Reducing Food Waste from Food Service Kitchens in Erie County

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Project Partners

- The Erie County Department of Environment & Planning
- Northeast Waste Management Officials' Association (NEWMOA)
- Metz Culinary Management
- Leanpath

Erie County Department of Environment & Planning

Erie County DEP's mission is to make Erie County a better place through planning & environmental stewardship. Some of its environmental compliance programs include:

- Climate Action and Sustainability
- Stormwater Management
- Watershed Management
- Brownfields Redevelopment
- Solid Waste & Recycling
- Composting
- GIS Mapping

What is NEWMOA?

- The Northeast Waste Management Officials' Association
- Formed by the New England Governors back in the 1980s
- NJ & NY joined
- Formally recognized as an interstate entity by US EPA in 1986
- Non-partisan, non-profit association of the Solid Waste, Hazardous Waste, Waste Site Cleanup, and Pollution Prevention & Toxics programs in CT, ME, MA, NH, NJ, NY, RI, VT
- www.newmoa.org

NEWMOA
NORTHEAST WASTE MANAGEMENT OFFICIALS' ASSOCIATION

What is Metz Culinary Management?

- Serves: healthcare, corporate, education & airports
- Provides: dining management, facility services, ready-to-eat meals & catering
- Manages a diverse portfolio in the northeast, mid-Atlantic, southeast, south & the mid-west

Metz
CULINARY MANAGEMENT
ENVIRONMENTAL SERVICES

What is Leanpath?

- Leanpath is on a mission to make food waste prevention & measurement everyday practice in the world's kitchens
- Began in 2004 & is now in thousands of kitchens worldwide
- Offices in US, UK & Singapore
- Sophisticated food waste tracking system
  - Integrated scale, camera, touchscreen computer & software
  - Generates summary & detailed reports
  - More info during demo

Leanpath

Project Background

- **New York State Food Donation & Food Scraps Recycling Law!**
  - Passed in 2019
  - Large generators (>2 tons/week) must:
    - Donate all edible food
    - Recycle all remaining food scraps IF within 25 miles of an organics recycler:
      - Compost
      - Anaerobic digestion
      - Animal feed
  - Exempted: hospitals, nursing homes, adult care facilities, K-12 schools & entities in NYC

Project Background (continued)

- Erie County awarded funding from NYS DEC in late 2019
  - Original focus on using Leanpath at large restaurants
  - Covid-19 pandemic begins before project can get started
  - Restaurants closed
  - Pivot to focus on health care facilities
- Metz joins as project partner in early 2021
  - Covid-19 pandemic/staffing challenges negatively impact the project throughout
  - Project with NEWMOA put on hold September 2021 to January 2023

Project Background (continued)

- Other project components:
  - Metz project case study write-up, *Reducing Food Waste at Health Care Facilities in Erie County* (December 2023 – 12 pages)
  - *Reducing Food Waste from Commercial Food Service in Erie County* guide (December 2023 – 8 pages)
  - Outreach presentation slide decks:
    - Case study focus: NYSAR3 on November 16th
    - Reducing food waste focus: Roswell Park Cancer Institute & Buffalo Niagara Medical Campus on December 5th
    - Project end webinar – December 19th

Why Focus on Food Waste?

- Numerous waste characterization studies show that **over 20% of trash is food waste**
- **Wasted Food = Wasted Resources:**
  - Money, land, water, energy, labor, manufacturing, packaging & transportation – all along the supply chain
- **Big Picture** - decreasing food waste & preventing it from entering the landfill helps:
  - Develop sustainable food systems
  - Conserve environmental resources
  - Reduce greenhouse gases

Food Waste in Food Service Kitchens

- Food waste from a kitchen is primarily caused by:
  - Overproduction & spoilage, followed by over-ordering, equipment malfunction, and quality problems
- **Food waste costs a facility $$$**
  - Food purchase costs – typical waste is 4-10%
  - Wasted labor – staff spend time preparing food that gets thrown away
  - Disposal fees – larger payments to haul away weight of food waste
  - Energy costs – increased electric, gas and water use to prepare food that is wasted

Waste prevention saves $$$ by reducing purchasing, labor and disposal costs

Benefits of Preventing Food Waste

Less (or no) food in the trash equals:

- less trash to manage (and pay for)
- **trash that is much less heavy and much less messy**
- Reduced greenhouse gas emissions from landfills

Saves the kitchen $$$

- Purchase costs (typically 53% of wasted $)
- Labor (38%) & energy costs to make food that is not sold/eaten
- Trash disposal fees (9%)

Fewer wasted resources:

- Land, water, energy, labor, manufacturing, packaging, transportation
- Less wasted resources = less greenhouse gas emissions

Food not used for its intended purpose can be managed in a variety of ways

Guide: Reducing Food Waste from Food Service Kitchens

Available at:
https://www.newmoa.org/wp-content/uploads/2023/12/Guide_FoodServiceKitchens_FINAL.pdf

Reducing Food Waste from Food Service Kitchens *in Erie County*

Numerous waste characterization studies show that over 20 percent of trash is food waste[1]. This wasted food – and wasted money - is just part of the story. All of the resources (land, water, energy, labor, manufacturing, packaging, transportation) and all of the associated greenhouse gas emissions that went into growing the food and getting it to the customer are also wasted.

Decreasing the volume of wasted food and preventing it from entering the landfill are important for the development of sustainable food systems, conservation of environmental resources, and reduction of greenhouse gas emissions. This guide is focused on reducing food waste at food service kitchens, such as restaurants, health care facilities, schools, catering providers, and other similar operations.

FOOD WASTE IN FOOD SERVICE KITCHENS

Food waste from a kitchen is typically caused by overproduction and spoilage, along with over-ordering, equipment malfunction, and quality problems. Food waste costs a facility real money because of:

- **Food purchases** – money spent on food that is not eaten
- **Wasted labor** – staff spend time preparing food that gets thrown away
- **Disposal fees** – larger payments to haul away food waste
- **Energy costs** – increased electric, gas and water use to prepare food that is wasted

Waste prevention saves $$$ - by reducing purchasing, labor, and disposal costs!

FOOD WASTE MANAGEMENT HIERARCHY

The US EPA published a Wasted Food Scale for management of excess food as shown in **Figure 1**. Prevent Wasted Food (also known as "Source Reduction") has the largest impact on food waste management because it provides critical social and environmental benefits:

- Prevents excess greenhouse gas emissions
- Avoids unnecessary resource use
- Protects nutrition loss

Food that was not used for its intended purpose can be managed in a variety of ways:

- Donation to feed people
- Recycling through:
  - Creation of animal feed
  - Anaerobic Digestion (AD)
  - Composting

Each of these strategies is discussed further in the following sections.

Figure 1: US EPA
US EPA Wasted Food Scale

1

Food Waste Management Focus

- **Produce less!** “Prevent Wasted Food” aka “Source Reduction”
- **Donate** to a local food program
- **Recycle**
  - Animal feed
  - Anaerobic digestion
  - Compost

Steps to Start

First: *Management buy-in is necessary to focus on observations, measurement & developing alternatives*

1 Educate Staff

Provide resources and ask staff for ongoing suggestions

2 Assess the Current Situation

Note waste produced, source and loss reason. Ideally quantity is tracked

3 Contemplate Findings

Potential options to reduce waste? Any possible donations? Where to institute food waste recycling bins?

Observing & Measuring Food Waste

- Can be as simple as paper & pencil
- Better if waste is measured
  - Can still be as simple as using a scale
  - Enter data into a spreadsheet for easy analysis
- Use a sophisticated tool like Leanpath:
  - Integrated scale, camera, touchscreen computer & software
  - Generates summary & detailed reports
  - More info coming later in the presentation

Prevent Wasted Food

Reducing waste at the source is the preferred option and saves the most money and resources!

