



# Food Waste Reduction: Philanthropy for People and the Planet

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May 14, 2024



## WHO WE ARE

ReFED is a national nonprofit working to end food loss and waste across the food system by advancing data-driven solutions to the problem.

## OUR VISION

A sustainable, resilient, and inclusive food system that optimizes environmental resources, minimizes climate impacts, and makes the best use of the food we grow.



## DATA & INSIGHTS

Leveraging data and insights to highlight supply chain inefficiencies and economic opportunities



## CAPITAL & INNOVATION

Catalyzing capital to spur innovation and scale high-impact initiatives



## BUSINESS INITIATIVES

Enabling waste generator adoption of viable solutions through measurement, advisory, and internal capacity building



## COLLECTIVE ACTION

Mobilizing and connecting stakeholders to learn, share, and collaborate on targeted action

# ReFED works at the center of and in support of the entire food system

## GOVERNMENT



CONGRESSIONAL  
BILLS

## FUNDERS



TRAILHEAD CAPITAL >

## SOLUTION PROVIDERS



## NGOS



## FOOD INDUSTRY



## RESEARCHERS



THE OHIO STATE  
UNIVERSITY



## MEDIA



# WHAT FOOD ISSUES DOES NRDC WORK ON?



**NRDC's mission** is to safeguard the earth—its people, its plants and animals, and the natural systems on which all life depends.



**Healthy  
Soils**



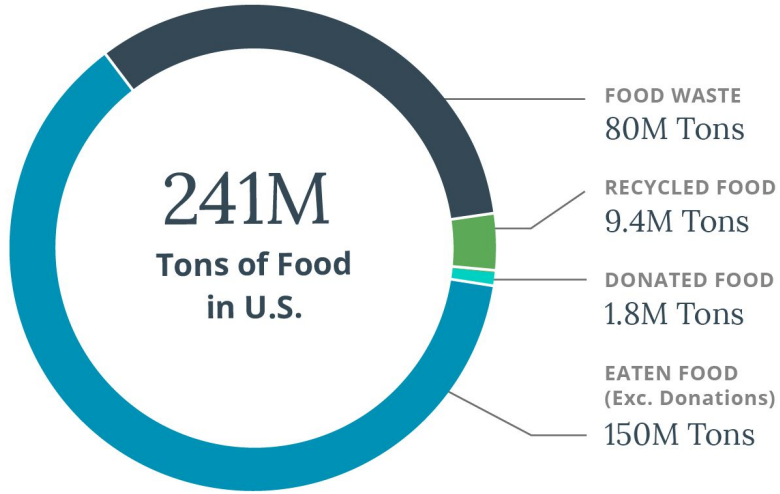
**Pollinators  
and  
Pesticides**



**Food  
Waste**



**Food  
Equity**



Source: ReFED, 2021

38% of all food  
went unsold or  
uneaten in 2021...

# CLIMATE IMPACT OF FOOD WASTE



## REDUCING FOOD WASTE

**RANKS #1\***

in Project Drawdown's list of the TOP 100 most impactful interventions

## TO ADDRESS CLIMATE CHANGE

Reduced Food Waste

4%  
of U.S. GHG Emissions

Source: ReFED

# Surplus food occurs across the supply chain.



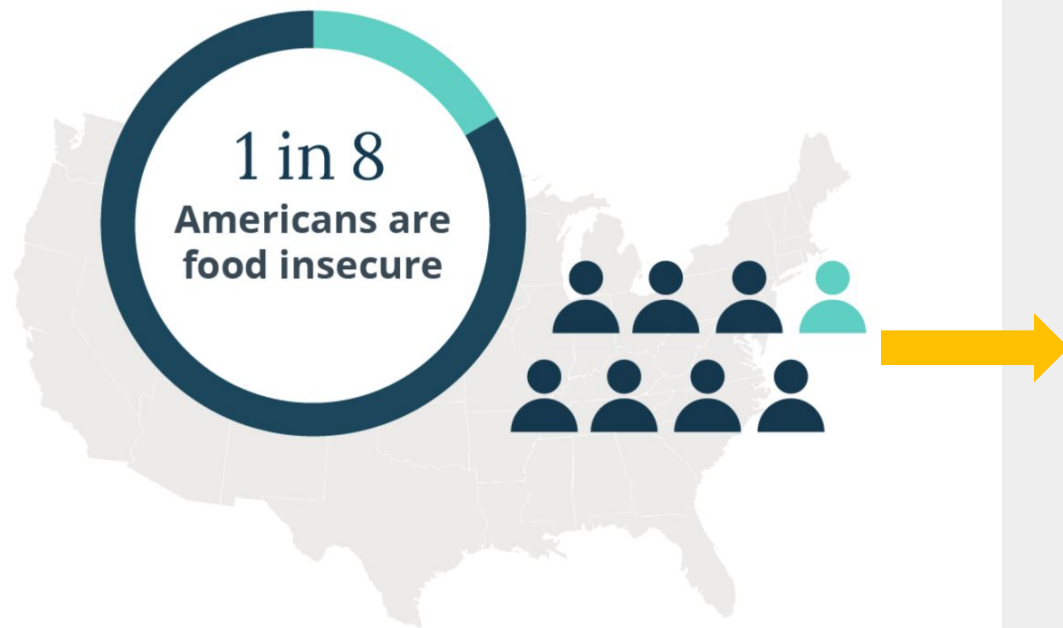
## CONSUMER-FACING BUSINESSES INCLUDE:



\*Other Foodservice Includes Healthcare, Assisted Living, Military, and Other

Source: ReFED/2022 Data (Published 11/23)

# HUNGER IMPACTS OF FOOD WASTE



Cutting food waste in half would provide

**4 billion  
additional  
meals**

to the emergency food system.

