



What's the Big Deal About Food Waste?

Staff from NRRA, NHDES, ME DEP

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Talking Points

Introduction & Welcome

Overview of Food Waste in the US and NH

Food Waste Diversion Techniques

Food Waste Reduction and Diversion at Institutions

Food Waste Facilities in NH

Identifying Education Campaigns

Closing Remarks

Food Waste in the United States

Mike Nork, NHDES

Food Loss & Waste – A National Problem

In 2022, Roughly 38% of US food supply went unsold or uneaten – result of losses at **all levels** of the supply chain

Source: ReFED

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Where does food loss occur?



FARMS



MANUFACTURERS



RETAILERS

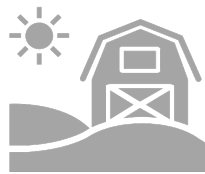


FOOD SERVICE



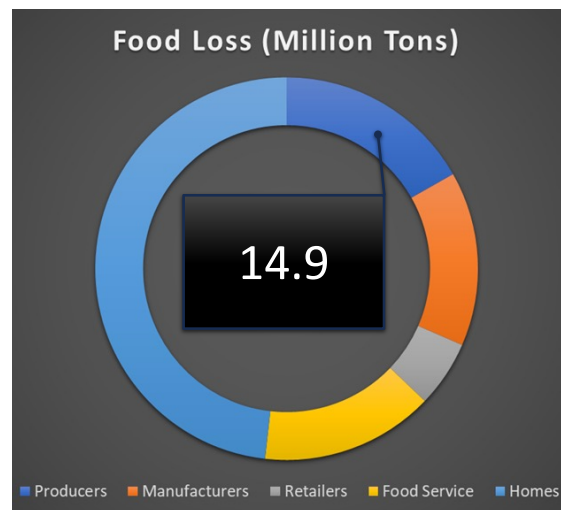
HOMES

Food loss from Producers



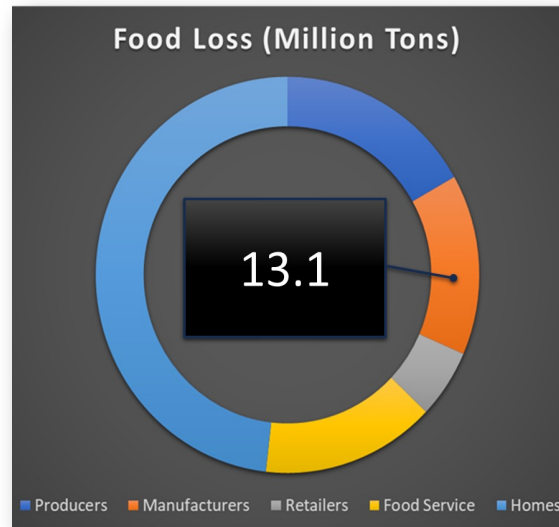
Farms do not harvest what they produce

- Cosmetic standards
- Market forces
- Labor Shortages



Food Loss from Manufacturers

- Waste by-products from processing (stems, peels, bones, etc.)
- Waste from switching production lines to make different products