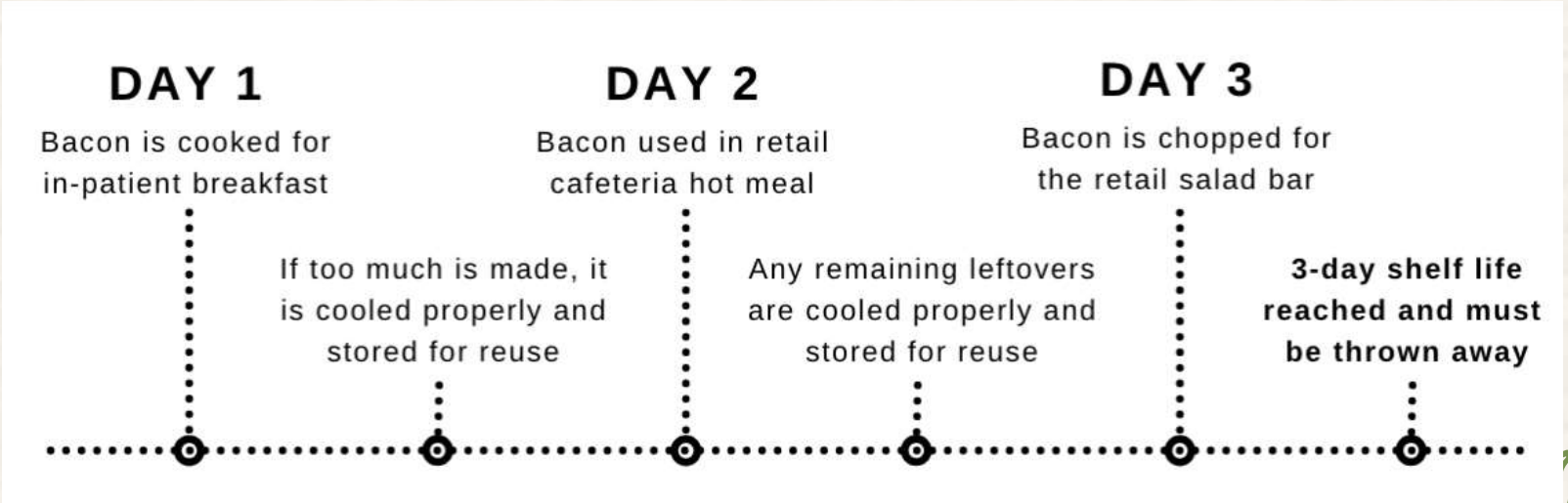
Evaluate menu options & portions

Observe customer purchases & waste

- Can any food options be removed?
- Can portion size be reduced?
- Can you offer portions in different sizes?
- Could automatically included items (like bread) be offered as optional?

Repurpose Leftovers

- Ideally, food that is overproduced can be repurposed
- Health code requires any prepared food be cooled and properly stored within two hours and reused within 3-days



Additional ideas : make a soup and/or breakfast pizza

Inventory Management

- Are items thrown away because they are past the “best by” date?
- Could less food be purchased at a time?
- Are items forgotten in the back of storage?
- Can improvements be made to the management of overproduced food?
- If leftovers are often wasted, can there be greater awareness for what is available for reuse?
- Can incentives be instituted for staff to successfully reuse leftovers?

Consider Cooking to Order

Instead of preparing a full tray of food, could cooking to order be feasible?

Small Batch Cooking

- To minimize leftovers, institute small batch cooking
- Hospital example:
  - Preparing 500 in-patient meal trays takes several hours
  - Instead of cooking 500 meals at once, cook two trays at a time to better understand the amount of food required
- Food that is not used for its original purpose due to overproduction is cooled & stored so it can be repurposed

If the kitchen is short-staffed, it can be difficult to cook in small batches & overproduction can result

Date Labels ≠ Safety

- Misunderstanding leads to a lot of waste
- There are **no government requirements** for date labels in New York except for baby formula (a federal requirement)
- Dates are determined by the manufacturer – their guarantee of top quality
- Most foods are safe to eat & top quality well after labeled date
    - Yogurt & cheese - 7+ days
    - Eggs - 3+ weeks
    - Canned/boxed - 3+ months
    - Lots of other types of food
- Use the “look & smell” test

Waste Prevention: Donation

Donation

- Reduce food waste by donating edible food
- **Businesses can receive a tax deduction**, which increases economical viability
  - See the New York fact sheet developed by Harvard Law School at: https://chlpi.org/wp-content/uploads/2013/12/NY-Tax-Incentive-Legal-Fact-Sheet.pdf
- *Remember that donated food is for people to eat and needs to be handled accordingly*
  - Includes following temperature and storage guidelines which differ depending on the type of food
- All prepared foods need to be well labeled with at a minimum
  - Ingredients
  - Production date
  - Storage date

Donors are Protected from Liability!

- Laws can protect businesses and nonprofits that provide and receive food donation
- The Bill Emerson Good Samaritan Food Donation Act protects individuals and businesses that donate food in good faith
- New York law offers further protections – see the fact sheet developed by Harvard Law School: https://chlpi.org/wp-content/uploads/2013/12/NY-Liability-Legal-Fact-Sheet.pdf

Donation Guidelines Developed by Feeding America

Type of Product	Handling & Storage Requirements	Code Date Requirements
Prepared meals (e.g., large pans or individual portions of a cooked meal, soup, and baked goods)	Food can never have left the kitchen or have been served to the public. Thawed meals must be refrigerated at 41° F or below and frozen meals must be kept at 0° F or below	Frozen meals can be donated within 3 months of being frozen, thawed meals must be donated within 3 days, and baked goods within 3-5 days
Packaged meats	Meat must be frozen at 0° F or below	Must be frozen on or before the code date and donated within 3 months after the date it was frozen
Perishable goods (e.g., dairy and produce like fruits and vegetables)	Dairy and pre-cut produce need to be refrigerated at all times at 41° F or below. Whole produce should be stored in a cool, dry area	Produce must be in edible condition – no mold. Liquid dairy, (e.g. milk) must be donated before the date code. Other dairy products (e.g. cheese and yogurt) can be donated up to 7 days past the date code
Non-perishable items (e.g., canned/jarred goods, and packaged dry goods like crackers and cereal)	Stored in original containers off the floor	Must be donated within 30 days after the code date

Donation (continued)

- Kitchens often generate an inconsistent stream of unused, but edible prepared food
- To donate prepared food, **find a flexible food rescue partner** and establish good communication
    - *Some cannot accept frozen items or even refrigerated items*

Tip: Look for a local organization that serves hot meals and ask if they accept prepared foods. Check Friends of the Night People in Buffalo: https://friendsofnightpeople.com

Waste Prevention: Recycling

After all feasible donation, all remaining food waste should be recycled

Recycling Benefits

- Removes food from trash so there is less trash to manage & it is cleaner & less heavy
- Removes food waste from landfills which reduces:
  - Methane gas generation (potent greenhouse gas)
  - Moisture (which reduces quantity of leachate)
  - Attraction of unwanted wildlife
  - Quantity of gases requiring management

Steps to Successful Food Scrap Recycling

1. Find a recycling facility:
   - https://www.rit.edu/affiliate/nysp2i/OrganicResourceLocator/
2. Determine how to transport food to the facility
   - Self-transport or hire a hauler?
   - https://www.dec.ny.gov/docs/materials_minerals_pdf/foodscrapstransporters.pdf
3. Separate food scraps from other waste
4. Practice proper storage of food scraps to avoid odors and pests
5. Educate staff about food waste and why recycling is important

Recycling: Animal Feed

- Federal laws regulate the safety of food scraps and the types of animals that may be fed food scraps
- New York has additional laws covering the feeding of food scraps to many animals – see the fact sheet: https://chlpi.org/wp-content/uploads/2013/12/NY-Animal-Feed-Fact-Sheet.pdf
- Generally, **any food scraps that contain unprocessed animal products (such as waste meat) must be heat-treated to commercial sterility before being fed to animals**

Tip: many facilities put unprocessed waste animal products in the trash so their other food scraps can be sent to feed non-ruminates (pigs or chickens) without any complication

Recycling: Anaerobic Digestion

- Anaerobic digestion (AD) uses microorganisms to produce biogas and digestate
- **More than half of biogas Is methane that can be used as a renewable energy source**
- The digestate can be land applied, composted and used as a soil amendment or processed into fertilizer pellets

Tip: Many facilities work with Natural Upcycling based in Linwood, NY to collect their food waste and bring it to an AD facility

Recycling: Composting

- Composting preserves nutrients that are beneficial for soil health and reduces the need for chemical fertilizers
- Commercial comporting facilities take in food waste, combine it with other organize material, maintain adequate moisture and high temperature, and allow it to age in the presence of air

Composting on-site is an option if there is the outdoor space and interest from management and staff

Alden Correction Facility Compost Program Success

- Since 2017, 109 tons of food waste diverted from landfill
  - 96 metric tons of CO2 equivalent avoided
- Reduced size of trash dumpsters & frequency of pick-up
- Save $20,400 annually
- Kitchen staff appreciate the program because they don't have to take trash to the dumpster as often & report that the collection bins are convenient & easy to use

Composting Post-Consumer Food Waste

Kitchen generated food waste is relatively easy to collect and generally has low levels of contamination