# FOOD WASTE REDUCTION

## CLIMATE

- **8%** of global GHG emissions
- Climate pollution from **every stage of food production and distribution**; food rotting in landfills releases methane
- Potential to **avoid 100 gigatons** of CO<sub>2</sub>e by 2050

## HEALTH & EQUITY

- **13%** U.S. food insecurity; detrimental to physical, mental health
- **80%** of landfills and incinerators are in BIPOC communities
- Wholesome food can be **rescued and redistributed**

## BIODIVERSITY

- Growing wasted food requires **80 million acres of cropland**, consumes the same amount of water as **CA and ID**
- Limit **deforestation and cropland expansion**; most cropland used for animal feed production
- We have more than **enough food** to feed the entire population

## Barriers to Addressing Food Waste

- Misalignment of costs and benefits
- Low cost of food and disposal
- Disaggregated supply and demand information and data gaps
- Competing cultural priorities and expectations
- Organizational silos
- Low priority and capacity within food industry to monitor and make change

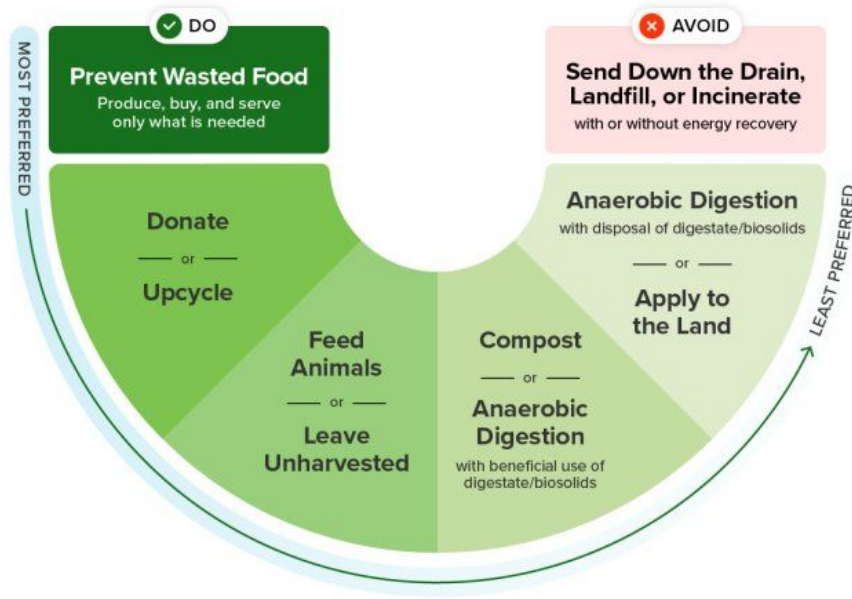


# Addressing Food Waste Reduces Emissions



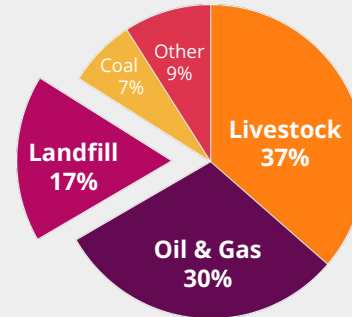
## Wasted Food Scale

How to reduce the environmental impacts of wasted food



## Eliminates Landfill Methane

Food is the #1 material in landfills  
(24% of incoming trash)



Landfills are the 3<sup>rd</sup> largest source of U.S. methane emissions. Experiments indicate that complete diversion of food waste from landfill would reduce methane generation potential by 33%.<sup>1</sup>

# The Need for Capital and Where Best to Invest



# There are many solutions that already exist and are ready for investment

Roadmap to 2030: Reducing U.S. Food Waste | Find Details on Each Solution in the ReFED Insights Engine | [insights.refed.org](https://insights.refed.org)