Food Loss at Retailers

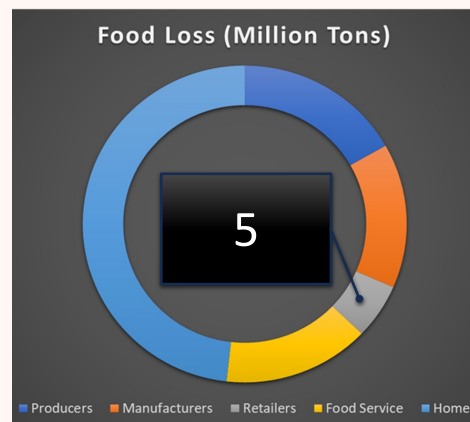


Retailers

High customer standards for freshness, quality & variety

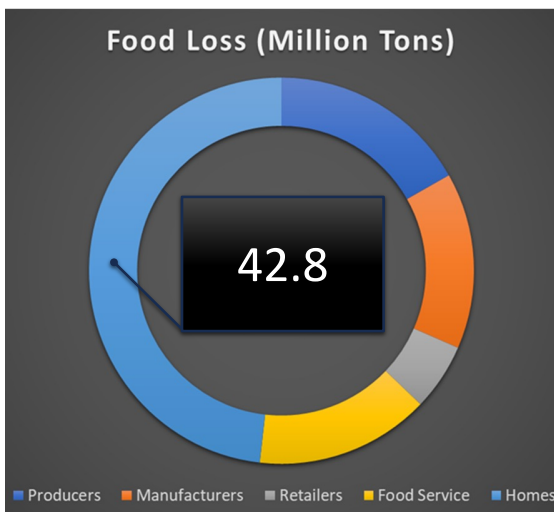
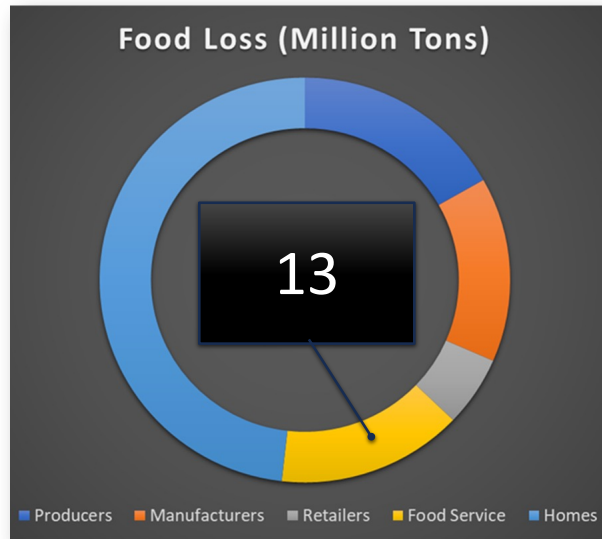
Inefficiencies in inventory management

Date label concerns



Food Loss at Food Service Areas

- Difficulty forecasting demand
- Improper storage
- Inefficient preparation techniques
- Plate waste from customers
- Portion sizes



Food Loss in Homes

- Lack of planning
- Buying in bulk because it's a "good deal"
- Misunderstanding storage requirements and date labels

Over 88 Million Tons of surplus food generated in 2022 (Source: ReFED)

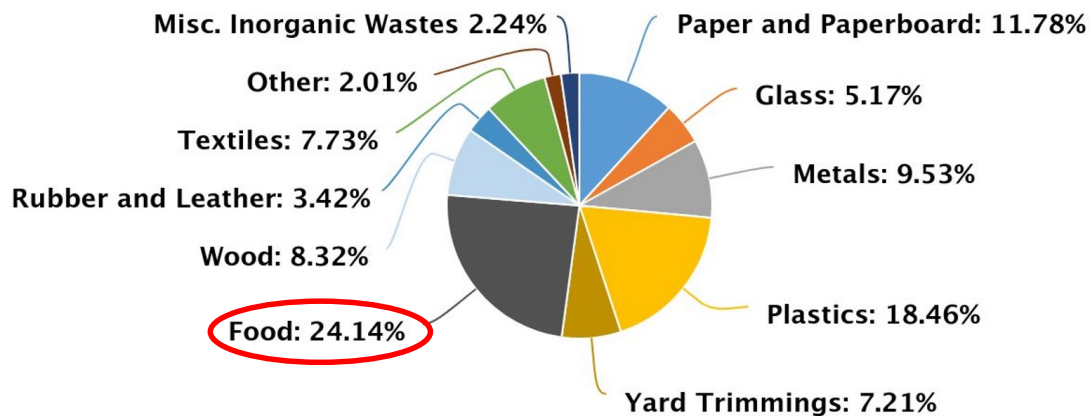
1.83 Million Tons Donated

9.3 Million Tons Recycled

77.6 Million Tons Wasted
(Landfills, Incinerators,
Sewer)

Meanwhile, 12% of U.S. households experienced food insecurity in 2022
(Source: USDA)

Breakdown of Municipal Solid Waste (MSW) Landfilled Nationwide, 2018



Source: US EPA

Impacts of Surplus Food

Uneaten food represents a huge waste of energy & resources

- Land
- Water
- Transportation
- Preparation/processing
- Refrigeration

The Food We Don't Eat Represents...



