ReFED

Advancing Data-Driven Solutions to Reduce Food Waste

ReFED's Insights Engine and *Roadmap to 2030*

PRESENTED BY
Dana Gunders

NERC
June 8, 2021

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

STAKEHOLDER ENGAGEMENT

Mobilizing and connecting supporters to take targeted action

You're invited to join the

ReFED Food Waste Action Network

Member Benefits:

- Networking
- Office Hours
- Lunch 'n Learns
- Innovation Demo Days
- Blogs & Case Studies

Join a growing list of industry leaders from organizations like:

Posner Foundation of Pittsburgh

The Kroger Co. Zero Hunger Zero Waste Foundation

FLPC Food Law and Policy Clinic Harvard Law School

Blue Apron

USDA

DoorDash

Spoiler Alert

The Ohio State University

Leanpath

bit.ly/JoinReFEDFWAN

ReFED

Following the Roadmap to 2030

Taking Action to Reduce U.S. Food Waste by 50%

#HalveFoodWasteBy2030

Following the Roadmap to 2030 Discussion Series

Enhance Product Distribution

JUNE 30 | 1:00 P.M. ET

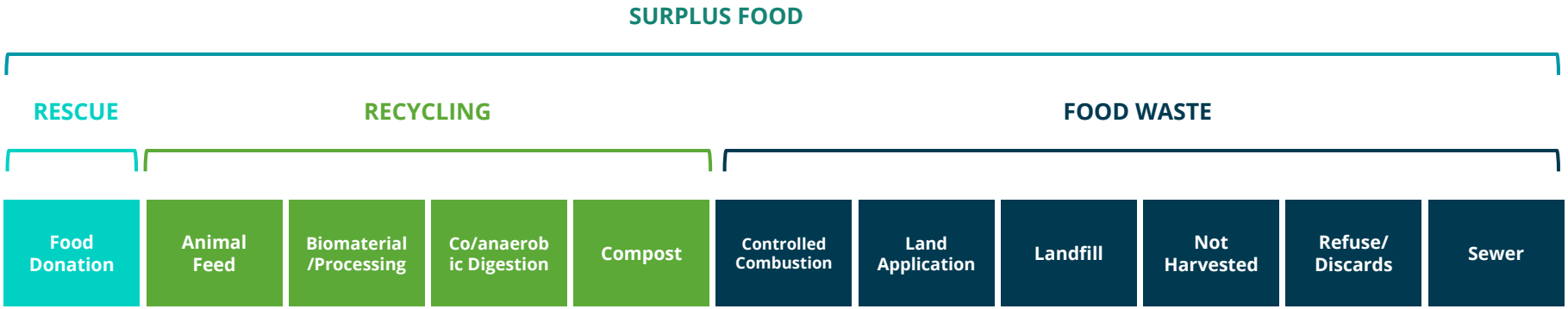
ReFED

ReFED's New Analysis

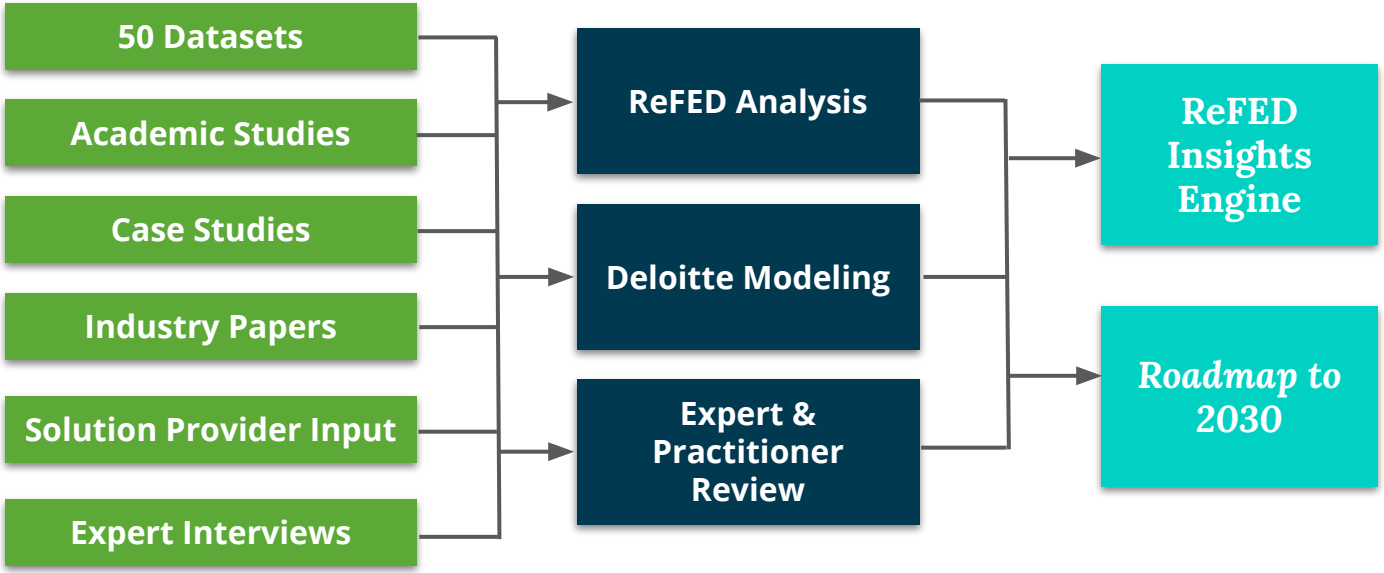
ReFED

What is “Surplus Food”?

All food that goes *unsold* or *unused* by a business or that goes *uneaten* at home – including food and inedible parts (e.g., peels, pits, bones) that are fed to animals, repurposed to produce other products, composted, or anaerobically digested. It also includes food that is *donated*.



What We Did...


50 Datasets
Academic Studies
Case Studies
Industry Papers
Solution Provider Input
Expert Interviews
ReFED Analysis
Deloitte Modeling
Expert & Practitioner Review
ReFED Insights Engine
Roadmap to 2030

The Tools

ReFED Insights Engine

Understand the Problem
Food Waste Monitor

Analyze & Prioritize Solutions
Solutions Database

Find Solution Providers
Solution Provider Directory

Calculate Impact
Impact Calculator

Roadmap to 2030

7 Key Action Areas

40+ Modeled & Unmodeled Solutions

