1105 outlines what is needed in the plan.
- Closure Plans are also required as outlined in Env-Sw 1106.

Operating Plans are a requirement for all permitted solid waste facilities in NH. This plan is required to be Up-To-Date....and it needs to be developed before the application is submitted to NHDES for all applicants regardless of the type of permit in which you hold.

The items that are required in the plan are outlined in Env-Sw 1105. While I am at it, I will say that Closure Plans are also required and are outlined in Env-Sw 1106.

How do you know when you need to ... ?



Create a New Operating Plan

New Facility
New Application for a Facility

Update an Existing Plan

Hold a PbN and are required to notify NHDES of the composting activities
Submit a Permit Modification for a Standard Permit
Anytime there is a change that needs to be made

How to you know when you need to either create a New Operating Plan or Update an Existing Plan.

A new operating plan needs to be written when there is a new facility. OR when a new application is filed for a facility.

An existing plan needs to be updated when....

- The facility has an existing PbN and is required to notify NHDES of the composting activities at the facility.
- When a Permit Modification is submitted for a Standard Permit, the existing operating plan must be updated and resubmitted to NHDES. And that operating plan also needs to be approved by NHDES BEFORE the activity takes place.
- And I will take this moment to say that anytime a change happens at the facility, that change needs to be reflected in the operating plan.

Need more information?

Intro to Operating Plans

- In-person workshop scheduled with the SWOT Program
- Pre-Recorded Option on the SWOT Channel

Resources

- Checklists for O&C Plans
- Template
- The facility permit

Writing Operating Plans

- In-Person work session with SWMB Staff. The Intro class is a pre-requisite.

- The SW Rules
- Operators of the facility

Did I give you just enough information to make you want more? Or likely, are you realizing that your Operating Plan may be out of date and you need some assistance?

Resources

- [US Composting Council](#)
 - [STA Certified](#); [Tools](#); [Guidance Documents](#)
- [NRRA Food Waste Diversion Toolkit](#)
- [Maine Compost School](#)
- [SOLVITA](#)

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Contact

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Paige.A.Wilson@des.nh.gov or 271-0964
- Mike Nork, MMEPs
Michael.A.Nork@des.nh.gov or 271-2906
- Permitting SWMBPermitting@des.nh.gov



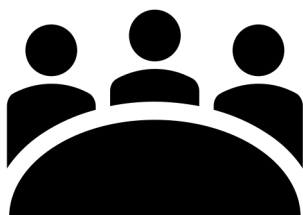
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Questions

For classes, contact SWOT@des.nh.gov
or (603) 271-3713

For information on your permit and
operating plan, contact
SWMBPermitting@des.nh.gov or (603)
271-2925

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Panel Discussion

- Rhonda Whittier, Pelham, NH
- Bob Harrington, New London, NH
- Joan Cudworth, Hollis, NH
- Steve Bullock, Lee, NH

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