6.1% of total U.S. greenhouse gas emissions



22% of total fresh water use



16% of cropland



\$473 billion total costs to producers, retailers, consumers

Source: ReFED



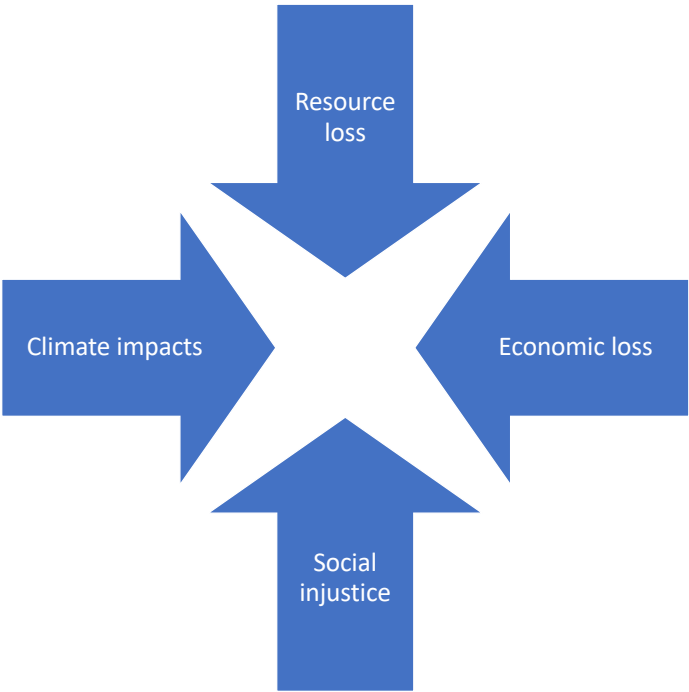
Food Waste Disposal in New Hampshire

702,153 Tons of MSW disposed by NH businesses & residents in 2022

Of this, **168,516** Tons were Food Waste (based on EPA's 24% estimate)

That's over 8,400 tractor trailers of wasted food!

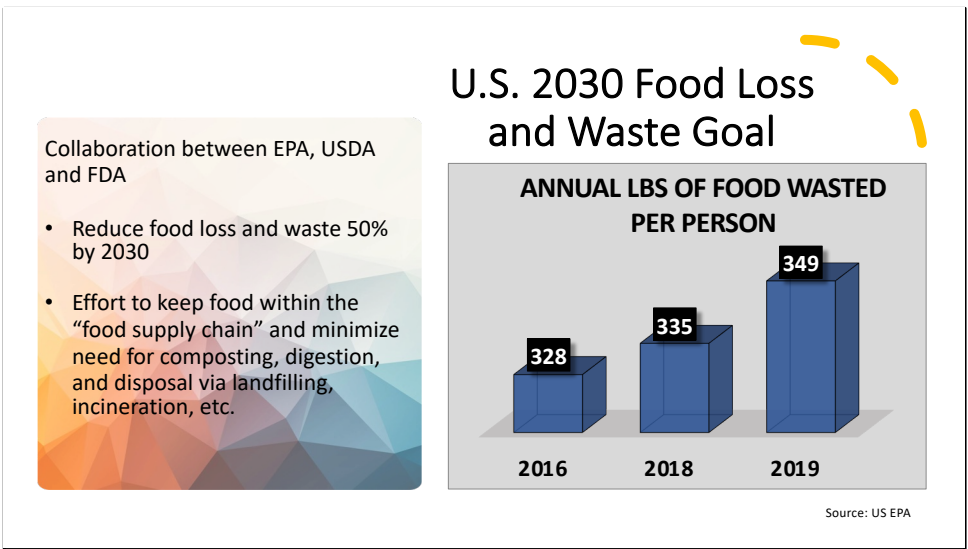
Food waste is a multi-faceted problem





Tackling the Problem...