- Collecting food waste from customers is more challenging...
  - Public-facing **collection bins can be contaminated** with non-organic materials
- **Emphasize education of customers!**
  - Post good signage and monitor customer compliance to manage contamination
- Discuss manageable levels of contamination with the transporter and composting facility

Be Skeptical of Compostable & Biodegradable Containers

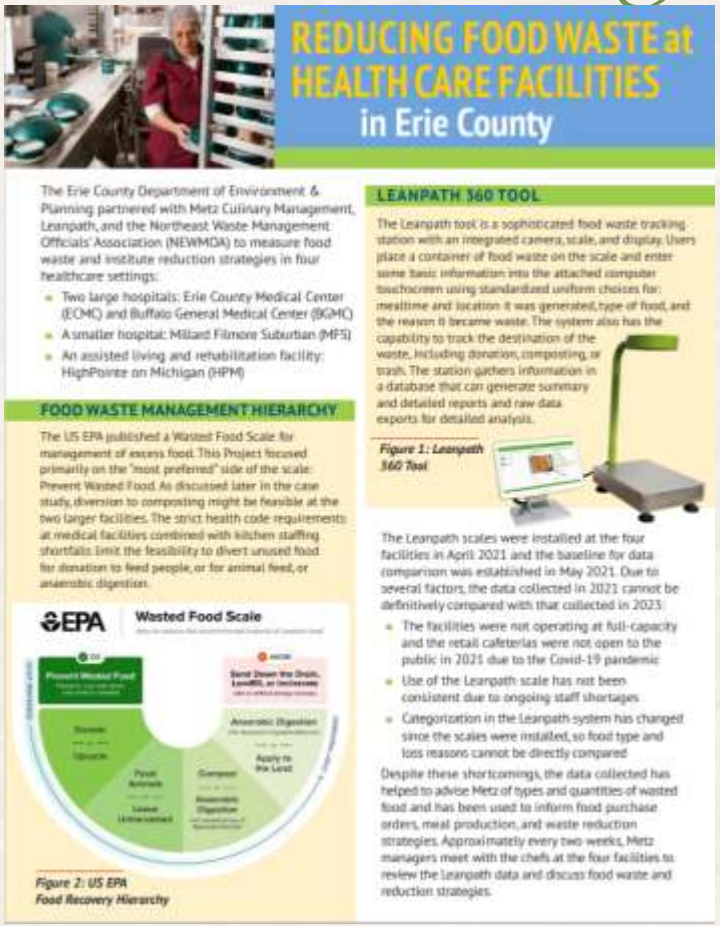
- To be more environmentally-friendly, facilities often use compostable and biodegradable disposable containers
- Food packaging is often coated in chemicals such as PFAS to achieve water-, oil-„ and grease-resistance
- A study found **57%** of the disposable food waste products tested contained PFAS
    - When processed, these chemicals remain in the compost product which is then used in gardens and on agricultural land
- To receive BPI certification, a compostable product must be tested and be negative for PFAS – **so make sure to only use BPI-certified compostable products**

Not All Plastic is Recyclable!

- Most food service facilities provide some or all of their food in single use containers
- **Pay attention to the type of plastic being used!**
  - #6 plastic is NOT recyclable – including the clear clamshells
- Facilities **should only utilize #1 and #2 plastics** because they have robust recycling markets
- Some take-away containers are made from #5 and are recyclable in some markets

Case Study: Food Waste at Health Care Facilities in Erie County

Available at:
https://www.newmoa.org/wp-content/uploads/2023/12/EC_FoodWaste_CaseStudy.pdf



REDUCING FOOD WASTE at HEALTH CARE FACILITIES in Erie County

The Erie County Department of Environment & Planning partnered with Metz Culinary Management, Leanpath, and the Northeast Waste Management Officials' Association (NEWMOA) to measure food waste and institute reduction strategies in four healthcare settings:

- Two large hospitals: Erie County Medical Center (ECMC) and Buffalo General Medical Center (BGMC)
- A smaller hospital: Millard Fillmore Suburban (MFS)
- An assisted living and rehabilitation facility: HighPointe on Michigan (HPM)

FOOD WASTE MANAGEMENT HIERARCHY

The US EPA published a Wasted Food Scale for management of excess food. This Project focused primarily on the "most preferred" side of the scale: Prevent Wasted Food. As discussed later in the case study, diversion to composting might be feasible at the two larger facilities. The strict health code requirements at medical facilities combined with kitchen staffing shortfalls limit the feasibility to divert unused food for donation to feed people, or for animal feed, or anaerobic digestion.

EPA Wasted Food Scale

Figure 2: US EPA Food Recovery Hierarchy

LEANPATH 360 TOOL

The Leanpath tool is a sophisticated food waste tracking station with an integrated camera, scale, and display. Users place a container of food waste on the scale and enter some basic information into the attached computer touchscreen using standardized uniform choices for: mealtime and location it was generated, type of food, and the reason it became waste. The system also has the capability to track the destination of the waste, including donation, composting, or trash. The station gathers information in a database that can generate summary and detailed reports and raw data exports for detailed analysis.

Figure 1: Leanpath 360 Tool

The Leanpath scales were installed at the four facilities in April 2021 and the baseline for data comparison was established in May 2021. Due to several factors, the data collected in 2021 cannot be definitively compared with that collected in 2023:

- The facilities were not operating at full-capacity and the retail cafeterias were not open to the public in 2021 due to the Covid-19 pandemic
- Use of the Leanpath scale has not been consistent due to ongoing staff shortages
- Categorization in the Leanpath system has changed since the scales were installed, so food type and loss reasons cannot be directly compared

Despite these shortcomings, the data collected has helped to advise Metz of types and quantities of wasted food and has been used to inform food purchase orders, meal production, and waste reduction strategies. Approximately every two weeks, Metz managers meet with the chefs at the four facilities to review the Leanpath data and discuss food waste and reduction strategies.

The Project's Four Healthcare Settings

01

Small Hospital

Millard Filmore Suburban (MFS)

01

Assisted Living and Rehab Facility

HighPointe on Michigan (HPM)

02

Large Hospitals

- Erie County Medical Center (ECMC)
- Buffalo General Medical Center (BGMC)

(ECMC & BGMC each have 2 Leanpath systems)

Timeline

2021

Spring:
Leanpath scales installed & baseline data established
Fall: project put on hold

1

2022

Project on hold:
Healthcare facilities retail cafeterias reopen to the public

2

2023

January: Project restarts
July:
Categorizations edited in Leanpath system

3

2023

Data analyzed & recommendations provided
Case study written

4

Leanpath 360 Tool:

Required data entry for each transaction

Mealtime

Location Generated

Type of Food

Loss Reason

Leanpath Proven Method

TRACK
FOOD WASTE
IN SECONDS

AUTOMATICALLY
DISCOVER
PREVENTION
OPPORTUNITIES

DRIVE RESULTS
THROUGH BEHAVIOR CHANGE TOOLS
THAT ENGAGE AND FOCUS TEAMS

We offer the broadest array of food waste Trackers to ensure every kitchen has access to the most effective food waste prevention technology

Leanpath Go
(Lightweight, track by item)

Lite
(Lightweight, track by weight)

Leanpath Scout & Scout Station
(Lightweight, integrated scale)

Tracker 360
(Rugged, integrated bench scale, waste photography)

Tracker 360FS
(Rugged, integrated floor scale)

LOW VOLUME KITCHENS ⟷ **HIGH VOLUME KITCHENS**

TRACK

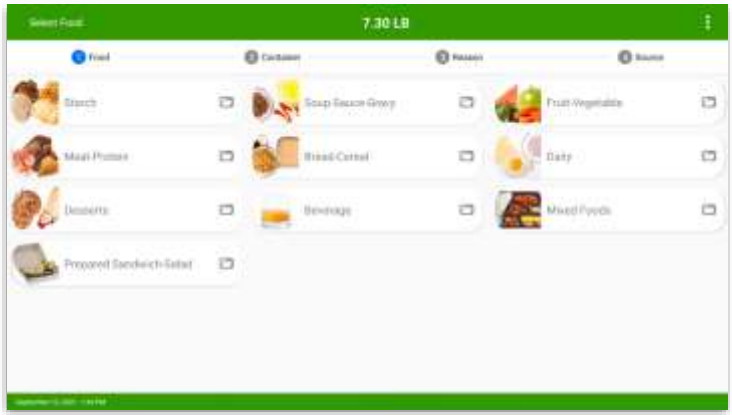
1: Place food on scale

The operator places food on the weighing scale before discarding. The scale reads the weight of the food and transmits the weight reading to the touchscreen, where it is displayed for the operator.

