

# Introduction to Food Loss and Waste

**June 6th, 2023**

**Patrick Webb | Seta Tutundjian | Steve Finn**



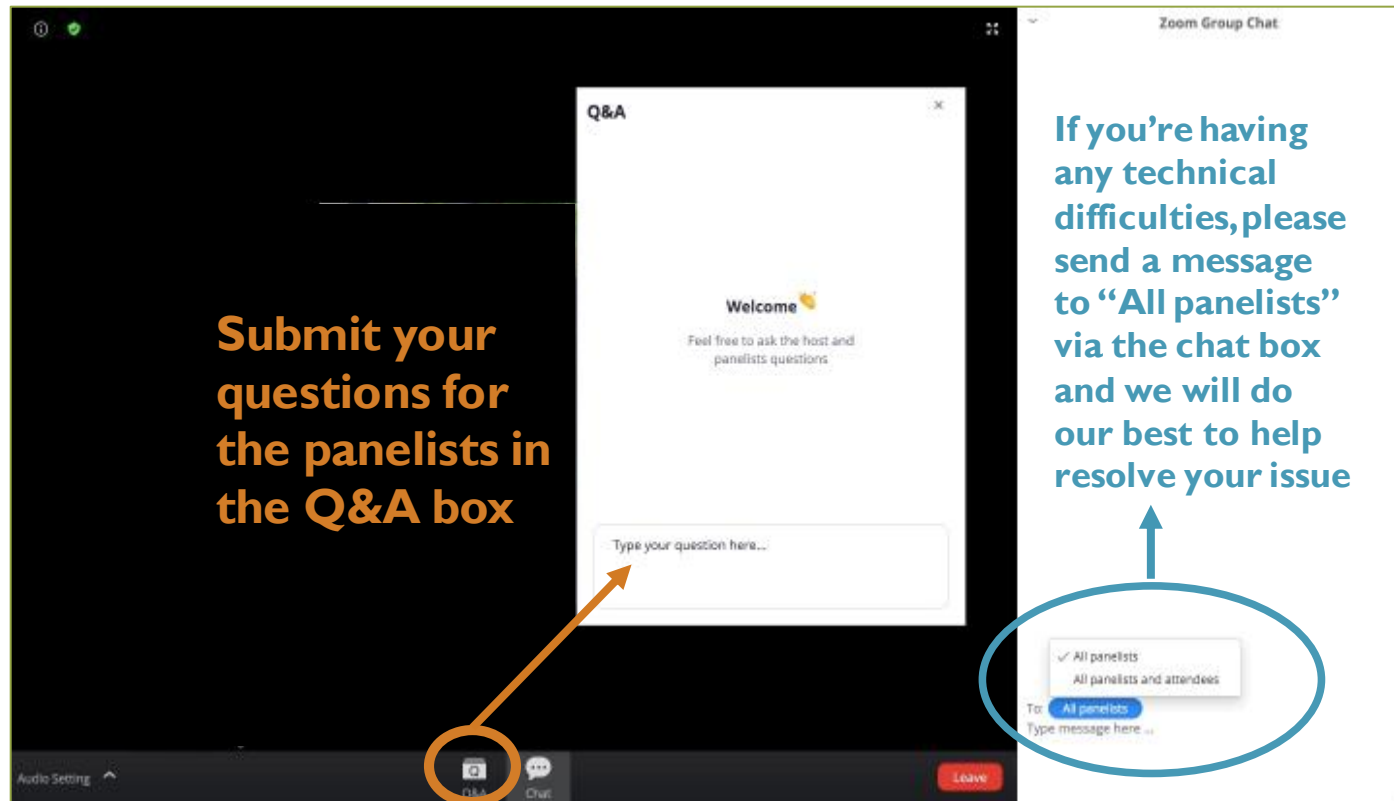
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## WELCOME TO THE ZOOM WEBINAR

The screenshot shows a Zoom webinar interface. On the left, a dark video area contains the text: "If you are unable to hear, connect your speakers by selecting 'Join Audio'". An orange circle highlights the "Join Audio" button in the bottom toolbar, with an arrow pointing to the text. On the right, a "Zoom Group Chat" window is open, displaying the text: "Please use the chat box to introduce yourselves and share thoughts and comments by sending a message to 'All panelists and attendees'". An orange circle highlights the "To: All panelists and attendees" dropdown menu in the chat input area, with an arrow pointing to the text.

## Q&A AND CHAT



The image shows a Zoom interface with two main components: a Q&A box and a Zoom Group Chat. The Q&A box is titled "Q&A" and contains a "Welcome" message with a gold star icon, followed by the text "Feel free to ask the host and panelists questions". Below this is a text input field labeled "Type your question here...". An orange arrow points from the "Q&A" icon in the Zoom bottom toolbar to this input field. The Zoom Group Chat is titled "Zoom Group Chat" and contains a message: "If you're having any technical difficulties, please send a message to 'All panelists' via the chat box and we will do our best to help resolve your issue". A blue circle highlights the "To:" dropdown menu in the chat, which has "All panelists" selected. A blue arrow points from this dropdown up to the main text of the chat message.

**Submit your questions for the panelists in the Q&A box**

**If you're having any technical difficulties, please send a message to "All panelists" via the chat box and we will do our best to help resolve your issue**



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The Food Systems for Nutrition Innovation Lab

## **Webinar Series with Thriving Solutions: Introduction to Food Loss and Waste**

**Zoom Webinar | Tuesday, June 6th, 2023 | 7:30-8:45 AM (ET)**



**PATRICK WEBB**

*Director,  
Food Systems for Nutrition  
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Leanpath*



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**Thriving Solutions**  
*Reimagining our food systems to sustain our future*

**Tufts**  
UNIVERSITY

Gerald J. and Dorothy R.  
Friedman School of  
Nutrition Science and Policy



# Introduction to Food Loss and Waste

*June 6, 2023*

*Presented by: Seta Tutundjian*

**June 6, 2023 /Introduction to Food Loss and Waste/ Presented by: Seta Tutundjian**

*Photo credit: Name/Organization*



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## WHAT IS FOOD WASTE?

**Food intended  
for human consumption  
that exits the food  
system.**



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## FOOD LOSS VS. FOOD WASTE

Where food exits the supply chain determines if it is considered as loss or waste.



**Food Loss**

between harvest/ slaughter/catch-up.



**Food Waste**

retail and consumption points

# Food “Loss and Waste” happens along the entire value chain



During or immediately after harvesting on the farm



Left in field during harvesting  
Lack of buyer

After leaving the farm for handling, storage, and transport



Degraded by fungus or disease  
Poor infrastructure

During industrial or domestic processing and/or packaging



Spilled during processing  
Gaps in knowledge

During distribution to markets, including at wholesale and retail markets



Sorted out due to quality  
Lack of buyer

In the home or business of the consumer, including restaurants and caterers



Purchased but not eaten  
Poor forecasting

**Examples:**  
Direct cause

&

**Underlying driver**





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40%

food is lost or  
wasted annually\*

1/4

freshwater consumed  
by agriculture

28%

cultivated land  
(farmland size of China)

10%

global GHG emissions  
(3<sup>rd</sup> emitter)



economic costs of FLW ≈ US\$ 1 trillion/yr

environmental costs ≈ US\$ 700 billion/yr

social costs ≈ US\$ 900 billion/yr

\*Driven to Waste: The Global Impact of Food Loss & Waste on Farms. WWF. 2022



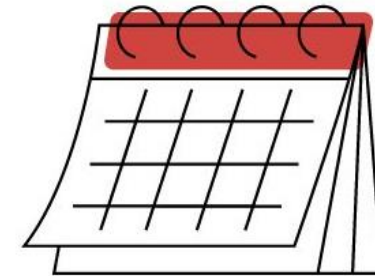
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**1 billion tons** of food fit for human consumption gets lost or wasted, while **1 in 9 people** are malnourished