The issue of food waste has gained significant attention – both nationally and here in NH. Let's discuss some of the efforts underway to address food waste



Unfortunately, in the years since this goal was set, there has been a 6% increase in food leaving the food supply chain. Nevertheless, this goal represents an important tool to track food waste trends and highlights the need for increased efforts to prevent food waste



EPA has developed a new “wasted food scale” to guide decision-making for management of excess food with emphasis on highest and best use. The most preferred options are on the left, starting with preventing food waste in the first place, with increasingly less-preferred methods as you move to the right

Efforts in New Hampshire

2022 New Hampshire Solid Waste Management Plan includes action items addressing food waste

Develop

educational resources about preventing food waste

Promote

the EPA Wasted Food Scale to promote preferable practices

Maximize

utilization of composting or other food waste diversion




Efforts in New Hampshire Food Waste Disposal Ban

- Effective 2025
- Entities generating 1 ton/week of food waste must not dispose in landfill or incinerator provided that there are alternative facilities within 20 miles that have capacity to manage the food waste (RSA 149-M:27, V.)
- Preferred management pathways mirror EPA Wasted Food Scale
 - Prevention
 - Consumption by humans
 - Consumption by animals
 - Composting/Digestion



Efforts in New Hampshire

Diversion Grants

- New funding program to provide matching grants – coming soon!
 - \$500,000 in funding prioritized for food waste-related projects.
- 



Questions?

Resources

[ReFED Food Waste Overview](#)

[USDA Household Food Security in the United States 2022](#)

[EPA Facts & Figures – MSW Landfilled 2018](#)

[EPA Quantifying Methane Emissions from Landfilled Food Waste](#)

[U.S. 2030 Food Loss and Waste Reduction Goal](#)

[EPA Wasted Food Scale](#)

[2022 New Hampshire Solid Waste Management Plan](#)

[New Hampshire Food Waste Disposal Ban \(RSA 149-M:27, V.\)](#)

Who is With Us Today?

Raise your hand if...



Food Waste Diversion Techniques for Municipalities & Residents

Reagan Bissonnette, NRRRA



What We'll Cover

- Wasted Food Scale Examples
- Focus on Composting & Anaerobic Digestion



First, will discuss examples of each diversion method
Second, will discuss collection and end markets for composting and anaerobic digestion

Prevent Wasted Food

Who eats leftovers?



Audience Question (show of hands): who eats leftovers?

Donate or Upcycle

Donate: Who has a food pantry in their community?

Upcycle: Typically takes places at production or manufacturing stage



Donate = redistributing wasted food for human consumption

Ex. Food party

Upcycle = remaking wasted food into new food products for human consumption

Typically happens at production or manufacturing stage of food supply chain; ex. spent grains from brewing process can be turned into bread

Audience Question (show of hands): who has a food party in their community (either where work or live)?

NOTE: The benefits of pathways beyond source reduction, donation, and upcycling are small relative to the environmental impacts of food production; thus, they can do little to offset the environmental impacts of food production.

Feed Animals or Leave Unharvested

Who has a farm that accepts food scraps for animals in their community?
Example: Meadowstone Farm in Bethlehem feeds laying hens (and also composts)



Leave unharvested means leaving crops in the field or tilling them into the soil

Ex. Farm that collects food waste to feed animals – Meadowstone Farm in Bethlehem uses some food waste as a feed for laying hens (also composts some)

Audience Question (show of hands): does anyone have a farm that accepts food scraps for animals in their community?

Compost or Anaerobic Digestion (beneficial use)

Anaerobic Digestion may occur at:

- Stand-alone digester
- On-farm digester (ex. Agri-cycle in Maine)
- Digester as wastewater treatment facility (ex. WM Core in Boston)

EPA Wasted Food Scale
How to reduce the environmental impacts of wasted food

The diagram is a semi-circle with 'MOST PREFERRED' on the left and 'LEAST PREFERRED' on the right. It is divided into 'DO' (green) and 'AVOID' (red) sections.

- DO (Green):**
 - Prevent Wasted Food:** Produce, buy, and serve only what is needed.
 - Donate:** Repurpose and redistribute food to people.
 - Upcycle:** Repurpose food for better consumption.
 - Feed Animals:** Turn waste food into animal feed.
 - Leave Unharvested:** Leave crops on the field for grazing or plow back.
 - Compost:** Process waste food into a soil amendment.
 - Anaerobic Digestion (with beneficial use of digestate):** Break down waste food to create energy and a soil amendment.
- AVOID (Red):**
 - Send Down the Drain, Landfill, or Incinerate:** With or without energy recovery.
 - Anaerobic Digestion (with thermal use of digestate):** Break down waste food to create energy.
 - Apply to the Land:** Process or raw waste food to the soil.