TRACK

2: Characterize food using touchscreen

Using the touchscreen head unit, the operator characterizes the food waste, including the type of food and the reason it is being discarded. The selection options are customizable to best fit the operation



What do you want to track?

Food Waste

Last Transaction

< 1 minute ago

Item Weight

VIEW TRANSACTION LOG

Financial Impact

This item was worth:

$0.00
For this transaction

$0.00
If wasted daily for a year

Environmental Impact

Resources consumed if wasted daily for a year:

0.0
Gallons of gas

0
Bath tubs of water

Select Food

13.20 LB

1 Food — 2 Reason — 3 Container — 4 Source — 5 Disposition


Starch


Soup-Sauce-Gravy


Fruit-Vegetable


Meat-Protein


Bread-Cereal


Dairy


Desserts


Beverage


Mixed Foods


Prepared Sandwich-Salad

Select Food

13.20 LB

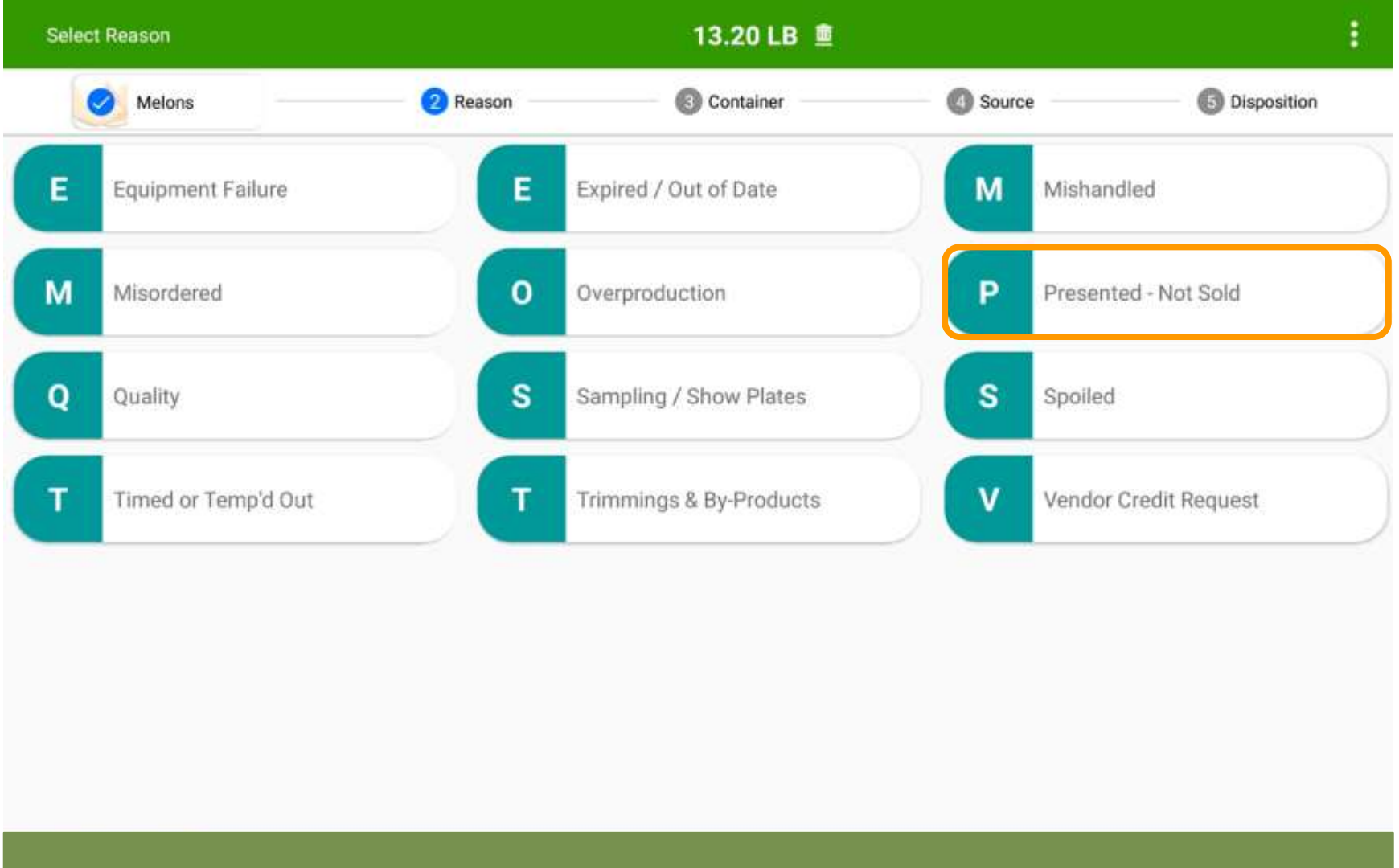
1 Food — 2 Reason — 3 Container — 4 Source — 5 Disposition

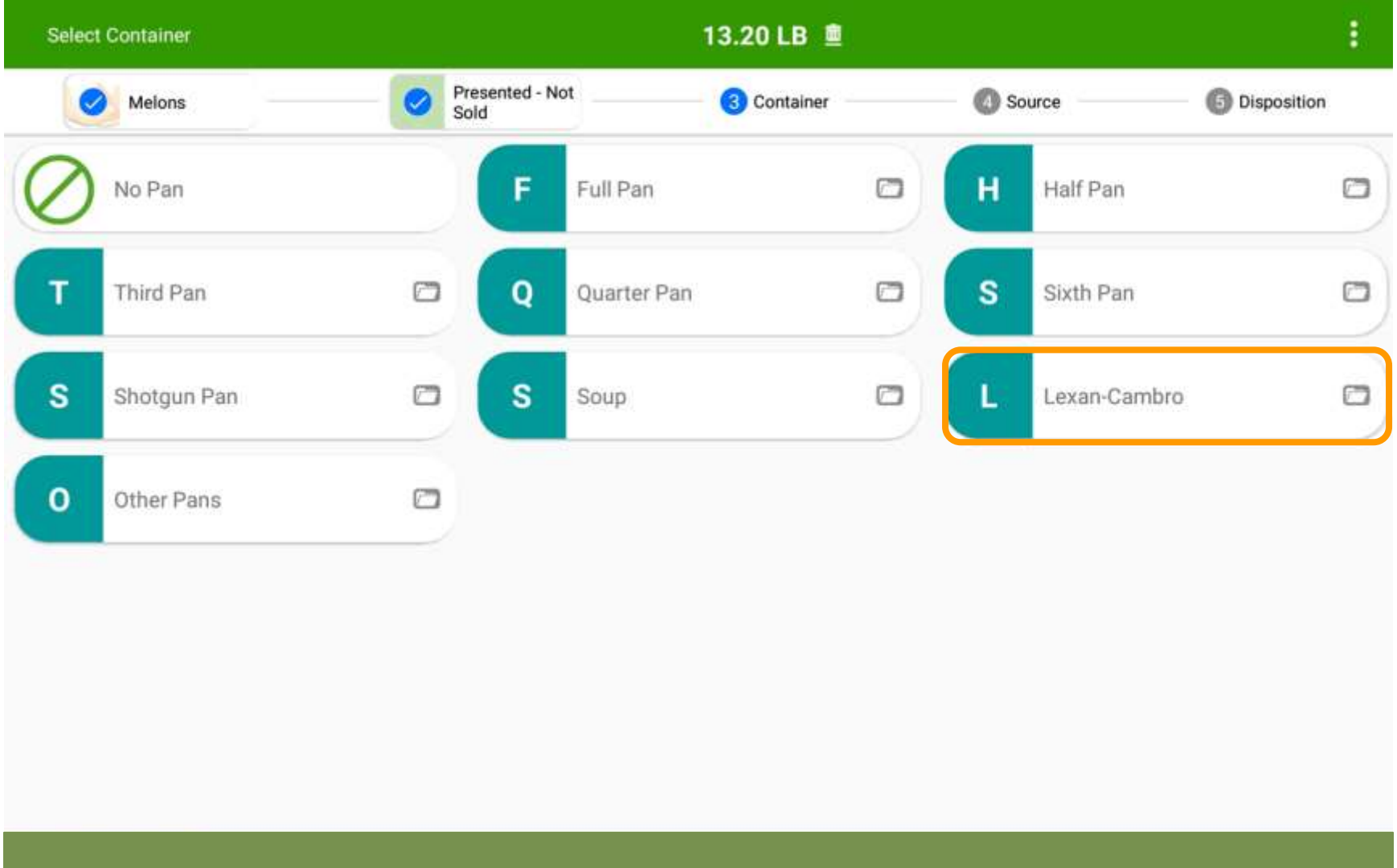
Back

Fruit

Melons

Vegetables


Select Reason
13.20 LB
Melons
2 Reason
3 Container
4 Source
5 Disposition
E Equipment Failure
E Expired / Out of Date
M Mishandled
M Misordered
O Overproduction
P Presented - Not Sold
Q Quality
S Sampling / Show Plates
S Spoiled
T Timed or Temp'd Out
T Trimmings & By-Products
V Vendor Credit Request