Pandemic, Russia-Ukraine war has aggravated the situation

**1 Ton**  
Average person  
requirement of food  
per year



# HOW DO WE ADDRESS THIS BIG FOOD WASTE PROBLEM?

## Adopt an evidence based systemic approach



# Target

Targets set ambition,  
ambition motivates action



## Global Target



12 RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



### SDG TARGET 12.3

BY 2030

**HALVE** per capita global food waste at the retail and consumer levels & **REDUCE** food losses along production and supply chains (including post-harvest losses)

12 RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



Indicator 12.3.1:  
Global food loss index

12 RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



Indicator 12.3.1:  
Global food waste index



# Measure

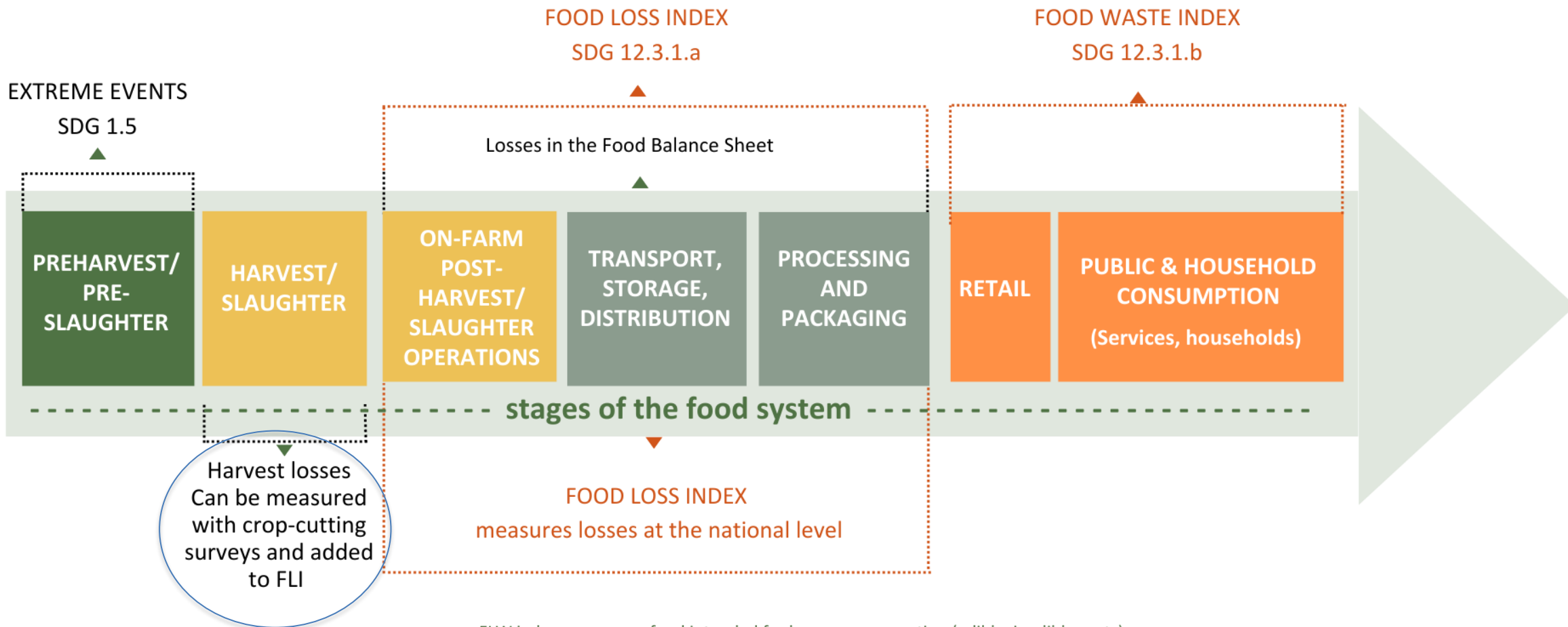
What gets measured,  
gets managed





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FLW indexes measure food intended for human consumption (edible, inedible parts); it does not cover losses and waste in agricultural produce intended for feed, seeds, industrial uses



Adapted from FAO 2019, The State of Food and Agriculture

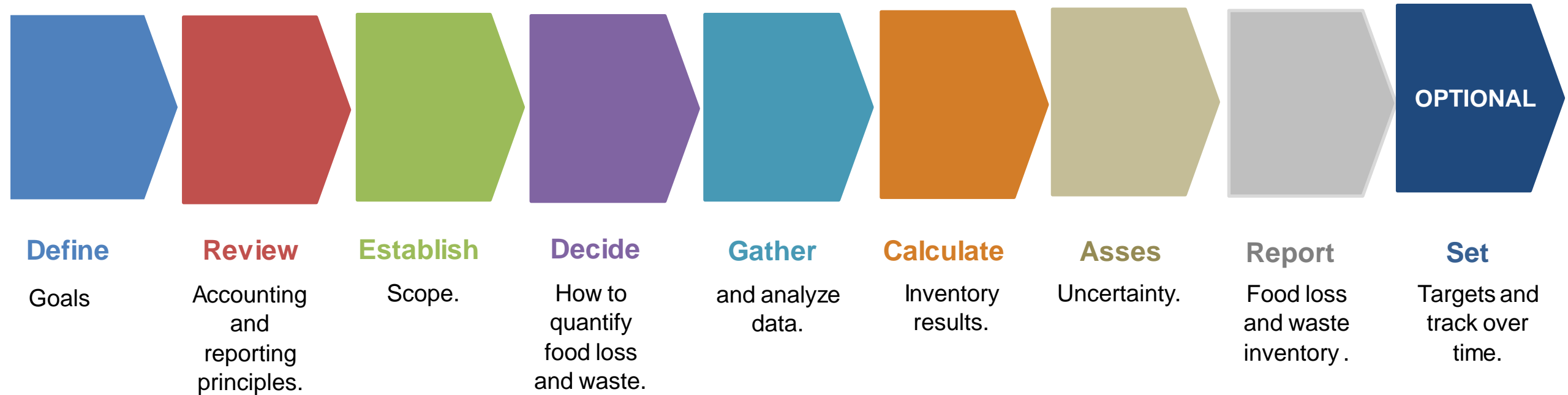


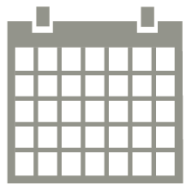
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## FLW Protocol Steps