Financing, Policy, Innovation, & Engagement Recommendations

User-Specific Guidance

WHAT'S NEEDED

40+
SOLUTIONS

$14B
INVESTMENT ANNUALLY

POLICY CHANGES

INNOVATION

ENGAGEMENT

WASTE REDUCTION

45M
ANNUAL FOOD WASTE DIVERSION (TONS)

IMPACT PER YEAR

$73B NET FINANCIAL BENEFIT

4T GALLONS IN WATER SAVINGS

75M TONS GHG EMISSION REDUCTION POTENTIAL (MT CO2e)

4B MEALS FOR PEOPLE IN NEED

51K JOBS CREATED THROUGH SOLUTION IMPLEMENTATION OVER 10 YEARS

A Blueprint for Action

The *Roadmap to 2030* looks at the entire food system and provides a framework to focus waste reduction efforts. Powered by the Insights Engine, the *Roadmap to 2030* is an indispensable resource for reaching our 2030 goal.

7

ReFED outlined seven key action areas for the food system to focus its efforts over the next ten years to *prevent*, *rescue*, and *recycle* food at risk of going to waste.

Roadmap to 2030: Reducing U.S. Food Waste by 50%

Find Details on Each Solution in the ReFED Insights Engine | insights.refed.com

Action Areas

OPTIMIZE THE HARVEST
Avoid over-production, then harvest as much as possible. For wild caught products, source only what is needed.

ENHANCE PRODUCT DISTRIBUTION
Leverage technology to create smart systems that help efficiently move products to maximize freshness and selling time.

REFINE PRODUCT MANAGEMENT
Align purchases with sales as closely as possible and find secondary outlets for surplus. Build out systems and processes for optimal on-site handling.

MAXIMIZE PRODUCT UTILIZATION
Design facilities, operations, and menus to use as much of each product as possible. Upcycle surplus and byproducts into food products.

RESHAPE CONSUMER ENVIRONMENTS
Drive consumers towards better food management and less waste by creating shopping, cooking, and eating environments that promote those behaviors. Shift culture to place more value on food and reduce waste.