42 Modeled Solutions

31 Unmodeled Solutions

Many Best Practices

OPTIMIZE THE HARVEST	ENHANCE PRODUCT DISTRIBUTION	REFINE PRODUCT MANAGEMENT	MAXIMIZE PRODUCT UTILIZATION	RESHAPE CONSUMER ENVIRONMENTS	STRENGTHEN FOOD RESCUE	RECYCLE ANYTHING REMAINING
Buyer Spec Expansion	Decreased Transit Time	Assisted Distressed Sales	Active & Intelligent Packaging	Meal Kits	Donation Coordination & Matching	Centralized Anaerobic Digestion
Gleaning	First Expired First Out	Decreased Minimum Order Quantity	Manufacturing Byproduct Utilization (Upcycling)	Buffet Signage	Donation Education	Community Composting
Imperfect & Surplus Produce Channels	Intelligent Routing	Dynamic Pricing	Manufacturing Line Optimization	Consumer Education Campaigns	Donation Storage Handling & Capacity	Centralized Composting
Partial Order Acceptance	Temperature Monitoring (Pallet Transport)	Enhanced Demand Planning	Edible Coatings	K-12 Lunch Improvements	Donation Transportation	Co-digestion at Wastewater Treatment Plants
Field Cooling Units	Reduced Warehouse Handling	Increased Delivery Frequency	Improved Recipe Planning	Package Design	Donation Value-Added Processing	Home Composting
In-Field Sanitation Monitoring	Advanced Shipment Notifications	Markdown Alert Applications	In-House Repurposing	Portion Sizes	Blast Chilling to Enable Donations	Livestock Feed
Innovative Grower Contracts	Early Spoilage Detection (Hyperspectral Imaging)	Minimized On-Hand Inventory	Precision Food Safety	Small Plates	Donation Reverse Logistics	Waste-Derived Agricultural Inputs
Labor Matching	Inventory Traceability	Temperature Monitoring (Foodservice)	Discount Meal Plates	Standardized Date Labels	High-Frequency Reliable Pickups	Insect Farming
Smaller Harvest Lots	Modified Atmosphere Packaging System	Waste Tracking (Foodservice)	Employee Meals	K-12 Education Campaigns	Established Relationships with Businesses	Rendering
Improved Communication for Planting Schedules	Vibration & Drops Tracking	Low Waste Event Contracts	Larger Quantities for Take Home	Trayless	Culling SOPs	Waste-Derived Processed Animal Feed
Sanitation Practices & Monitoring	Optimized Truck Packing, Loading & Unloading (e.g., Cross-Docking)	Direct to Consumer Channels	Small and Versatile Menus	Home Shelf-life Extension Technologies		Waste-Derived Bioplastics
Optimized Harvesting Schedules	Enforcing Cold Chain SOPs	Online Marketplace Platform	Sous-Vide Cooking	Smart Home Devices		Waste-Derived Biomaterials
On-Farm / Near-Farm Processing	Regular Maintenance on Refrigerated Trucks	Online, Advanced Grocery Sales		Waste Conscious Promotions		Enabling Technologies (e.g. depackaging and pre-treatment)
Local Food Systems	Cross-Docking	Precision Event Attendance		Frozen Value-Added Processing of Fresh Produce		Separation & Measurement
Clear Product Ownership		Repackaging Partially Damaged Products		Customizable Menus/Options		Relationships with Waste Haulers
		Retail Automated Order Fulfillment		To-Go Offerings		Waste Audits by Waste Haulers
		SKU Rationalization		Free Items Offered Upon Request (e.g., bread, chips)		
		Markdowns		Storytelling (e.g. product impact, source, upcycled ingredient components)		
		Optimal Storage				
		Reduced Displays				
		Optimized Walk-In Layouts				

# Solutions Database: Find Solutions

## Annual Investment Required



### Public

- Government Project Finance: \$ 1.13B
- Government Grants: \$ 1.13B

### Philanthropic

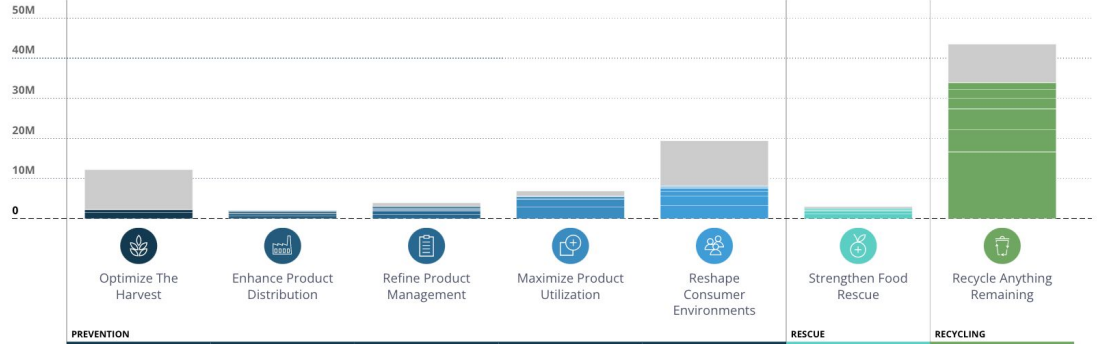
- Non-Government Grants: \$ 113M
- Impact-First Investments: \$ 113M

### Private

- Corporate Finance & Spending: \$ 338M
- Commercial Project Finance: \$ 563M

## Explore solutions to food waste

ANNUAL FOOD WASTE DIVERSION  
POTENTIAL OF FOOD WASTE  
SOLUTIONS  
TONS



Impact Metric:

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

Stakeholders:

All Stakeholders

Data View:

Total

Food Type:

All Food Types

Capital Type:

All Capital Types

States:

All States

ACTION AREA	SOLUTION NAME	FOOD WASTE DIVERSION	ANNUAL INVESTMENT REQUIRED	
	Centralized Composting	16.6M Tons	\$ 3.38B	<a href="#">VIEW DETAILS &gt;</a>
	Centralized Anaerobic Digestion	5.58M Tons	\$ 1.35B	<a href="#">VIEW DETAILS &gt;</a>
	Co-Digestion At Wastewater Treatment Plants	5.17M Tons	\$ 1.14B	<a href="#">VIEW DETAILS &gt;</a>
	Consumer Education Campaigns	3.22M Tons	\$ 203M	<a href="#">VIEW DETAILS &gt;</a>