Select Container
13.20 LB
Melons
Presented - Not Sold
3 Container
4 Source
5 Disposition
No Pan
F Full Pan
H Half Pan
T Third Pan
Q Quarter Pan
S Sixth Pan
S Shotgun Pan
S Soup
L Lexan-Cambro
O Other Pans

Select Container

13.20 LB

Melons

Presented - Not Sold

3 Container

4 Source

5 Disposition

Back

C Cambro 2 Qt

C Cambro 4 Qt

C Cambro 6 Qt

C Cambro 8 Qt

C Cambro 12 Qt

C Cambro 18 Qt

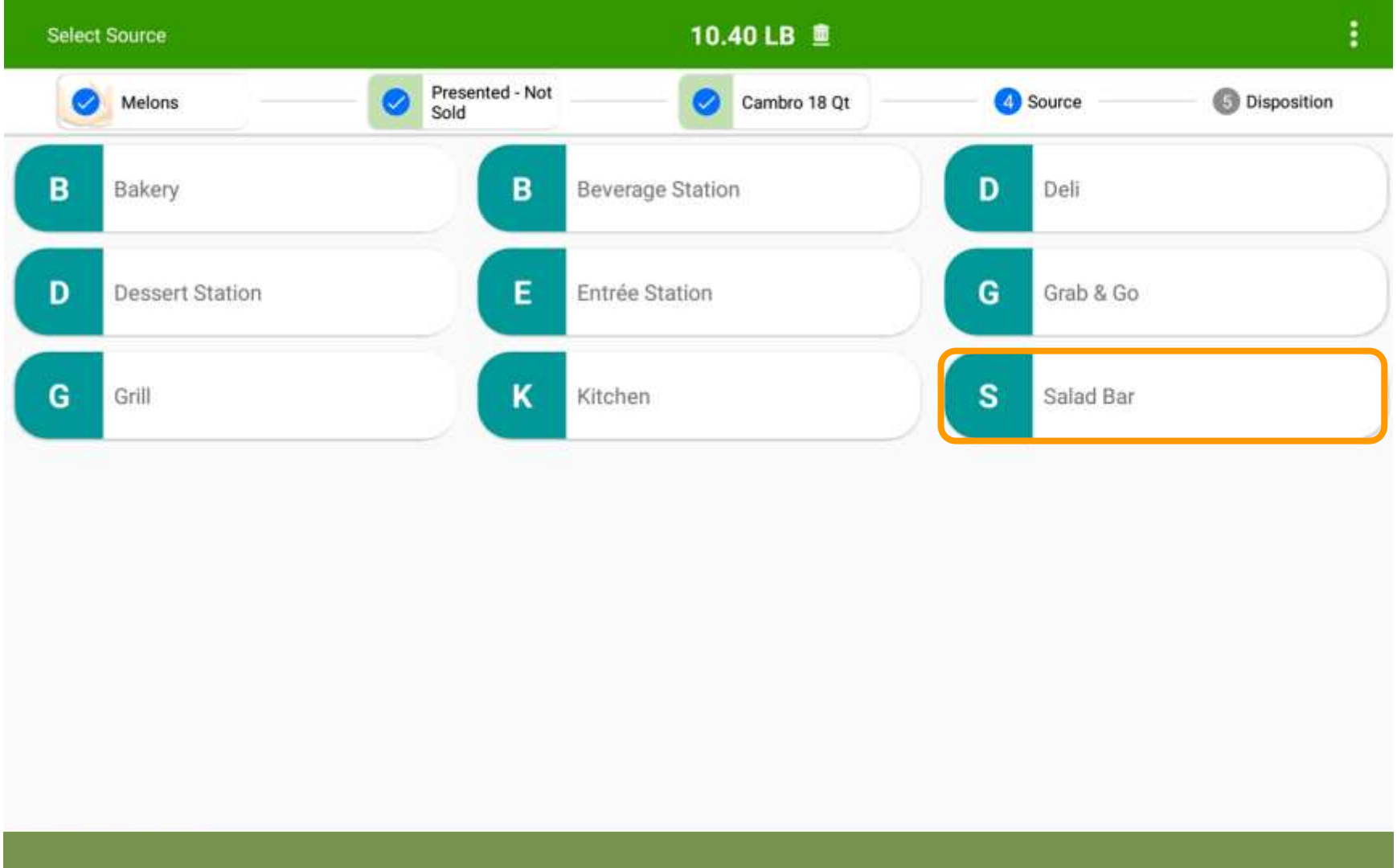
Cambro 22 Qt

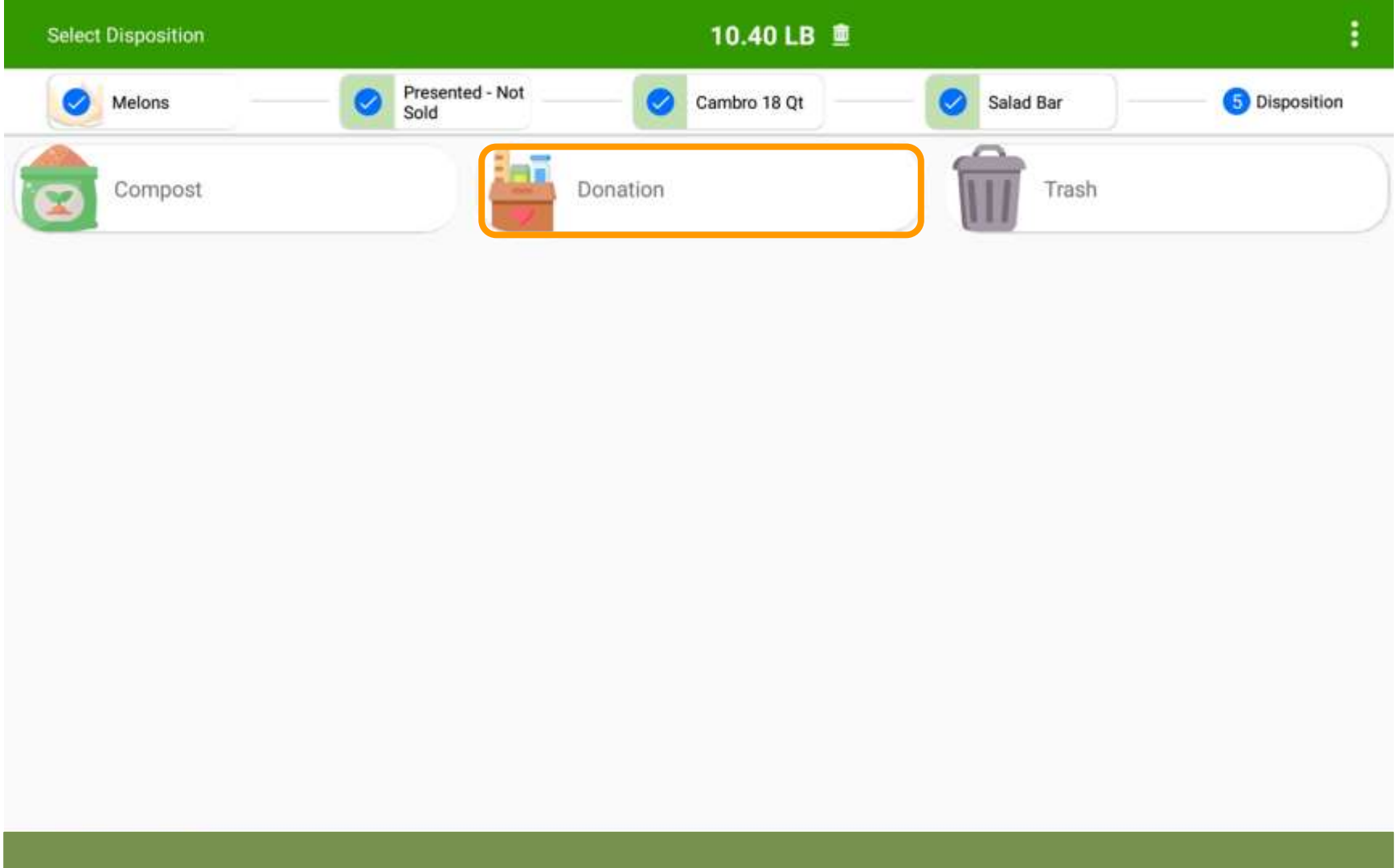
B Bus Tub

L Lexan Small

L Lexan Med

L Lexan Lrg


Select Source
10.40 LB
Melons
Presented - Not Sold
Cambro 18 Qt
4 Source
5 Disposition
B Bakery
B Beverage Station
D Deli
D Dessert Station
E Entrée Station
G Grab & Go
G Grill
K Kitchen
S Salad Bar


Select Disposition
10.40 LB
Melons
Presented - Not Sold
Cambro 18 Qt
Salad Bar
5 Disposition
Compost
Donation
Trash

10.40 LB

Melons — Presented - Not Sold — Cambro 18 Qt — Salad Bar — Compost

Transaction complete!