A red circle highlights the 'Compost' and 'Anaerobic Digestion (with beneficial use of digestate)' options.

October 2023

AD: Breaking down wasted food via microorganisms in the absence of oxygen to generate biogas and nutrient-rich matter (i.e., digestate or biosolids).

May occur at a:

Stand-alone digester

An on-farm digester (ex. Agri-cycle and sister company Exeter Agri-Energy in Portland, Maine)

A digester at a water resource recovery facility (ex. WM Core in Boston, MA creates fertilizer; located at Greater Lawrence Sanitary District)

Audience Question (show of hands): who has an anaerobic digester in their community? (no one because we don't have any in NH)

AD (no beneficial use) or Apply to Land

Who knows a farm that incorporates wasted food directly into the soil?



Apply to land means applying raw wasted food to soil
Audience Question (show of hands): does anyone know a farm that incorporates wasted food into the soil? (I'm not aware of any)

**Note from Discussion: Could check with dept of ag?*

AVOID

What we do with most of our food waste



These are significant sources of methane gas from wasted food

Audience Question (show of hands): whose community sends food waste to landfill or incinerator?

Northeast BioDigester – powernot.com (they dry/grind up food and then tell you to put it down the drain – EEK!!! This overloads septic systems.)

What We're Doing with Household Food Waste

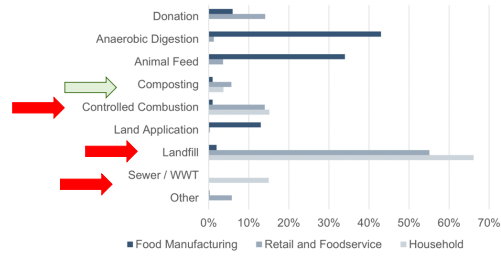


FIGURE 1-1. PERCENTAGE OF WASTED FOOD MANAGED BY EACH PATHWAY, BY SECTOR IN WHICH THE WASTED FOOD IS GENERATED

Each sector sums to 100%.
Data Source: U.S. EPA (2023a)



Look at household waste (light grey) – vast majority is under least preferred methods to Avoid

Collection & End Markets

Composting & Anaerobic
Digestion



The most preferred methods for managing food waste take place before it gets to the transfer station
Composting and AD - two most common options for municipalities to manage residential food waste rather than disposing with MSW

Will give examples for each option



Collect at Home & Backyard Compost

- Example: Pembroke Solid Waste & Recycling Committee
- Sells compost bins to residents through NRRA's compost bin sale

NRRA sells compost bins to municipalities and businesses at bulk rates

Collect and Compost Onsite at Permitted Transfer Station

Example: Town of Hollis composts at transfer station



Town of Hollis composts at transfer station (no meat or dairy); staff attended Maine Compost School for training



Collect Onsite at Permitted Transfer Station, Process Elsewhere

- Lee uses Mr. Fox service (composted in Maine)
- Bedford uses Renewal Compost (composted in NH)
- Pelham uses Vanguard Renewables (anaerobic digestion in MA)

Common scenario for companies that provide hauling services for food waste

Collect Elsewhere, Process Elsewhere

- Bow recently completed composting pilot program
- Residents drop off at Bow Community Center
- Composted with Renewal Compost




- Collect elsewhere (curbside or community drop-off site), process elsewhere
 - Ex. Bow - As of Feb. 2024, just finished running a composting pilot program with drop off at the Bow Community Center and processing through Renewal Compost

Private Subscription Services

- Renewal Compost serves Concord
- Offers both curbside for residents and drop-off location



Institutions 

Examples:

- K-12 schools
- Summer camps
- Universities/colleges
- Hospitals
- Museums

Commonalities:

- ✓ Provide food service
- ✓ Cafeterias/dining areas
- ✓ Allow bagged lunches

Institutions need to consider sources of waste/contamination:

- Internal (staff, students, patients, etc.)
- External (visitors, parents, etc.)