# ReFED's Food Waste Reduction Landscape Map

## PREVENTION

<p>Optimize The Harvest</p>	<p>Enhance Product Distribution</p>	<p>Refine Product Management</p>	<p>Maximize Product Utilization</p>	<p>Reshape Consumer Environments</p>
<p><b>IMPERFECT &amp; SURPLUS CHANNELS</b></p>	<p><b>INTELLIGENT ROUTING &amp; INVENTORY TRACEABILITY</b></p>	<p><b>ENHANCED DEMAND PLANNING &amp; SECONDARY RESALE</b></p>	<p><b>UPCYCLING</b></p>	<p><b>MEAL KITS</b></p>
<p><b>GLEANNING</b></p>	<p><b>TEMPERATURE MONITORING &amp; COLD CHAIN</b></p>	<p><b>DYNAMIC PRICING &amp; MARKDOWN ALERTS</b></p>	<p><b>SHELF-LIFE EXTENSION</b></p>	<p><b>HOME SHELF-LIFE EXTENSION</b></p>
<p><b>IMPROVED PLANNING &amp; LABOR MATCHING</b></p>	<p><b>EARLY SPOilage PREVENTION &amp; DETECTION</b></p>	<p><b>WASTE TRACKING</b></p>	<p><b>ACTIVE &amp; INTELLIGENT PACKAGING</b></p>	<p><b>CONSUMER &amp; K-12 EDUCATION</b></p>