Thank you for tracking Melons.

FINISHED [5]

MULTIPLY TRANSACTION

Quantity: 1.0

EDIT EVENT ORDER NUMBER

Event Order Number: None

Financial Impact

This item was worth:

$17.99
For this transaction

$6,567.08
If wasted daily for a year

Environmental Impact

Resources consumed if wasted daily for a year:

115.6
Gallons of gas

42,296
Bath tubs of water

What do you want to track?

Food Waste

Last Transaction

21 hours ago

Item
Melons

Weight
10.40 LB

VIEW TRANSACTION LOG

Financial Impact

This item was worth:

$17.99
For this transaction

$6,566.35
If wasted daily for a year

Environmental Impact

Resources consumed if wasted daily for a year:

115.6
Gallons of gas

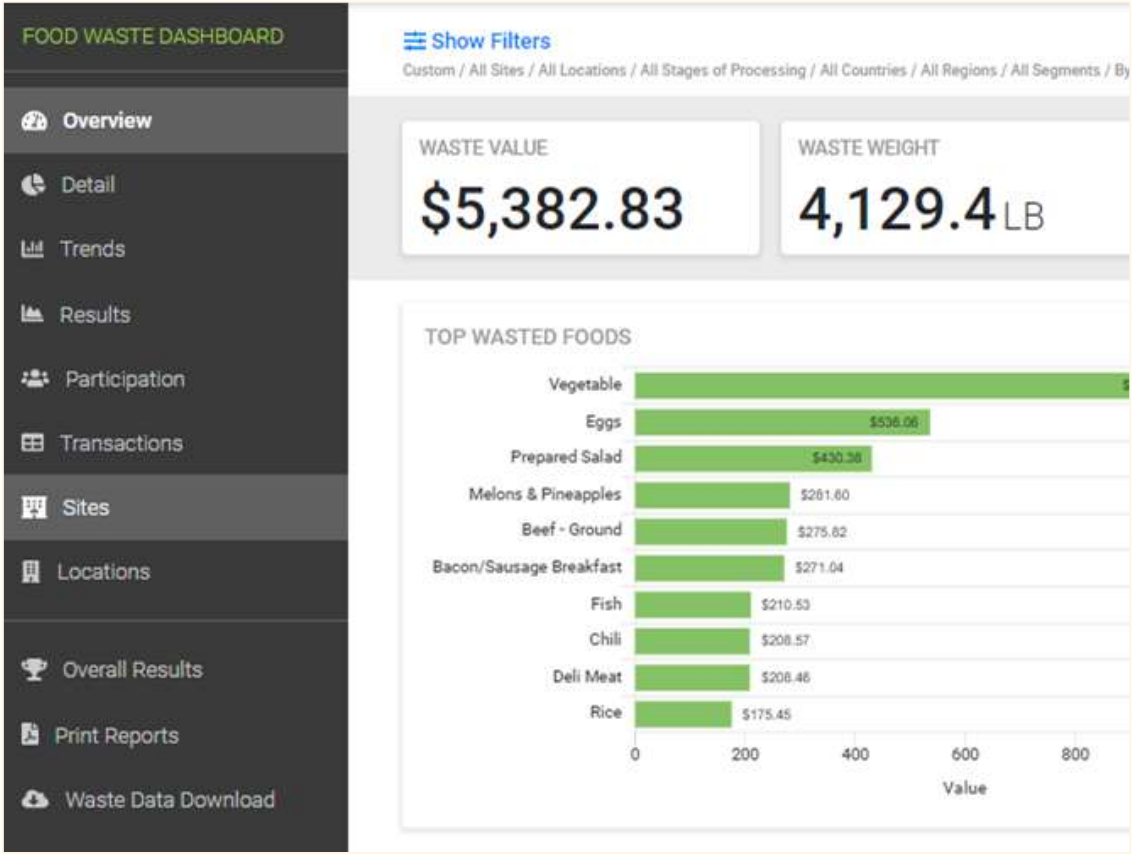
42,296
Bath tubs of water

DISCOVER

Food waste photography allows deeper analysis and insight to understand why food was wasted and training opportunities that can prevent it in the future

Data is automatically analyzed, recognizing patterns and delivering actionable insights

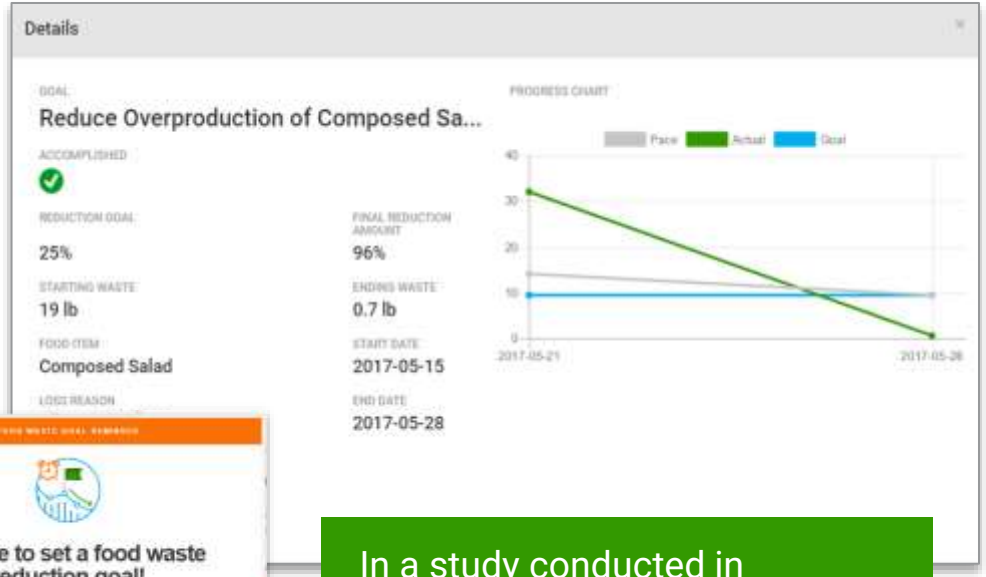
- Top wasted items and reasons
- Detailed transaction data
- Trends across your data set
- Staff participation insights
- Multi-site views for large operations

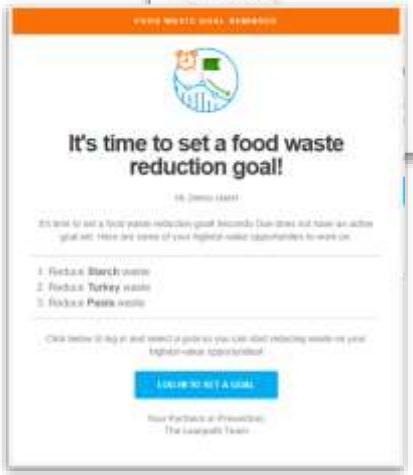


DRIVE

Leanpath Online analyzes your waste data and automatically suggests SMART **Goals** that will have the largest impact

Progress is tracked and reported.





In a study conducted in partnership with a Leanpath enterprise client, sites that regularly used **Goals** saved an additional 3% of COGS as a percent of revenue vs. sites that did not use the tool

Typical Leanpath Saving & Return

- Cut food waste by 50% or more
- Reduce food purchase costs by 2-6%
- Return on investment: 2-7 X
- Also:
  - More efficient & engaged kitchen culture
  - cut carbon footprint

Main Kitchen

Each facility has a main kitchen that:

1. Prepares and assembles all in-patient meals
2. Cooks items for retail cafeteria and catering
3. Packages Grab & Go items

Type & quantity of food removed from storage is noted on a Metz form

At least a 1/3 pan of food is cooked to justify the time and effort to prepare the food

Kitchen Staffing

- Kitchen staff are categorized by hourly wages and are members of a union
  - Food service workers who staff the patient tray line
  - Kitchen culinary staff who assist the chefs in preparing food
  - Hospitality Associates (HAs) who interact with patients
  - Staff working in the retail cafeteria
- Chefs & operations managers are salaried and not union members
  - Due to union contracts, only non-union staff use the Leanpath system

Generally, the kitchens are chronically short-staffed!