Have cafeterias and dining areas. Some might even have cafés or sandwich shops – like a college campus.

Regardless, institutions generally provide a food service that is managed internally and they also allow food to be brought in from off-site (like through bagged lunches).

This means that institutions need to consider internal and external sources of waste and contamination:

- Internal (staff, students, patients, etc.)
- External (visitors, parents, etc.)



BEFORE you make a change...

Consider doing an AUDIT

- *How much is being wasted?* Pounds > Tons
- *What is being wasted?* Salad bar, pre-packaged meals, fruits, etc.
- *Where is most of the waste coming from?* Kitchen prep vs. post-consumer

Step-by-step guides and recording logs available.

Results will help you determine what to focus on.

Consider doing an audit. At schools, this can also be called “Trash on the Lawn” day. An audit will help you determine the amount of food waste is being generated, what is being wasted, and where most of it is coming from – kitchen prep or post-consumer plate waste?

There are guides available online that will walk you step-by-step for how to separate, measure, and record the waste generated that day. They even include information about how to prepare the days leading up and how to close-the-loop afterwards.

This is a good first step for institutions because you visually see the extent of the problem. You also gather data that is specific to your operations, that can help you determine what to focus on.

Techniques to reduce & divert food waste

- Consider food service style
 - Buffet, family style, staff-served meals
- Rearrange cafeteria/dining hall layout
- Separate and collect food waste for composting, farms, etc.
 - May require a permit.
 - Hauler needs to be registered with NHDES.



Institutions can reduce their waste by testing different food service styles. Switching to a new food service style may not always be feasible based on day-to-day operations, staffing, and room layouts - BUT should be considered because it can help reduce the amount of food being wasted.


Separate and collect food waste for diversion that can take place either on- or off-site. An institution may have food waste picked up by a third part hauler to be processed elsewhere OR choose to compost the food waste on-site. The finished compost could be used in a vegetable or herb garden that supports meals.



Examples of how to set up sorting stations in K-12 schools or at a summer camp.


It can be as complex or as simple as you want. The point is to have some type of signage to explain what goes where.

It can be most impactful to get the students or campers involved with setting up and monitoring the sorting station.



Techniques to reduce & divert food waste*

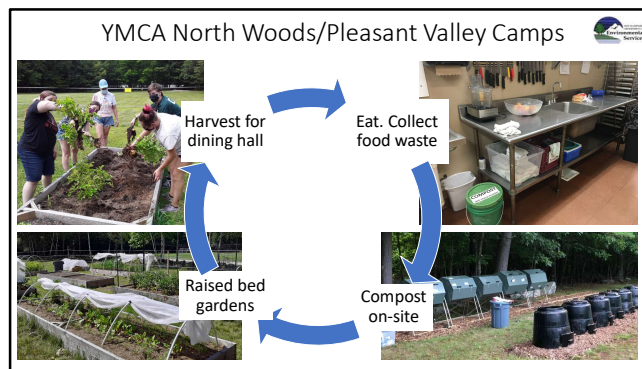
- Maximize use of food
 - Veggie scraps = soup stock
 - Leftover grilled cheeses from lunch = croutons for tomato soup at dinner
- Set up a share table
- Adjust meal options
- Reduce portion sizes



*May be limited by state or federal food safety requirements and/or nutrition programs.

- Maximize the use your food scraps. For example, using vegetable scraps to make soup stock OR finding creative ways to reuse food from a previous meal. Consider how the food is stored between uses so it doesn't spoil.
- Schools and camps can explore the option of share tables to put aside uneaten fruit and unopened packaged food that can be picked up by students later who may want a snack. This reduces the food wasted at mealtimes and helps students who may face food insecurity challenges.

With these options, there may be another layer of state and federal requirements that could restrict what you're allowed to do. For example, a school may not be able to reduce their portion sizes because federal School Nutrition programs require them to provide a certain amount of vegetables or protein each meal ... BUT a hospital or university may have the option to reduce their portions.



Example of a camp that received grant funding to develop a food systems education program.

Built raised garden beds.

Grew food for camp meals.

Taught campers how to harvest food.

Harvested food was used in the dining hall kitchen and for camper outdoor cooking program (i.e. - foil meals)

Composted excess food.