## RESCUE

Strengthen Food Rescue

**DONATION COORDINATION, MATCHING & TRANSPORTATION**

## RECYCLING

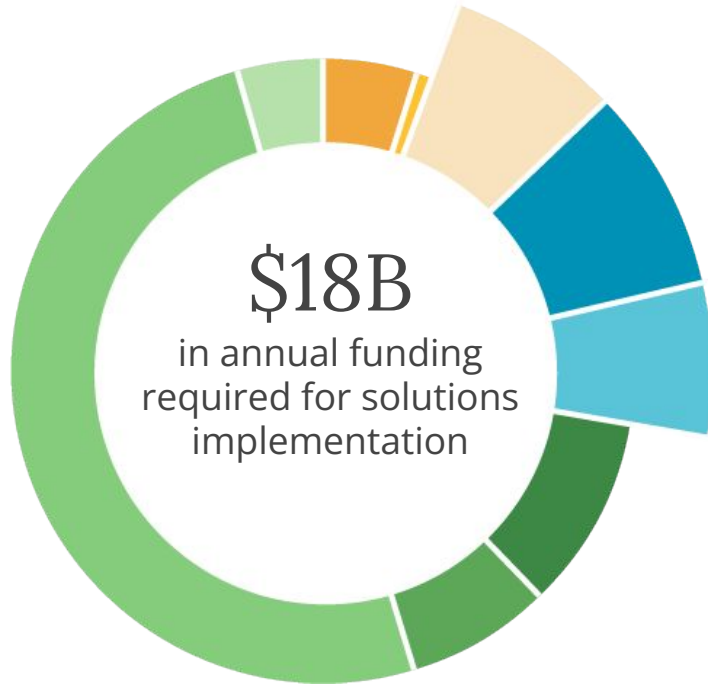
Recycle Anything Remaining

**COMPOSTING & AD**

**WASTE-DERIVED AG INPUTS**

## RESEARCH, MEASUREMENT, CONVENING, POLICY & ADVOCACY

# Mobilizing Capital is Essential



## Project Finance (Gov't.)

\$2.4B / 13%

## Tax Incentives (Gov't.)

\$110M / <1%

## Grants (Gov't.)

\$2.4B / 13%

## Grants (Non-Gov't.)

\$1.4B / 8%

## Impact-First Investments

\$1B / 5%

## Venture Capital

\$1.2B / 7%

## Private Equity

\$1.2B / 7%

## Corporate Finance & Spending

\$7.1B / 38%

## Project Finance (Commercial)

\$1.7B / 9%

**\$5B**  
Catalytic Capital

De-risks new innovation

Unlocks bottlenecks

Overcomes agency problems

Stimulates marginal projects

# Zooming out to the broader funding environment

## Private Funding

## Philanthropic Funding

**Edible coatings / shelf-life extension, imperfect produce channels, meal kits**

**Cold chain management, enhanced demand planning, markdown alerts**

**Food rescue**

**Nonprofit ecosystem builders**

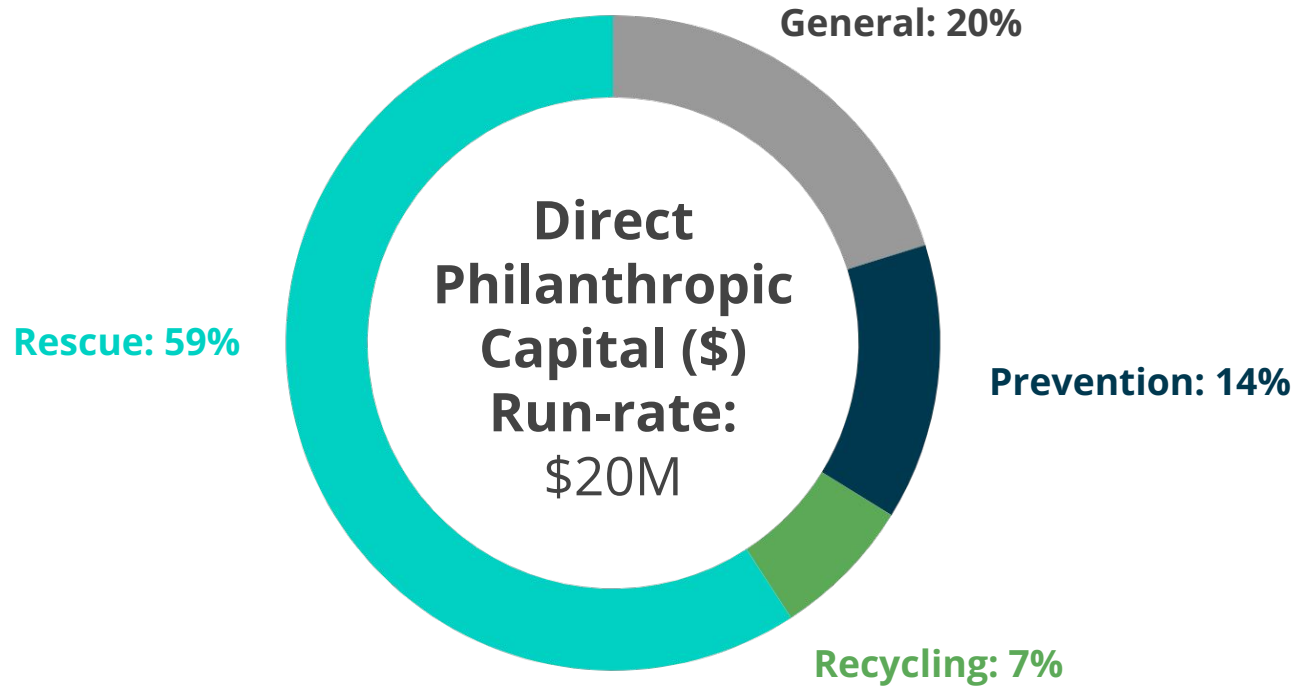
**Significant innovation in organics recycling, upcycling and foodservice tech**



**Early-stage prevention and recycling startups**



# Where Philanthropic Capital has been going



- Food rescue is the largest category (does not include general food bank funding which is \$185M per year)
- General demonstrates that philanthropists are seeing value in initiatives that support the entire ecosystem
- One off grants happening in prevention

# Where Catalytic Capital is Needed

## PREVENTION



Optimize  
The  
Harvest

Grants to support operating costs of nonprofit gleaning orgs



Enhance  
Product  
Distribution

Impact-first investment for in-transit temperature monitoring solutions, supply chain tracking



Refine  
Product  
Management

Grants to ease adoption of waste tracking



Maximize  
Product  
Utilization

Impact-first investment into upcyclers to build supply chains for edible byproducts



Reshape  
Consumer  
Environments

Grants to de-risk solutions that drive consumers towards recipe planning

## RESCUE



Strengthen  
Food  
Rescue

Grants to food access organizations to increase donation cold storage capacity

## RECYCLING



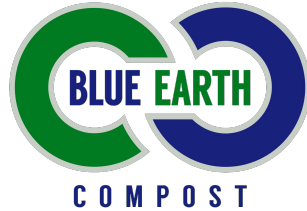
Recycle  
Anything  
Remaining

Impact-first funding to develop local composting solutions

# Opportunities within Food Waste



- **Rescue, NJ, National**
- Leverages national logistics network and capacity to rescue and transport food
- COVID-19 Fund grantee



- **Prevention, Recycling, CT**
- Composter and hauler
- Consumer initiative: share tables paired with composting initiatives in Connecticut public schools with classroom education



- **Recycling, NY**
- Community composting network experiencing shortfall due to city budget cuts
- Transition to anaerobic digestion collection

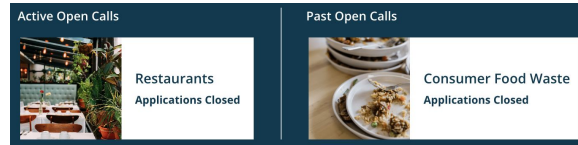
# Other ways you can get involved

Funder Advisory



**Action-oriented member networks, 160+ members**

Regrant Funds




**Catalytic Grant Fund**

# Case Studies - Successful Solutions Adoption in Action

**CASE STUDY**

## Using Artificial Intelligence to Reduce Food Waste in Grocery Retail

Progress on the Path to Cut Food Waste in Half by 2030



**PACIFIC COAST**  
Food Waste Commitment


Fall 2022

Two retailers used artificial intelligence solutions, Shelf Engine and Afresh, to improve their order accuracy, leading to a **14.8% average reduction in food waste per store**.

**CASE STUDY**

## Institutionalizing a Waste Reduction Culture in Food Manufacturing

A three-pronged strategy of education, company-wide engagement, and quick-win implementation to achieve meaningful food waste reductions



**PACIFIC COAST**  
Food Waste Commitment

Fall 2022

Bob's Red Mill collected 176 food waste reduction ideas through an employee campaign and **saw a 70%+ reduction in food waste** by testing one idea on the manufacturing line.

**CASE STUDY**

## A Closer Look at Sprouts' Food Waste Reduction Commitment & Best Practices

Progress on the Path to Cut Food Waste in Half by 2030



**PACIFIC COAST**  
Food Waste Commitment


Fall 2022

Sprouts identified **food waste reduction best practices**, such as storewide waste “Scorecards”, optimizing container sizes and load weights, reducing the distance between stores and distribution centers, and more.