STRENGTHEN FOOD RESCUE
Further the rescue of high-quality, nutritious food by increasing capacity, addressing bottlenecks, and improving communication flow.

RECYCLE ANYTHING REMAINING
Find the highest and best use for any remaining food or food scraps in order to capture nutrients, energy, or other residual value.

Modeled Solutions

Unmodeled Solutions

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				

ReFED Insights Engine

A knowledge hub for food loss and waste, designed to provide anyone interested in food waste reduction with the information they need to take meaningful action.

Insights Engine tools let users:

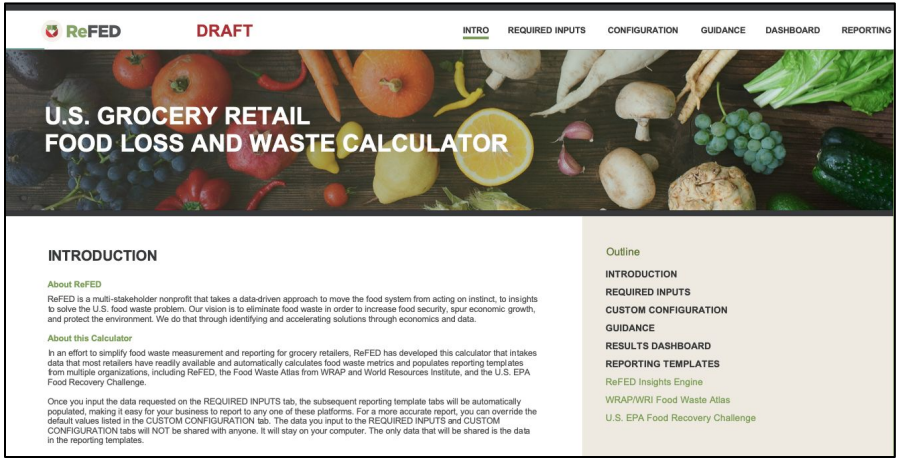
- **Understand the problem**: Find out how much food is being wasted in the US, learn why it's happening, and see where it goes.
- **Explore Solutions:** Learn which food waste reduction solutions are the most relevant for meeting specific goals.
- **Find Solution Providers**: Explore our database of 700+ organizations offering products and services to help you reduce food waste.
- **Impact Calculator:** Calculate the environmental and social impacts of wasted food.

Launch the Insights Engine

ReFED

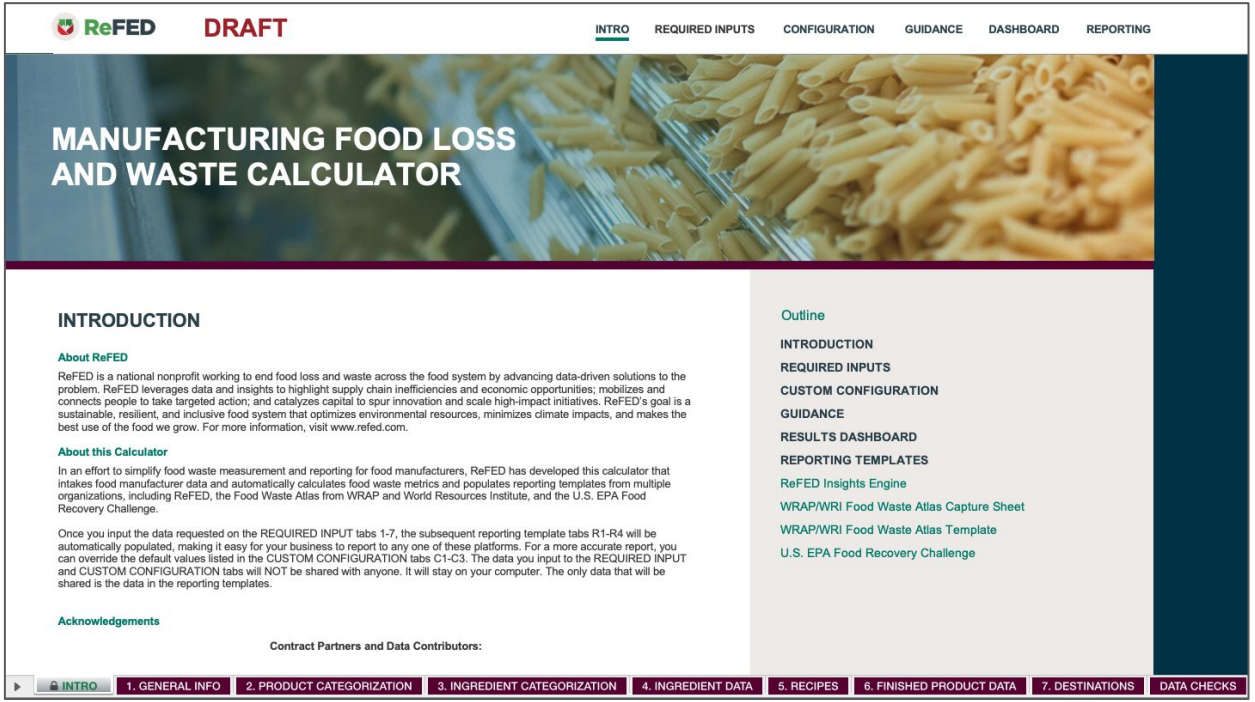
U.S. Grocery Retail Food Loss and Waste Calculator