**TIMEFRAME**



**MATERIAL TYPE**



**DESTINATION**



**BOUNDARY**

**FOOD**

**INEDIBLE PARTS**

Animal Feed

Biomaterial/processing

Co/anaerobic digestion

Compost/aerobic

Controlled combustion

Land application

Landfill

Not harvested

Refuse/discards

Sewer

Food category

Lifecycle stage

Geography

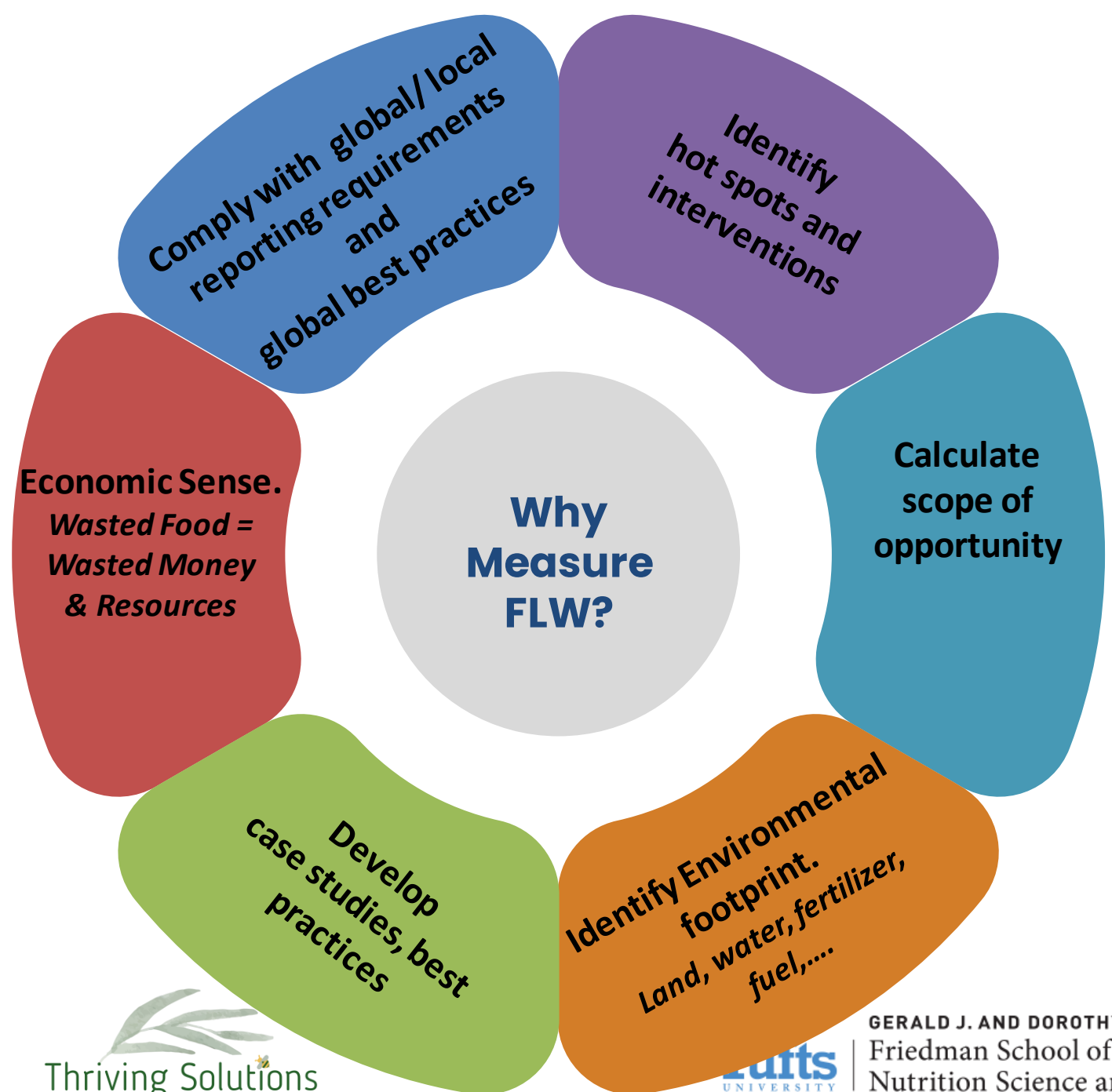
Organization

# FLW STANDARD

# WHY MEASURE?

**We cannot manage  
what we do  
not know!**

Target – Measure – Act



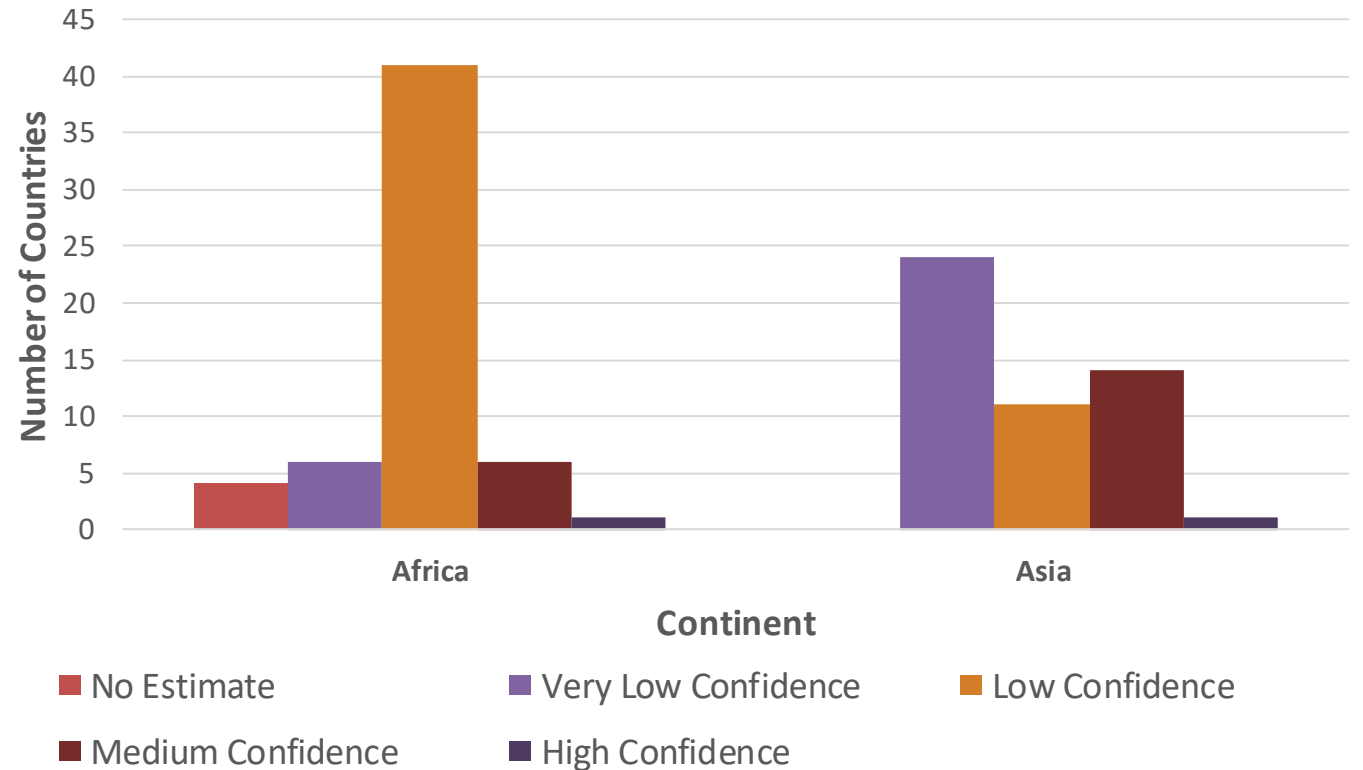
## Africa

out of 58 countries only 1 (Ghana) has high confidence data.

## Asia

Out of 50 countries only 1 (Saudi Arabia) has high confidence data for households and retail).