Generation of Food Waste

At the four facilities, food waste is generated from:

- In-patient meal preparation
- Un-eaten in-patient meal items returned with the tray
  - Note: this food waste is not measured
- Preparation of food to sell in the retail cafeteria & for catering events
  - Note: waste from catering is not returned (& not measured)
- Unsold cafeteria food that cannot be saved for reuse

Generation of Food Waste

Health Code Requirements	Overproduction	Spoilage
Any prepared food must be cooled and properly stored within 2 hours & reused within 3 days **If either of these time limits are not met, the food must be thrown out**	Prepared food that cannot be used for its original purpose	Food items are not used in food preparation or purchased in the cafeteria before they start to go bad Or they are past the labeled date

Path to Disposal

1 Leanpath Scale

Waste categorized & weighed

2 Garbage disposal

Some unusable leftover cooked food is disposed down an in-sink disposal

3 Trash Can

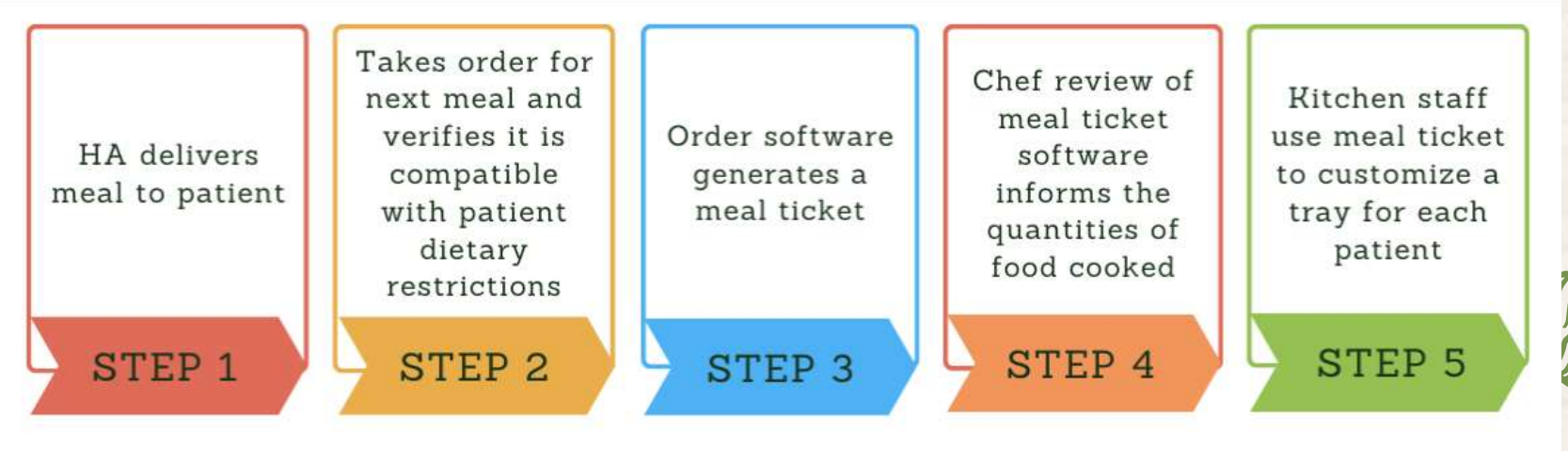
Majority of food waste is disposed into trash can

4 Landfill

Totes of trash are brought to the hospital's trash compactor before heading to landfill (**Metz does not pay for trash disposal**)

In-Patient Meal Service

- Acute patients served on reusable, heated plates with covers & use metal flatware
- Behavioral health patients require all disposable tableware to minimize possible harm to themselves & others
- **Waste from returned patient meals is considered contaminated & is not measured or tracked**
- Because it is considered a bio-hazard, there is no opportunity to divert this waste from disposal



Retail Cafeteria

Each facility has a retail cafeteria that:

1. Primarily serves staff
2. Offers multiple hot bar options
3. Provides “Grab & Go” individually packed items

The three hospitals offer a salad bar

Food waste generated by cafeteria customers is not measured & sent to landfill

Offer collection of mixed recycling

Catering Service

Metz provides catering services for on-site meetings & events:

- Typically, 1-5 events daily
- Metz prepares & is paid for what is ordered
- **Type & quantity of waste generated is unknown since it does not return to the kitchen**

Several Factors that Influence the Quality of Leanpath Data

- Leanpath data accuracy requires that all food waste is weighed prior to disposal
- Users need to enter the type/size of container, type of food, its mealtime & location source & loss reason – if any are not entered accurately, the effects ripple through the data
    - For example, the tare (empty) weight of each container is in the Leanpath system (entered during baseline) – if the user enters the wrong container size – or if the container they have is not in the system – the weight data is not accurate
- Scale is run by software that relies on a stable internet connection to record data entries

Leanpath Data Comparison

2021 & 2023 data cannot be definitively compared due to:

- Facilities not operating at full-capacity in 2021 due to Covid-19 Pandemic
- Inconsistent use of Leanpath scales due to ongoing staff-shortages
- Categorization of data has changed since scales were installed

Leanpath Loss Reasons

Wanted to categorize the data as related to "buying too much" or "making too much"
Buying too much = "Spoiled Before Use" (Rows 1 & 2)
Making too much = "Overproduction" (Rows 3 to 6)

Spoiled	Unprepared food that was never presented or sold to customers and is not saved for reuse
Expired – Never Prepared	Unprepared food that is discarded due to manufacturer date
Overproduction	Prepared food that was never presented or sold to customers and is not saved for reuse
Prepared – Past Reuse Date	Prepared food that is past its 3-day reuse timeframe
Presented – Not Sold	Food presented to customers, for example in the salad bar, but was not taken before service ended
Timed or Temp'd Out	Food presented to customers but exceeded a time or temperature limit

Additional loss reason: Equipment failure, Mishandled and Quality

Overall Results – Change in Food Waste Weight Recorded

June 2021 compared with mid-July/August 2023

	ECMC	BGMC	MFS	HPM
In-Patient Meal Preparation	- 45%	- 70%	- 86%	- 34%
Retail Cafeteria Operation*	+ 400%	- 10%	+ 39%	- 71%

*Hospital cafeterias operated at a fraction of capacity in 2021 due to Covid so an increase is expected. HPM cafeteria operations in 2023 similar to in 2021.

Reductions cannot be fully attributed to waste reduction – likely also related to inconsistent and/or inaccurate use of Leanpath

