ReFED

Rethink Food Waste through Economics and Data

Food Waste Solutions, Economics, and Agriculture

Presentation to the Farm, Ranch, and Rural Communities Committee, November 13, 2021

ReFED | Rethink Food Waste *Through Economics and Data*

Our Mission

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

Our Vision

We envision 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

Our Work

Aligning with the United Nations 2030 Sustainable Development Goals, we are working toward a **50% reduction in food loss and waste** by the year 2030. We'll get there by:

Motivating More Actors	Mobilizing More Action	Advancing More Solutions
We use compelling data, actionable guidance, and strategic communications to inspire, inform, and guide people towards action.	We catalyze capital, collaboration, and innovation to accelerate adoption of solutions.	We break down barriers to solution innovation and adoption, and drive scale.

THE PROBLEM

40%

of all food goes uneaten

$218B

a year is spent on food that is never eaten

Meanwhile

50M+

Americans are food insecure

Environmental Impact of Food that is Produced But Never Eaten

8%

of Global GHG Emissions

21%

of All Freshwater*

19%

of All Fertilizer*

18%

of All Cropland*

21%

of Landfill Volume*

*statistics are based on US numbers

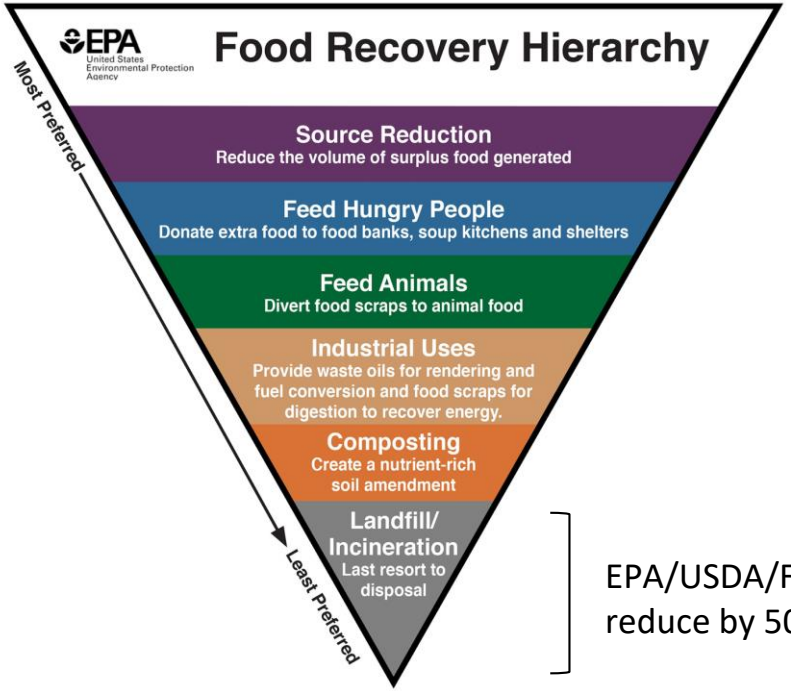
THE OPPORTUNITY

ReFED estimates that reducing food waste by just 20% would have the following positive impacts annually:

- 1.8 billion meals recovered
- 1.6 trillion gallons of water conserved
- 18 million tons of GHG emissions avoided
- $6 billion of consumer savings

What is Food Waste?