**Household Confidence Data**



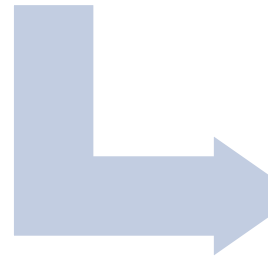
Prepared by Thriving Solutions LLC with data from UNEP Food Waste Index Report 2021

# Act

What finally matters is  
Action



Prevention



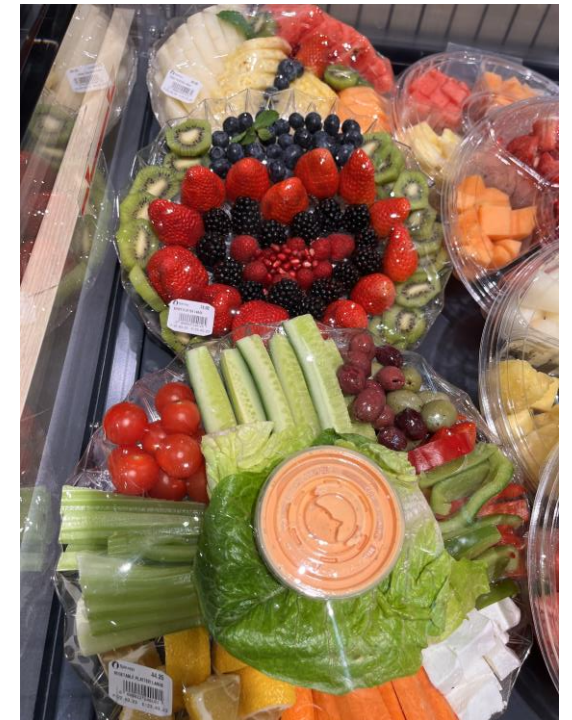
Redistribution



Valorization

# PREVENTION

- ❖ **Best Management Practices:** Waste Prevention in Retail – Spinneys UAE



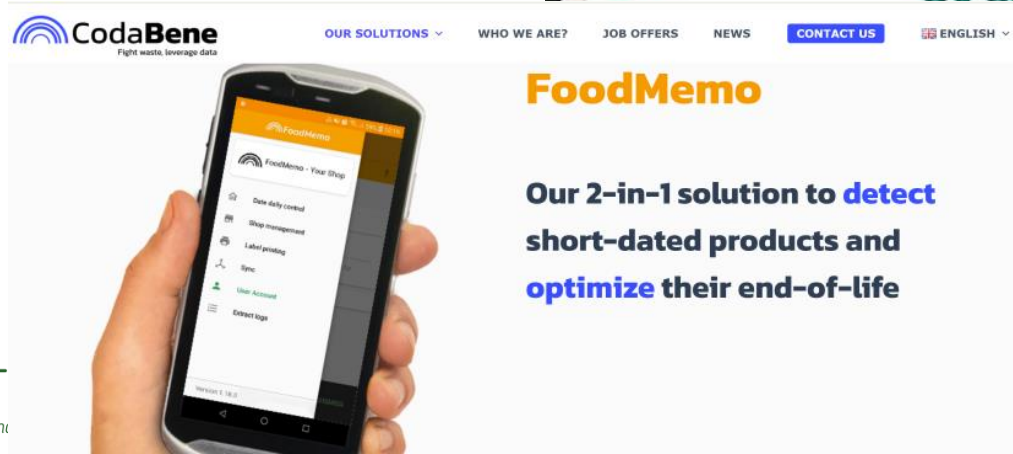
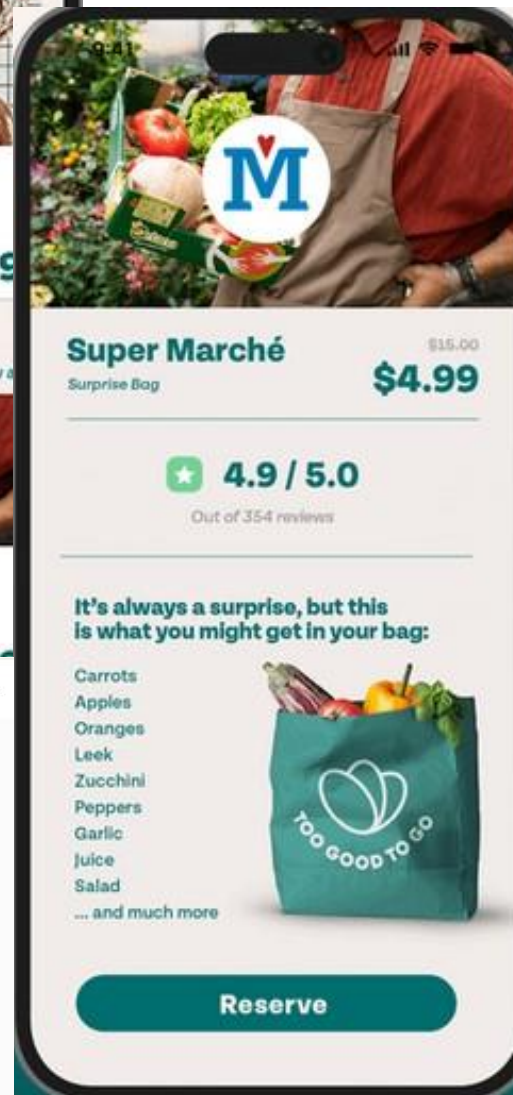
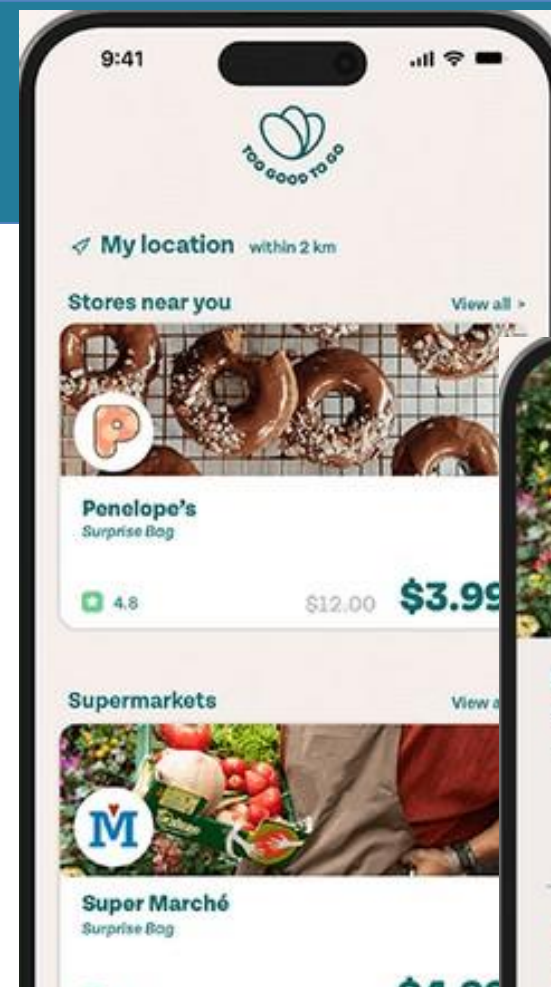
# PREVENTION

❖ **Technology Enabled:** Many Apps to prevent waste.

Too Good to Go connects consumers to businesses via an app. Business markets their surplus food and customer gets a surprise bag depending on the surplus.

FoodMemo helps retailers track the expiry dates of products to enable them to manage stocks and reduce waste

LeanPath uses AI enabled technology to reduce food waste.



## REDISTRIBUTION

Food redistribution is the process whereby surplus food that might otherwise be wasted is recovered, collected and provided to people, in particular to those in need.”

Source: Europa EU

- ❖ Food Banks
- ❖ Community fridges
- ❖ Reduced price outlets





## VALORIZATION?

Conversion of food waste or food by-products into higher value products that contribute back to the food supply chain.

This contributes to circular economy as useful material, once seen as waste, is recycled back into the supply chain to create new products.