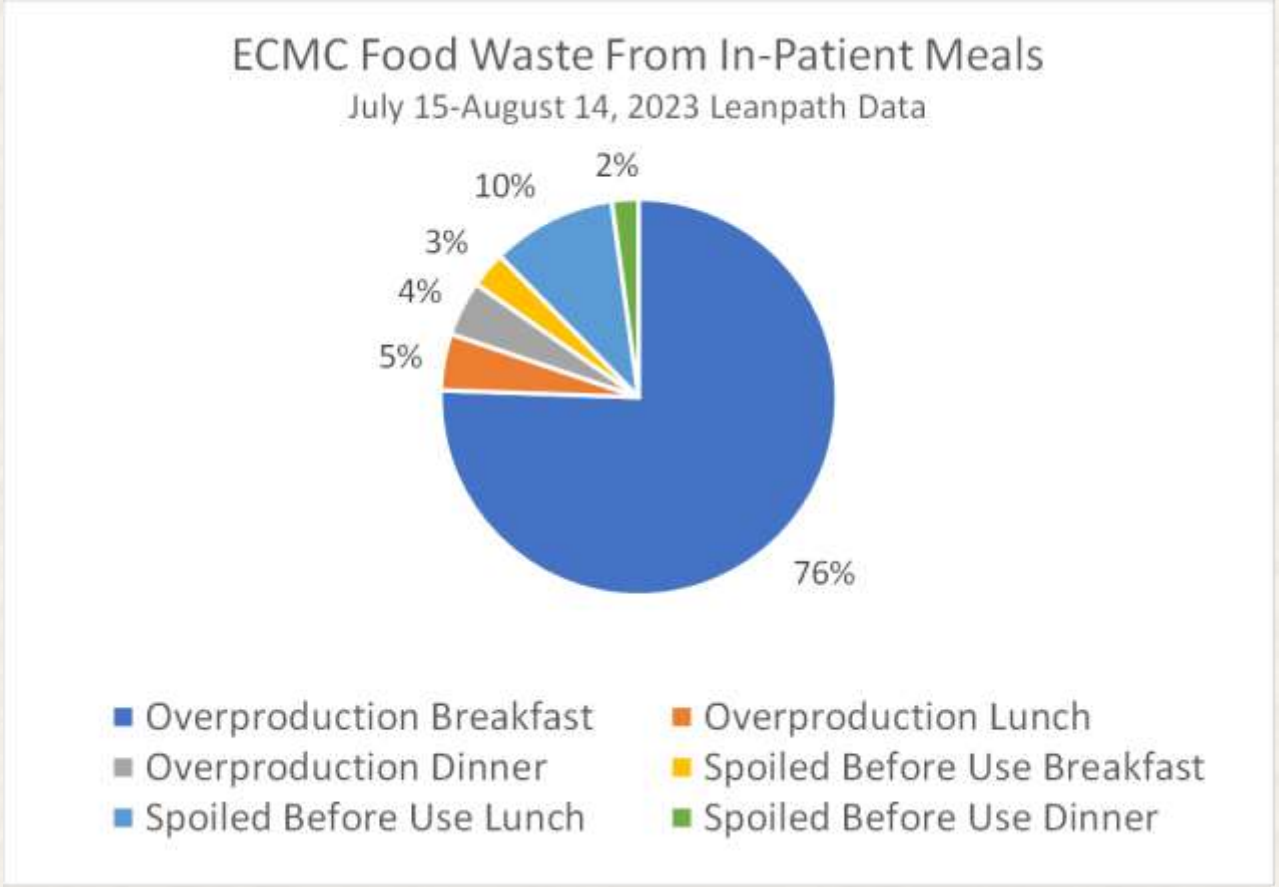
Percent of Days When Data Was Entered into Leanpath

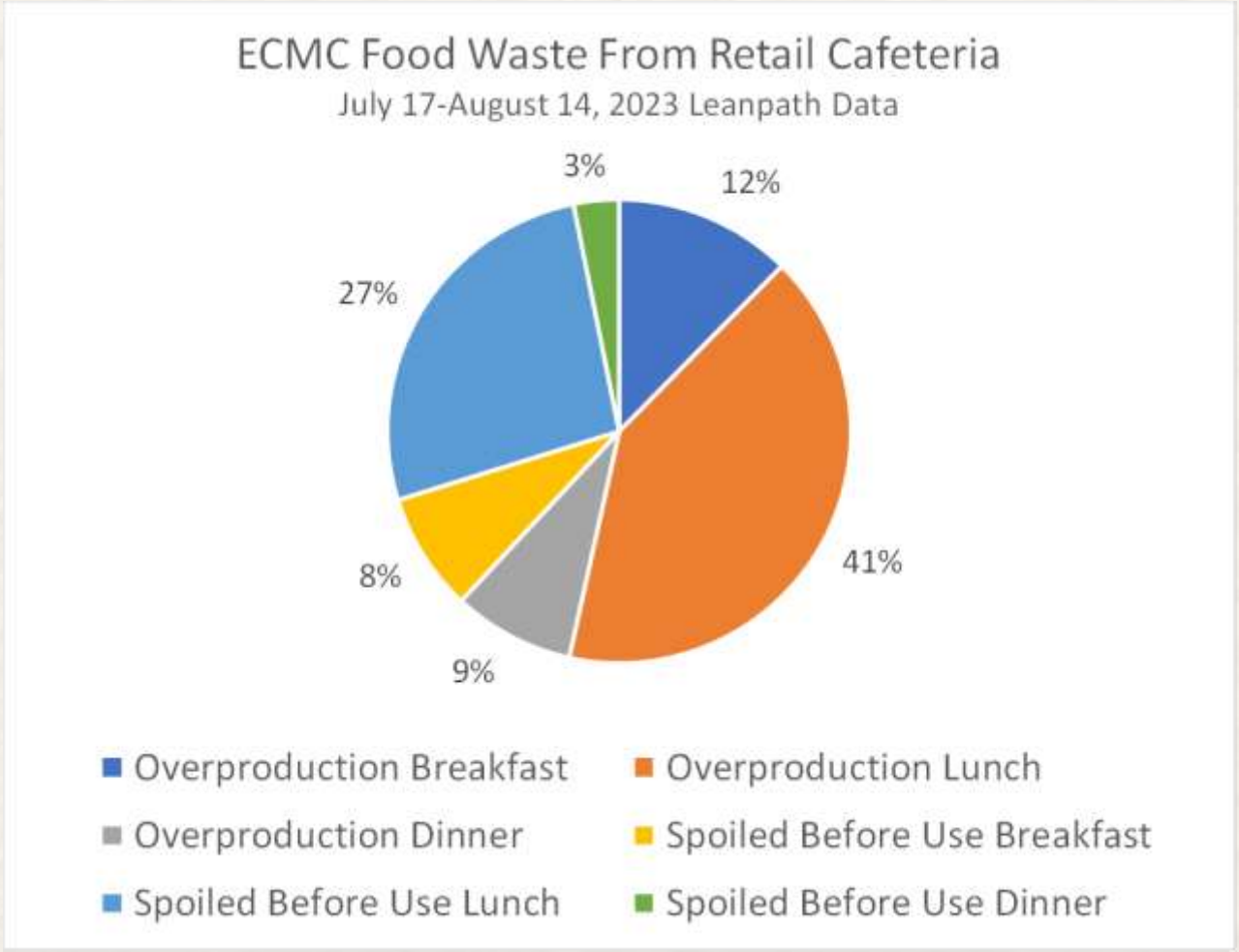
(July to September 2023)

Leanpath Scale Location	% Days Tracking
HPM Main Kitchen	97
MFS Production Area	76
BGMC Main Kitchen	77
BGMC Retail Cafeteria	67
ECMC Main Kitchen	83
ECMC Retail Cafeteria	88

Large Kitchen: Erie County Medical Center (ECMC)

- Variety of medical units including burn care, behavioral health services, transplantation, oncology, rehabilitation, and a level 1 adult trauma center
- 550 in-patient beds at full capacity
- 70% of patients receive acute care and 30% receive behavioral health care
- Approximately 4,500 professional and support staff
- Fully staffed on a weekday, Metz would have a total of approximately 50 hourly and salaried employees working at ECMC for all shifts combined
- Cafeteria serves approximately 1,000 people each day
- Unionized members of the kitchen staff are members of the CSEA union


ECMC Food Waste From In-Patient Meals
July 15-August 14, 2023 Leanpath Data
2%
10%
3%
4%
5%
76%
Overproduction Breakfast
Overproduction Lunch
Overproduction Dinner
Spoiled Before Use Breakfast
Spoiled Before Use Lunch
Spoiled Before Use Dinner


ECMC Food Waste From Retail Cafeteria
July 17-August 14, 2023 Leanpath Data
3%
12%
27%
41%
8%
9%
Overproduction Breakfast
Overproduction Lunch
Overproduction Dinner
Spoiled Before Use Breakfast
Spoiled Before Use Lunch
Spoiled Before Use Dinner

Observations

Data presented represents a short snapshot due to several challenges:

- Covid-19 pandemic impacting facility operations
- Changes in food type & loss reason categories
- Short-staffed kitchens
- Data quality challenges due to user input accuracy:
  - Not all food is weighed before disposal
  - User input choices not always accurate
    - For example, a lot of waste often associated with one meal – likely more related to the time of day that the waste is disposed

Food Waste Recommendations

- Facilities should continue using Leanpath: data - however imperfect - does prompt action
- To improve data quality & usefulness: Metz & Leanpath should implement ongoing routine **on-site** training to promote regular & correct use of the Leanpath tool
- When union contracts renew, add the ability or requirement to assist with food waste tracking
- Erie County should work with Metz & facilities to compost food waste for food that has not been served to patients
- Metz should observe frequently thrown away in-patient food & adjust portion size and/or menu items
- Erie County should work with hospitals to implement an educational waste reduction plan for catering operations

Recommendations for Non-food Waste Reduction

- Metz should evaluate offering the option for reusable tableware for dine-in patrons
- Metz should only utilize #1 or #2 plastic takeout containers to ensure all disposable containers are recyclable (no #6!)
- Erie County should work with the hospitals & Metz to institute a recycling education program & improve signage
- Metz should ensure all kitchen-generated packaging is recycled to the extent feasible

Questions?

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