1. **Simplification** - the Calculator requires accessible data inputs (i.e. sales and inventory data) and provides a series of back-end conversion factors to eliminate the weight of packaging and inedible parts, as well as convert retail dollars to pounds.
2. **Automation** - the Calculator auto-populates various reporting templates (i.e ReFED Insights Engine, Atlas, EPA Food Recovery Challenge) based on values reported on a single “Inputs” tab, saving time in total reporting efforts.
3. **Data Security** - the Calculator protects confidential and highly sensitive business data by only requiring the submission of the auto-populated templates and not the input data. This is strengthened by a highly secure data upload and storage platform.



Coming soon....

U.S. Food Manufacturing Food Loss and Waste Calculator



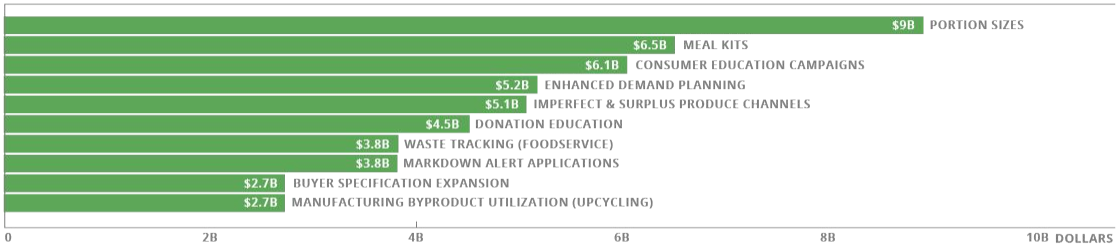
Stay Connected

@refed

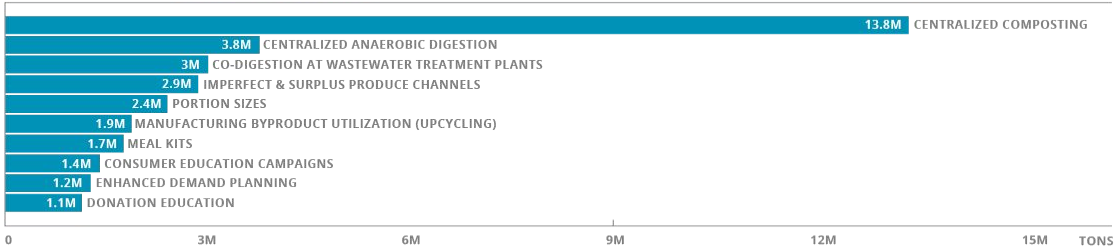
refed.com
insights.refed.com

ReFED

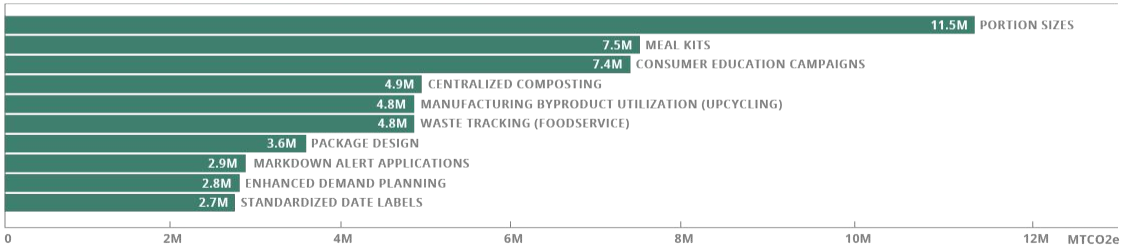
Top Ten Solutions | NET FINANCIAL BENEFIT