*Source: National Environment Agency Singapore*

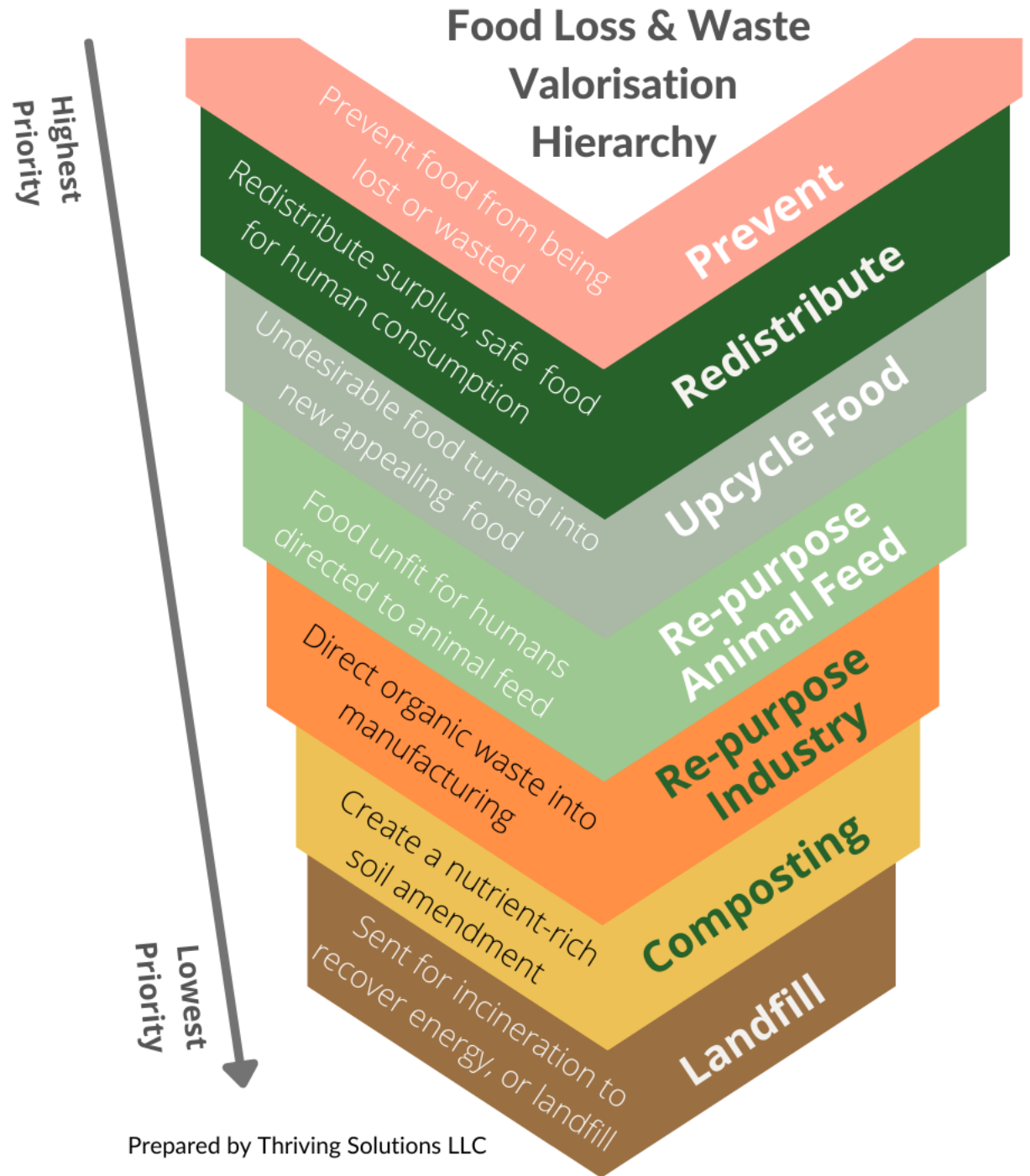




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## Valorization Hierarchy



Prepared by Thriving Solutions LLC

## UPCYCLING FOOD

Repurpose, transform food in ways that keeps it in the food supply chain as food fit for human consumption.

Rotterzwam – Netherlands: Collects used coffee grounds from businesses, mixes it with some soil and grows oyster mushrooms!

**6,000 – 7,000 Kg** of coffee grounds  
converted to  
**1,200-1,400 Kg** of mushrooms  
monthly!



## REPURPOSING FOR FEED

Utilizing food that is destined disposal in uses that divert it to animal feed.

### Conventional way

A common practice for centuries is giving food scraps and waste to feed animals.



*Image: ABC Rural Sally Bryant)*



## REPURPOSING FOR FEED

### Food Waste for Insect Feed - Black Soldier Flies.

Black Soldier Fly Larvae is packed with protein and many minerals and vitamins essential to animal growth and development.

Food-for-feed plant Nijsen: operating in Holland since 2006, it turns bread, dough, biscuits, pastry, toast, cookies, sweets, chocolate, marmalade, cakes, snacks and semi-finished foodstuffs into high-quality animal feed.



*Black Soldier Fly larvae is an excellent feed for poultry and fish.*



*High-quality animal feed reprocessed by Nijsen.*

*Source: farmer's weekly*

## OTHER VALORISATION OPTIONS

- ❖ Repurposing for industry.
- ❖ Composting.
- ❖ Waste-to-energy



VOOR EEN  
WERELD  
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## Q&A



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**Measurement and Beyond: Scaling Food Waste Prevention Through Measurement and Behavior Change**

June 6, 2023

*Steven M. Finn, VP of Sustainability & Public Affairs, Leanpath*



# Leanpath: We're on a mission

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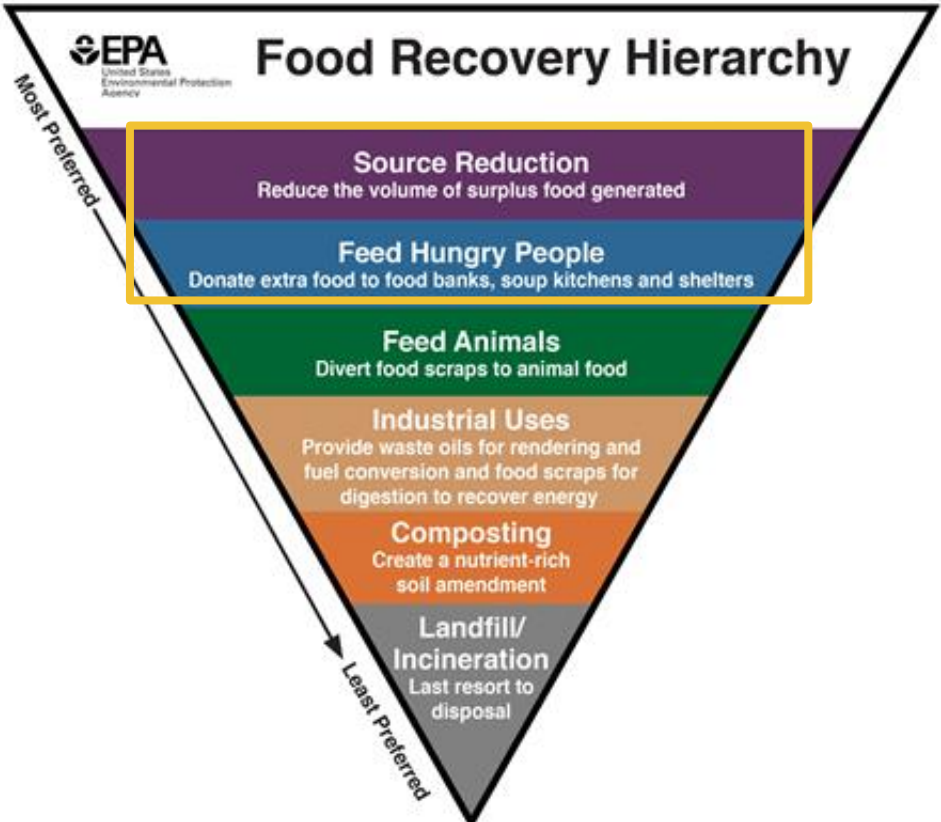
*Cutting food waste, Inspiring clients, changing cultures,  
and creating lasting triple-bottom line benefits*



Make food waste prevention and measurement  
everyday practice in the world's kitchens

**Food Waste *Prevention* is the highest impact Solution...**

**...and it occurs through *daily measurement*.**



# Tracking is the highest leverage prevention effort



Impact Metric:

- Net \$
- Tons
- Climate
- Water
- Meals
- Jobs

Stakeholders:

- Foodservice

Data View:

- Total

Food Type:

- All Food Types

States:

- All States



# The current reality in foodservice

A photograph of a chef in a kitchen, wearing a white shirt, a dark apron, and a watch, with their hands in clear plastic gloves. They are standing behind a counter with various food items, including bowls of food, a stack of white plates, and a stack of white napkins. The background shows other kitchen equipment and a person in a dark uniform. The text is overlaid on the image in white, bold font.