**CASE STUDY**

## Food Waste Reduction Commitment & Upcycling Initiatives

Progress on the Path to Cut Food Waste in Half by 2030

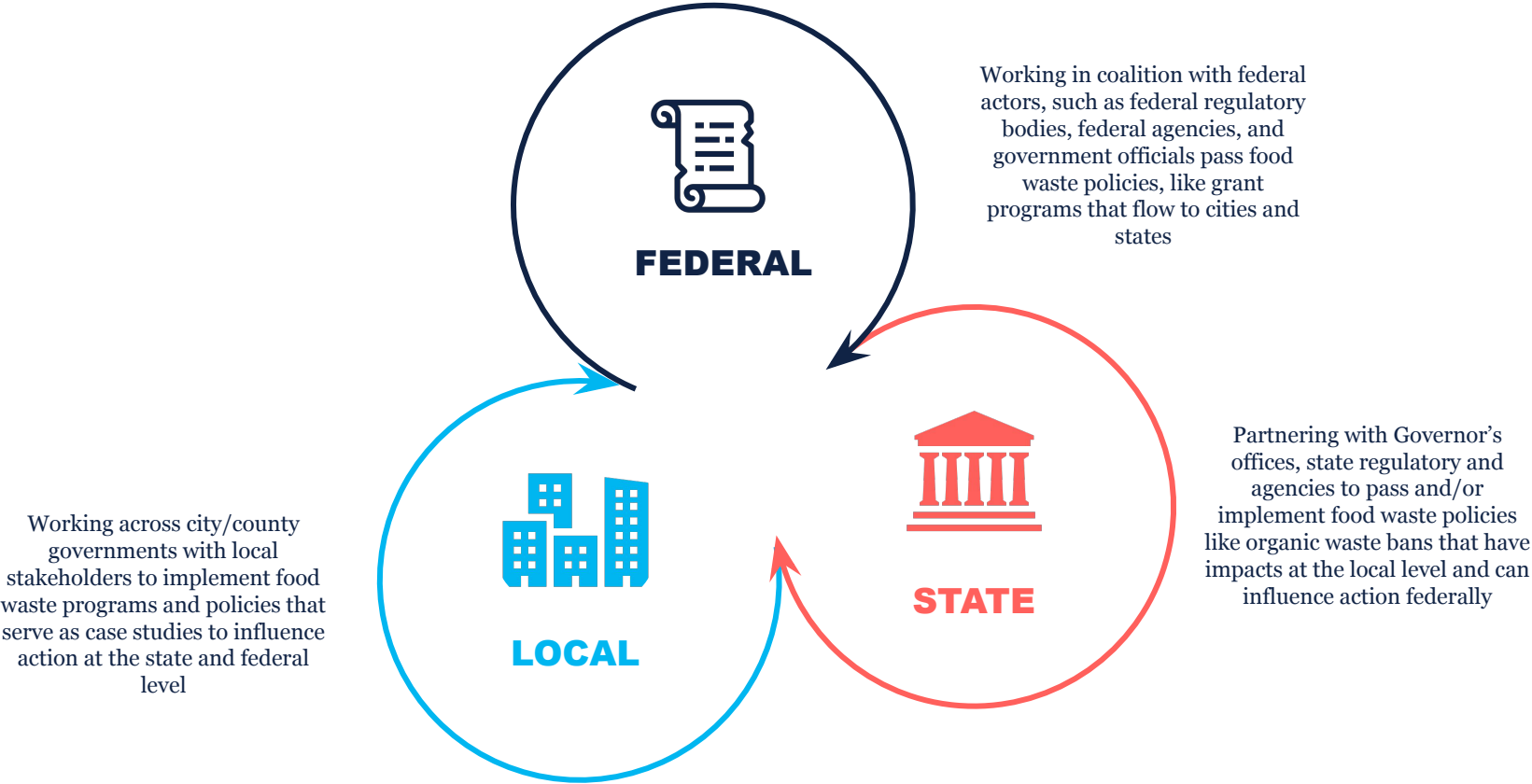


**PACIFIC COAST**  
Food Waste Commitment

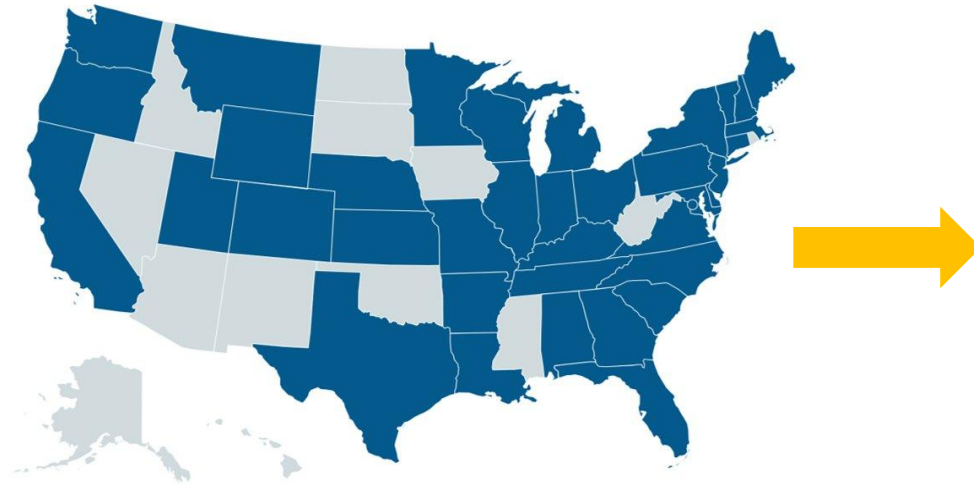
Spring 2023

New Seasons Market's upcycled pulled chicken program has turned more than **20,000 pounds of surplus rotisserie chicken** into a new pulled chicken product—resulting in new revenue and a **25% increase in sales** of rotisserie chickens.