Finished compost put back in the garden.

CLOSED LOOP SYSTEM.



Good morning! I am going to spend the next few minutes talking to you about Food Waste Composting in NH. This is going to be a 30,000 foot view of who is currently composting food waste and the regulatory options for those who want to compost food waste.

We will take a deep dive into these topics as we go through the workshop series.

Regulatory Options for Composting <u>Food Waste</u>	
Permit	Who Qualifies?
Notification to NHDES (supplement to an existing permit).	Any municipal transfer station that holds a PbN for a Limited Public SW Transfer Station/Recycling Center
Small Food Waste Composting Permit by Notification	Small-scale facilities that receive ≤ 10 tons per day and pose little or no threat to human health or the environment.
Standard Permit for a Process & Treatment Facility	Facilities that accept 10 tons of food waste per day or more.

There are currently a few regulatory options for facilities that want to compost food waste. I do want to stress here that I am talking about FOOD Waste Composting. There are other feedstocks with other options but I am just narrowing the scope to food waste composting.

This is a 30,000 foot view of what is available. We will go into more detail in Part 2 and Part 3 of this workshop series. This just gives the options ... sort of like a teaser 😊

There are 3 options:

The first is a notification to NHDES as a supplement to an existing permit. This is **ONLY** for a municipal transfer station that holds a Permit by Notification for a Limited Public Solid Waste Transfer Station/Recycling Center. There are requirements for the notification that are much like submitting a permit ~ this is not just submitting a “note to the teacher” that you will be now composting. **There are requirements, including testing and data reporting/collection for these facilities to take advantage of this notification process.**

Next is a Small Food Waste Composting Permit by Notification (Env-Sw 311). This is for small-scale facilities that receive up to **10** tons a day of food waste for composting and pose little or no threat to human health or the environment.

Last is a Standard Permit for a Process & Treatment Facility (Env-Sw 314). This is for

facilities that accept more than **10** tons a day of food waste.

Small Food Waste Composting PbN Facilities

Facility	Service Area
Bedford Small Food Waste Composting Facility	Town of Bedford, NH
GBN Farms in Chester	Unlimited Service Area
Granite State Compost in Farmington	Unlimited Service Area
Keene Small Food Waste	Unlimited Service Area
Lebanon Food Waste	Unlimited Service Area
Milford, Town of	Unlimited Service Area
Peterborough Small Food Waste	Unlimited Service Area
Plaiستow Composting Facility (Pending)	Unlimited Service Area
Renewal Compost Facility in Derry	Unlimited Service Area
Star Island in Rye	Unlimited Service Area
Stonewall Farm in Keene (Pending)	Unlimited Service Area
Winter Street Farm in Claremont	Unlimited Service Area

As of today, here is the list of facilities that hold a permit specific to accepting food waste for composting on-site. This is only 12 facilities but what is interesting is that the Service Area for ALL but one of them is unlimited, which means this is an opportunity for MANY residents, transfer stations and institutions to manage their food waste through diversion methods rather than disposal.

What About Other Facilities?

- There are a handful of municipal transfer stations that have notified that they will be conducting food waste composting on-site.
- The service area for these facilities is the one listed in their PbN.
- This notification process was put into play prior to the Env-Sw 600 rule updates in 2022.
- It is up to each facility to choose which regulatory option they go with.

Who to contact when...

- Making changes to your existing permit?
- Questioning whether you need to make changes?
- Wanting to apply for a NEW permit?
- Figuring out who is taking food waste near you?
- ...Looking for information on other things not listed revolving around food waste and solid waste permitting?

Contact the SWMB either through swmbpermitting@des.nh.gov or (603) 271-2925.

Education and Outreach Campaigns

Andrea Folsom, NRRRA

Getting the Word Out

Ongoing, consistent messaging through signage, videos, social media, presentations, or mailings – **and often a mix of all** – is the best way to support a successful food waste diversion program.