**Costs are up and supply chain challenges persist**

**Historic labor shortages are adding pressure to do more with less**

**Consumers are demanding more sustainable practices**

**The typical kitchen wastes 4-10% of purchases**

*Source: Menu Matters*

# The good news: Foodservice can take control of food waste

## Cut costs

Save 2-8% on food purchasing costs, more efficient labor, lower disposal fees

## Engage staff

Employees who say they find meaning at work also report having higher levels of job satisfaction

## Become more resilient

Food waste tracking data gives real-time insight into operational effectiveness

# Foodservice often wastes food to manage risk..



**Over-  
Production**



**Food  
Safety**



**Over-  
Merchandising**



**Labor / Waste  
Trade-Offs**



**Customer  
Experience & Choice**



**Cosmetic  
Concerns**



**Date Label  
Confusion**



**Guarantees  
& Padding**



**Actual Consumption  
Mystery**



**Special Meals  
& Custom Menus**



**Remote  
Events**



**High Guest  
Expectations**

# A shift from 'diversion' to 'prevention'

---

**PREVENTION**

1

**DONATION**

2


**COMPOST & LANDFILL**

3

**PREVENTION IMPACTS YOUR  
BOTTOM LINE**

- » Reduces food purchases
- » Reduces embedded labor
- » Reduces disposal fees

**AND PROVIDES SOCIAL &  
ENVIRONMENTAL BENEFITS**

- » GHG emissions avoided
  - » Water consumption avoided
  - » Meals available in food system, nutrition protected from loss
- 

# Making Food Waste *Visible*





# Food waste prevention has been challenging for foodservice operations

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Difficult to measure  
food waste



Cumbersome to  
analyse data



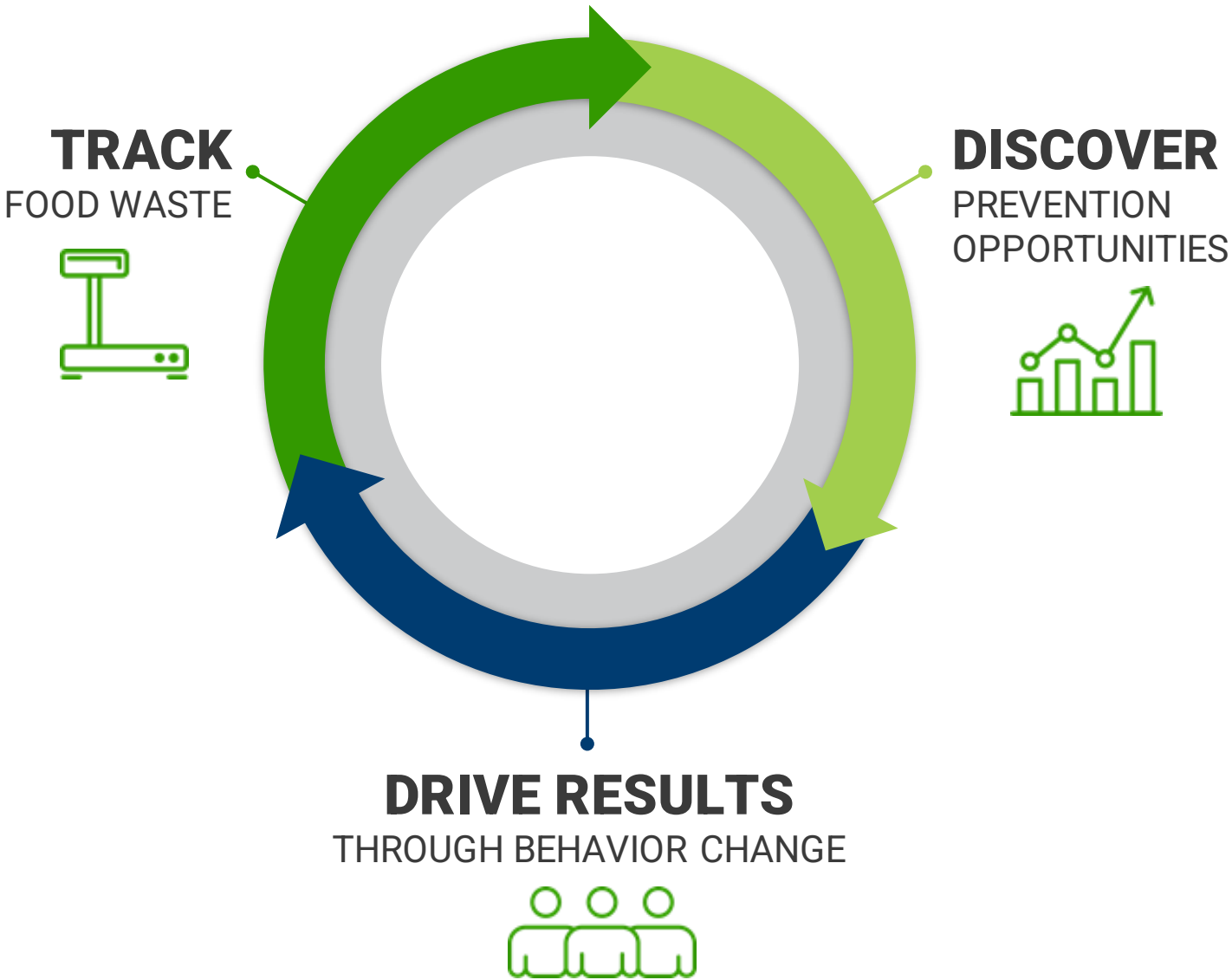
Hard to  
engage staff

# Leanpath makes it easy

**Track** food waste in just seconds

Automatically **Discover** prevention opportunities with Leanpath analytics software

**Drive results** through science-based behavioral change tactics that keep teams engaged and focused



# A proven process to *prevent* food waste

Leanpath offers a suite of Trackers to match a foodservice site's production volume; through measurement and analytics we raise awareness of food waste and lay the foundation for operational and behavior change.