# NRDC FOOD WASTE THEORY OF CHANGE



# ZERO FOOD WASTE COALITION



## Our goal:

Inform and influence policy at the local, state, and federal levels to reach our national goal of reducing food waste 50% by 2030

- ✓ Released 4 policy reports
- ✓ Grown to 170 members across 40 states, and still growing
- ✓ Passed a federal bill to increase food donations
- ✓ Shaped 6 federal marker bills
- ✓ Met 80+ congressional offices
- ✓ Submitted comments on Agency activities (e.g. *National Strategy for Reducing Food Loss and Waste and Recycling Organics*)





# FARM BILL PRIORITIES



## NO TIME TO WASTE ACT

**(S. 2889 | H.R. 5657)**

Representative Pingree (D-ME-1)

Representative Lawler (R-NY-17)

+4 co-sponsors

Senator Coons (D-DE)

Senator Moran (R-KS)



## FOOD DATE LABELING ACT

**(S.1484 | H.R.3159)**

Representative Pingree (D-ME-1)

Representative Newhouse (R-WA-4)

+34 co-sponsors

Senator Blumenthal (D-CT)

# BIPARTISAN FOOD DATE LABELING ACT

(S.1484 | H.R.3159)

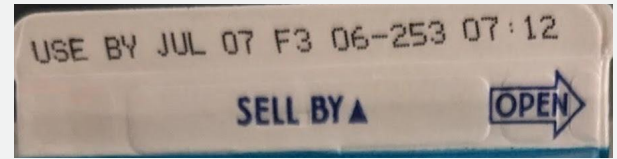


**\$4B**  
net benefit

**8%**  
of all food waste

**5M**  
MTCO<sub>2e</sub> emissions  
reduced

Source: ReFED



- ✓ Streamlines date labels on food to two terms: **“BEST If Used By”** (quality date) or **“USE By”** (discard date)
- ✓ **Food manufacturers can decide** which of their products carry a quality date or a discard date
- ✓ **Allows donation** of food past quality date
- ✓ Requires **consumer education** on meaning of date labels