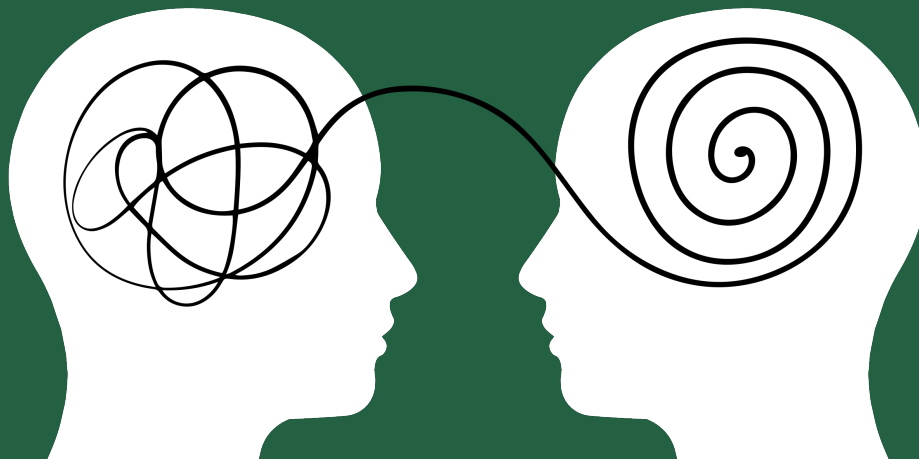


What to Say?

- **Empathetic messaging** – “Confused about composting?”
- **Logical messaging** – “Food waste makes up 24% of MSW going into the landfill. Diversion reduces this percentage.”
- **Emotional messaging** – “As landfills overflow, have you ever wondered what tomorrow may bring?”

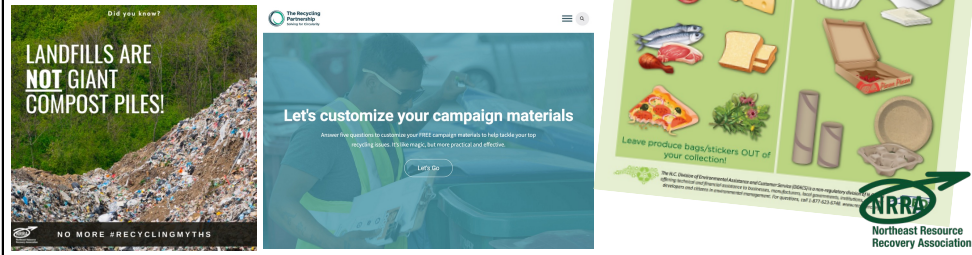


Empathetic messaging can be a powerful tool for behavior change.



Large Campaigns

- NRRRA's Recycle Right Campaign
- The Recycling Partnership
- North Carolina Recycle Right
- Recycle Right New York



- Recycle Right Campaign (NRRRA)

<https://www.nrrarecycles.org/recycle-right-campaign>

- The Recycling Partnership

<https://recyclingpartnership.org/resources/>

- North Carolina Recycle Right

<http://www.recyclemorenc.org/RecycleRightNC.html>

- Recycle Right NY <https://recyclerightny.org/>

Local Campaigns

- Gilford Recycle Right
- Lancaster Pay-As-You-Throw
- Swanzey's new Recycling Center

The collage features several key documents and images:

- Gilford Solid Waste Center Separating Recyclables:** A detailed color-coded chart listing acceptable and non-acceptable items for recycling.
- Gilford Solid Waste Center Recycling List:** A list of accepted materials including cardboard, plastics, metals, and glass.
- Swanzey Recycling Center:** A document titled "Recycling Center Construction Project" providing an update on the facility's progress.
- Swanzey Recycling Center Renovations:** A photo gallery showing the "Before" and "After" stages of the center's renovation.



o Gilford Recycle Right - <https://www.gilfordnh.org/recyclerright>

- Comprehensive website – everything is there!
- Active Facebook Page
- Library presentation (with video on their website)
- Printable handouts
- Handouts at the transfer station
- Partnership with NRRA to help spread the word

o Lancaster Pay as you Throw

- Took a year of education prior to implementation
- Getting town officials, citizen activists, and other stakeholders on board
- Educating on what it is and how it works
- Created a separate budget so people could understand the budgetary implications
- Worked with the public to answer questions, help them understand, and troubleshoot unexpected issues

o Swanzey – new Recycling Center

- Frequent updates in the town newsletter and town website, including progress photos