New



New



AI Option Available



New Series 3 Models



**Leanpath Go**  
*(Lightweight, track by item)*

**Basic**  
*(Lightweight, track by weight)*

**Leanpath Scout**  
*(Lightweight, integrated scale)*

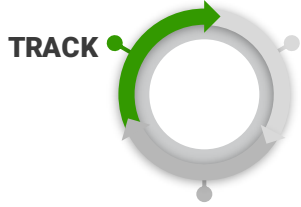
**Tracker 360 or Tracker 360-AI, powered by artificial intelligence**  
*(Rugged, integrated bench scale, waste photography)*

**Tracker 360FS**  
*(Rugged, integrated floor scale)*

**LOW VOLUME KITCHENS**

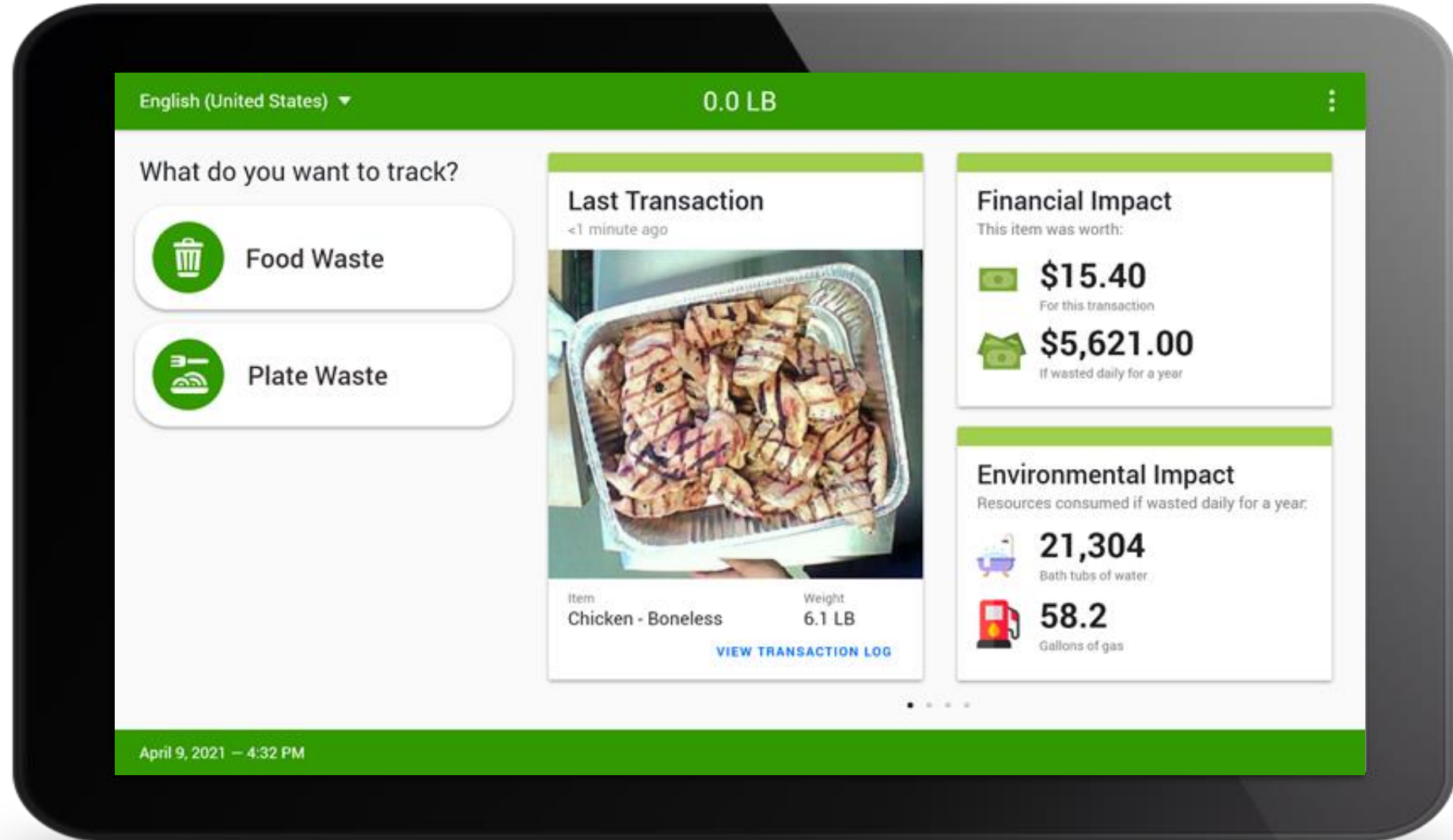


**HIGH VOLUME KITCHENS**



## Instant Impact:

At the end of a food waste transaction, staff are immediately shown the impact of their food waste



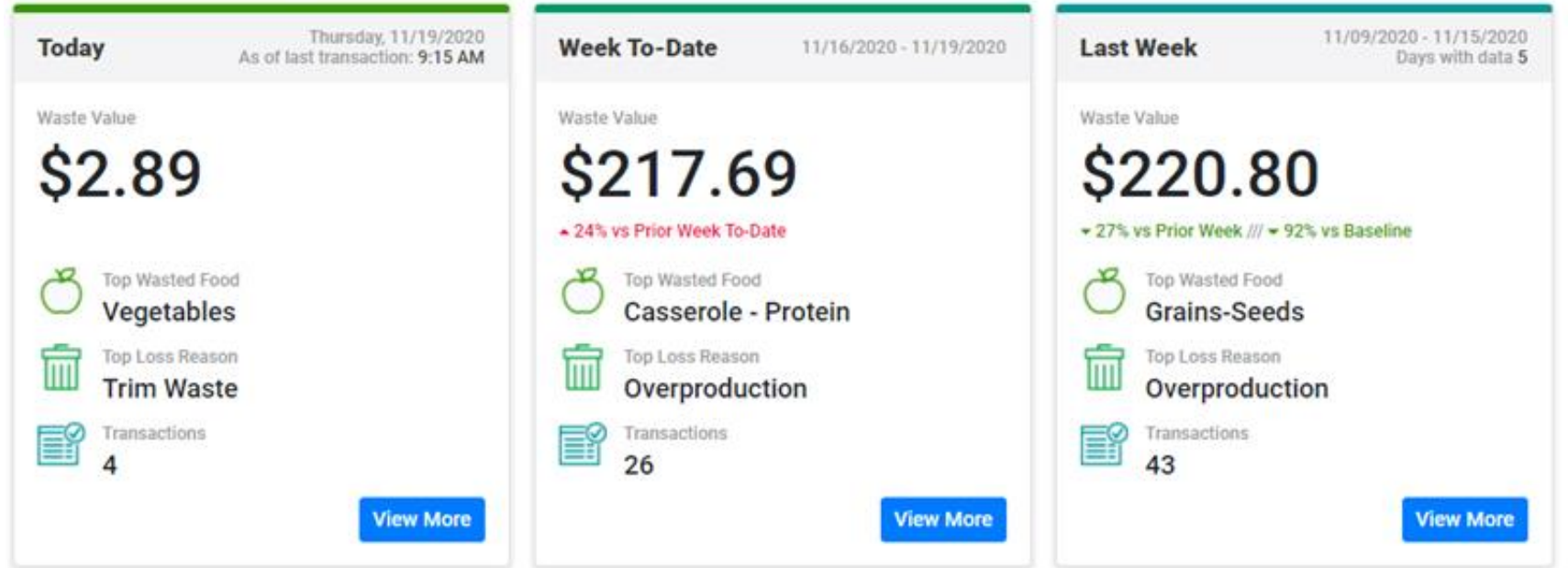


# Leveraging the Power of Data

## Discover Insights:

When food waste is tracked, operators can finally “see” it, and understand *what it is* and *what’s generating it*

### Your Food Waste Snapshot



### Your Photo Stream

Your most recent waste photos:





Food waste photos give greater context and ability to more quickly identify root causes of waste.

**Leanpath** Reporting ▾ Prevention Tools ▾ Configuration ▾ Support ▾ Brennan

### FOOD WASTE DASHBOARD

- Overview
- Detail
- Trends
- Results
- Participation
- Transactions**
- Sites
- Locations

**PERFORMANCE**

- Overall Results
- Volume-Adjusted BETA

**DOWNLOADS**

- Print Reports
- Waste Data Download

**Show Filters**  
Last Week / All Locations / By Value / USD / Imperial System

Sort: Date (Newest to Oldest) ▾

**NEW FEATURE**

Only transactions with photos are displayed in this view.