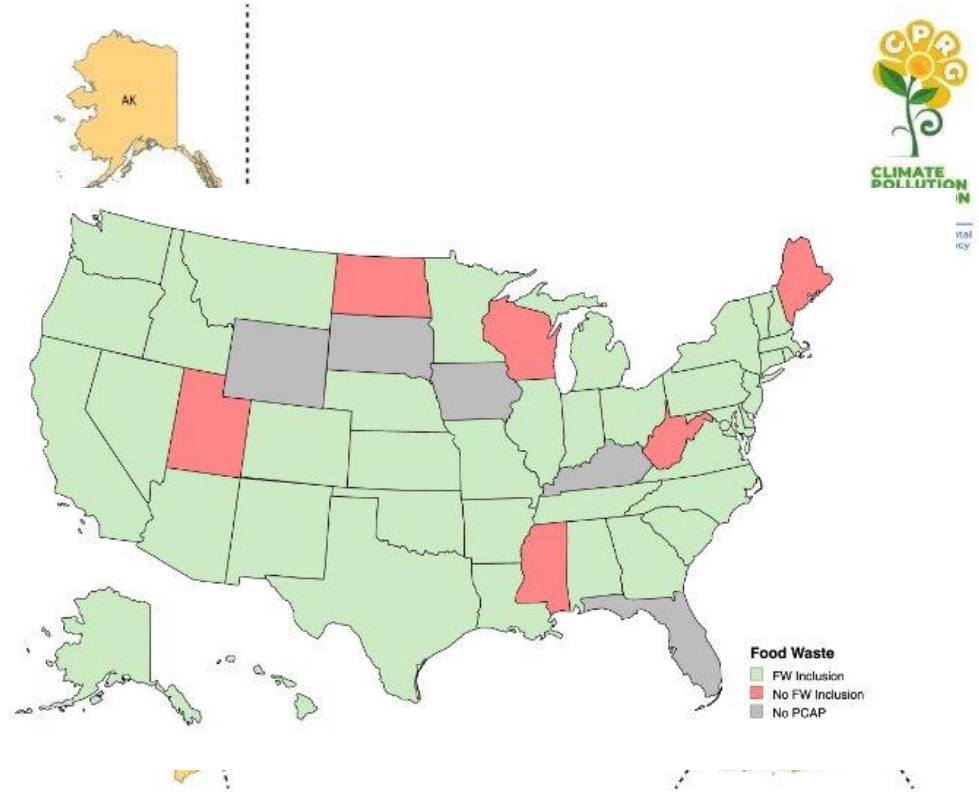
# CLIMATE POLLUTION REDUCTION GRANTS



## Background:

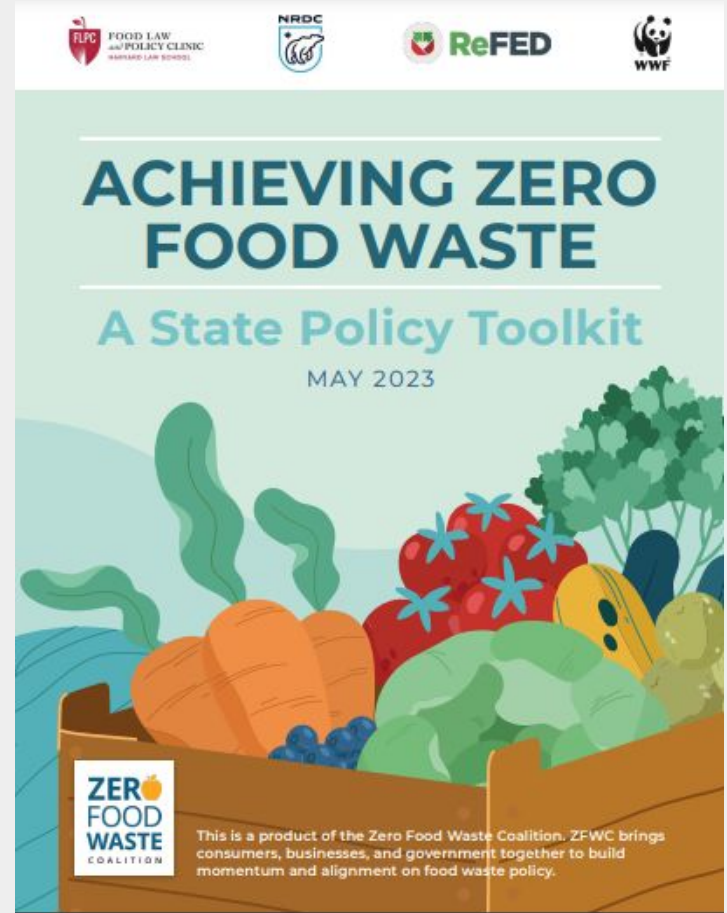
**\$5Billion in grants for GHG reduction authorized under the Inflation Reduction Act (IRA)**

- ✓ Informed members and encouraged public participation
- ✓ Shared talking points and opportunities to be included in PCAPS and grant proposals
- ✓ Updated a tracker with progress and engagement opportunities
- ✓ Submitted 50+ comments advocating for food waste inclusion in CPRG activities



# STATE MODEL POLICIES

- Build & Broaden Organic Waste Bans
- Promote Food Donation
- Support Organic Waste Infrastructure
- Develop End Markets for Circularity
- Prevent Food Waste Upstream
- Government Action



# FOOD MATTERS



# EXAMPLES OF CITY PROJECTS

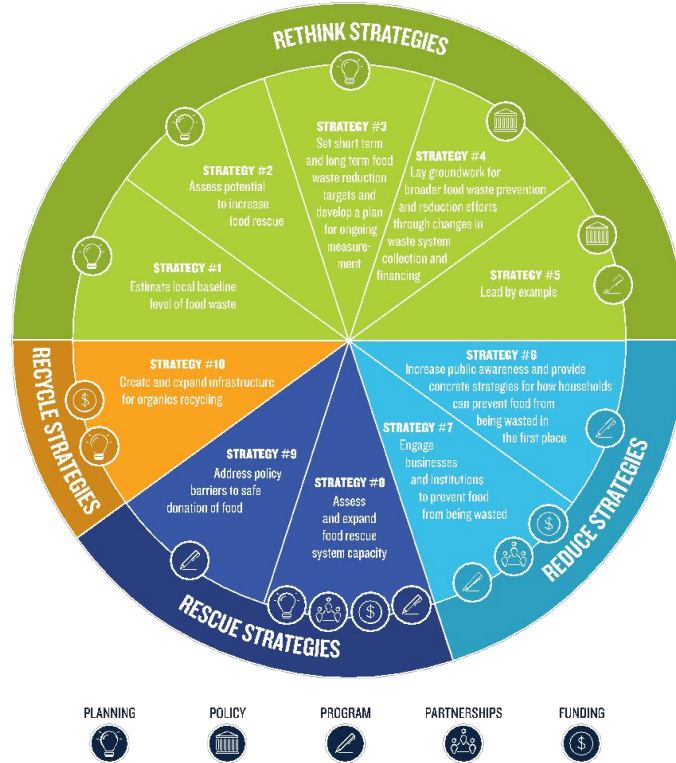


Jersey City declared 2021 the **Year of Reducing Food Waste** and launched the Rethink Your Fridge communications campaign aimed at increasing awareness about proper food storage and fridge and freezer organization.

Chicago completed a food rescue assessment leading to a **3-month food rescue and composting pilot at 2 farmers markets**. A partnership with NeighborSpace on a Community Compost Pilot led to 15+ city-wide drop-off sites for residents.

DC's **Food Waste Innovation Grants** provide businesses with free food waste assessments and \$1,000 of Compost Credit towards food scrap collection. \$300,000 will finance food waste interventions at small businesses.

Pittsburgh partnered with Pennsylvania Resources Council to **test at-home solutions** by using a variety of different food scrap recycling methods. During the pilot, participants were asked to fill out surveys about the challenges and how the systems changed their household food waste habits.



# FOOD MATTERS TOOLS



**Food Rescue Landscape Assessment Guide**



**Food Scrap Recycling Landscape Assessment Guide**



**Food Waste Restaurant Challenge Guide**



**Food Donations from Farms Guide**



**Increasing Public Awareness About Food Waste Prevention Guide**



**Assessing Progress on Food Waste Interventions at the City Level**



**Food Waste Generation and Food Rescue Potential Baseline Calculator Guide**



**Food Waste Strategic Communications and Partnership Guide**

# HOW IT WORKS



## HOW DOES THIS APPROACH LEAD TO LONG TERM IMPACT?



**Tools and model policies**



**Technical support**



**Knowledge sharing**

- Planning for the future in city goals and budgets
- Pilots encourage buy-in from elected officials, policy change, program implementation, and scaling to other cities
- Building trust and authentic partnerships takes time

# Questions?

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