Top Ten Solutions | TONS WASTE DIVERTED



Top Ten Solutions | GHG EMISSIONS AVOIDED IN MTCO2e



ReFED

STAKEHOLDER

Retailers

Top 10 Solutions in the Insights Engine

Total Net $

- Enhanced Demand Planning
- Reduced Warehouse Handling
- Minimized On-Hand Inventory
- Active & Intelligent Packaging
- Decreased Minimum Order Quantity
- Increased Delivery Frequency
- First Expired/First Out
- Temperature Monitoring (Pallet Transport)
- Decreased Transit Time
- Markdown Alert Applications

Net $/Ton

- Enhanced Demand Planning
- Decreased Transit Time
- Intelligent Routing
- First Expired/First Out
- Imperfect & Surplus Produce Channels
- Temperature Monitoring (Pallet Transport)
- Markdown Alert Applications
- Buyer Specification Expansion
- Minimized On-Hand Inventory
- Decreased Minimum Order Quantity

Total Tons

- Imperfect/Surplus Produce Channels
- Meal Kits
- Consumer Education Campaigns
- Enhanced Demand Planning
- Centralized Composting
- Intelligent Routing
- Decreased Transit Time
- Buyer Specification Expansion
- First Expired/First Out
- Standardized Date Labels

Total GHGs

- Meal Kits
- Consumer Education Campaigns
- Enhanced Demand Planning
- Standardized Date Labels
- Intelligent Routing
- Decreased Transit Time
- First Expired/First Out
- Temperature Monitoring (Pallet Transport)
- Dynamic Pricing
- Markdown Alert Applications

STAKEHOLDER

Retailers

Top 10 Solutions in the Insights Engine

Total Net $

- Enhanced Demand Planning
- Reduced Warehouse Handling
- Minimized On-Hand Inventory
- Active & Intelligent Packaging
- Decreased Minimum Order Quantity
- Increased Delivery Frequency
- First Expired/First Out
- Temperature Monitoring (Pallet Transport)
- Decreased Transit Time
- Markdown Alert Applications

Net $/Ton

- Enhanced Demand Planning
- Decreased Transit Time
- Intelligent Routing
- First Expired/First Out
- Imperfect & Surplus Produce Channels
- Temperature Monitoring (Pallet Transport)
- Markdown Alert Applications
- Buyer Specification Expansion
- Minimized On-Hand Inventory
- Decreased Minimum Order Quantity

Total Tons

- Imperfect/Surplus Produce Channels
- Meal Kits
- Consumer Education Campaigns
- Enhanced Demand Planning
- Centralized Composting
- Intelligent Routing
- Decreased Transit Time
- Buyer Specification Expansion
- First Expired/First Out
- Standardized Date Labels

Total GHGs

- Meal Kits
- Consumer Education Campaigns
- Enhanced Demand Planning
- Standardized Date Labels
- Intelligent Routing
- Decreased Transit Time
- First Expired/First Out
- Temperature Monitoring (Pallet Transport)
- Dynamic Pricing
- Markdown Alert Applications

STAKEHOLDER

Retailers

Key Opportunities

1/ Enhanced Demand Planning	$5.2B Net Financial Benefit	1.2M Food Waste Tons Diverted
2/ Enhanced Product Distribution	$8.3B Net Financial Benefit (Total)	3.3M Food Waste Tons Diverted
3/ Meal Kits	$6.5B Net Financial Benefit	1.7M Food Waste Tons Diverted
4/ Produce Line Expansion	$5.1B Net Financial Benefit	2.9M Food Waste Tons Diverted
5/ Markdown Alert Applications	$3.8B Net Financial Benefit	771K Food Waste Tons Diverted