<b>Composed Salad</b> Overproduction Cambro 8 Qt 💰 \$22.78 📊 7.8 lb 07/23/2018   2:22 PM	<b>Vegetables</b> Overproduction Cambro 12 Qt 💰 \$7.40 📊 4.3 lb 07/23/2018   2:21 PM	<b>Vegetables</b> Overproduction Cambro 4 Qt 💰 \$0.26 📊 0.15 lb 07/23/2018   2:21 PM	<b>Deli Meat</b> Overproduction Sixth Pan (2.5-inch) Metal 💰 \$2.41 📊 0.6 lb 07/23/2018   1:43 PM
<b>Vegetables</b> Overproduction Full Hotel Pan (2.5-inch) Metal 💰 \$14.45 📊 8.4 lb	<b>Soup with Meat</b> Overproduction Soup Container-Med 💰 \$4.41 📊 3.5 lb	<b>Cous Cous</b> Overproduction Oval Pan 💰 \$1.05 📊 1.4 lb	<b>Fish</b> Overproduction Casserole 💰 \$6.63 📊 0.5 lb

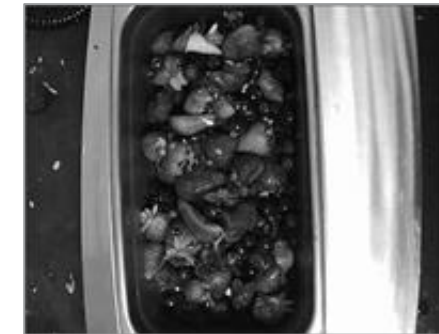


# Beyond measurement

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You've tracked waste and accumulated data. The food waste prevention process doesn't end there. **Now it's time to act!**

**Leanpath software identifies your biggest food waste opportunities**





Goals are set and approved.

Alerts notify when priority food is being wasted.

**FOOD WASTE ALERT**

 Leanpath


**IMAGE:** 

**FOOD:** Pizza  
**WEIGHT:** 116.18 LB  
**COST:** \$85.45  
**REASON:** Pan Waste-Overproduced  
**LOCATION:** ~~Google~~ ~~MEADOW~~  
**OPERATOR:** ~~Heidi P.~~  
**DAY/TIME:** 27 Jan 2019 3:00 PM

[LOG IN TO LEANPATH ONLINE](#)

[support@leanpath.com](mailto:support@leanpath.com)

**NEW FOOD WASTE GOAL NOTIFICATION**



**A new goal has been set for Demo Site - Demo Location A!**

Heads up, Demo User!

A new food waste prevention goal has been set for your location:

---

**Reduce Pizza Waste by 50%**

---

This goal starts on 2021-03-19 and will end on 2021-04-02. Be sure to keep an eye on PIZZA during the goal period, so that you and your team can achieve the goal reduction of 50%!

Click below to see all the details related to this goal.

[LOG IN TO VIEW GOALS](#)

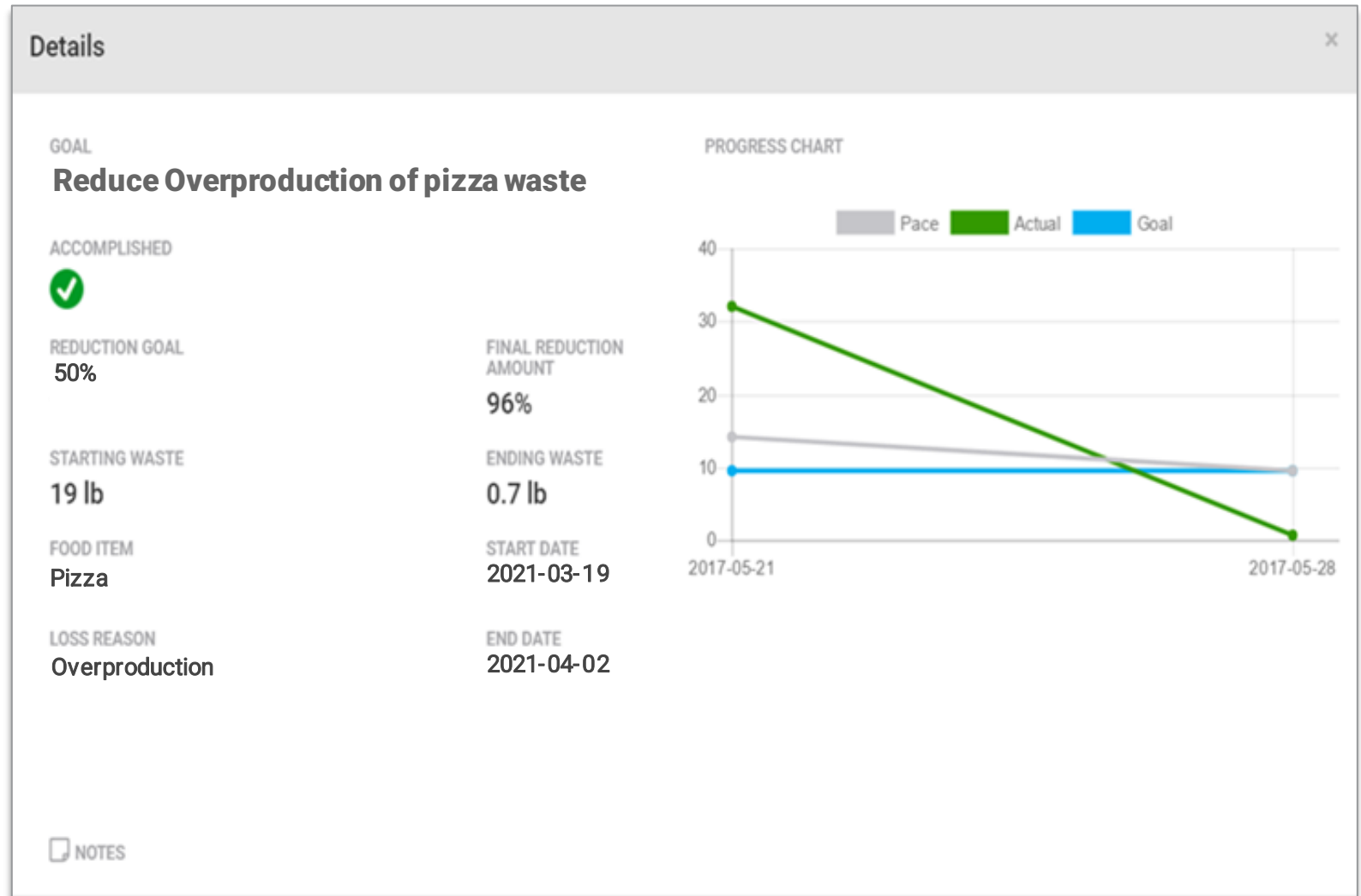
Your Partners in Prevention,  
The LeanPath Team





Progress is monitored and reported, for one site or across multiple sites.

**The Power of Goals:** Leanpath sites that set Goals saved an additional 3% of COGS as a percent of revenue compared to sites that did not use Goals



# Engaging Consumers



Leanpath Spark allows foodservice sites to go further, tracking (post-consumer) plate waste and educating their customers on how they can get involved in preventing food waste



# Prevention can't happen without measurement, And data insights are the basis for change

---



# It is time for action, through *leadership*

Taking control of food waste dramatically increases foodservice efficiency with triple-bottom-line benefits



## Financial

Cut costs  
and increase  
efficiency



## Environmental

Increase  
organizational  
sustainability



## Social

Address  
hunger and  
climate justice

# Global impact since inception

---

Source: Leanpath Data 2014-2022



Pounds of food waste prevented:

**100,000,000+**



Meals saved:

**83,000,000+**



Gallons of water saved:

**40,000,000,000+**



Emissions avoided (MTCO2e):

**316,000+**



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## Q&A



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