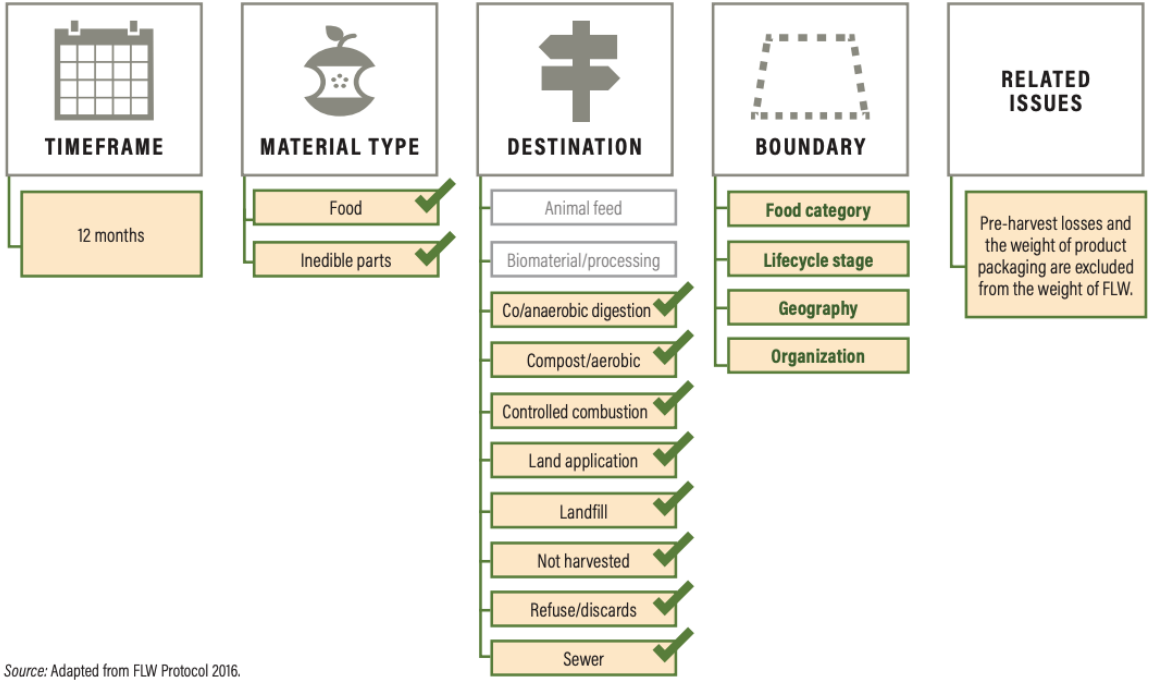
EPA Food Recovery Hierarchy



EPA/USDA/FDA goal to reduce by 50% by 2030

Definition of “Food Loss and Waste”--International Goals

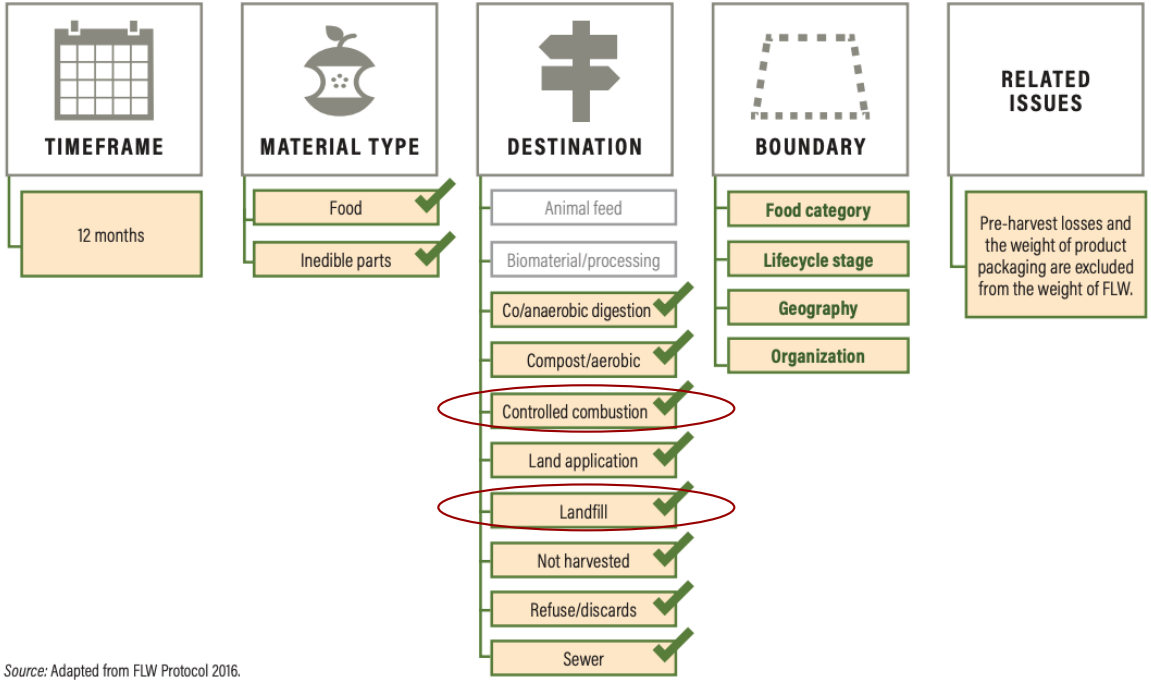
FIGURE 2. **Recommended scope for interpreting SDG Target 12.3**



Source: Adapted from FLW Protocol 2016.

Definition of “Food Loss and Waste”--U.S. Goals

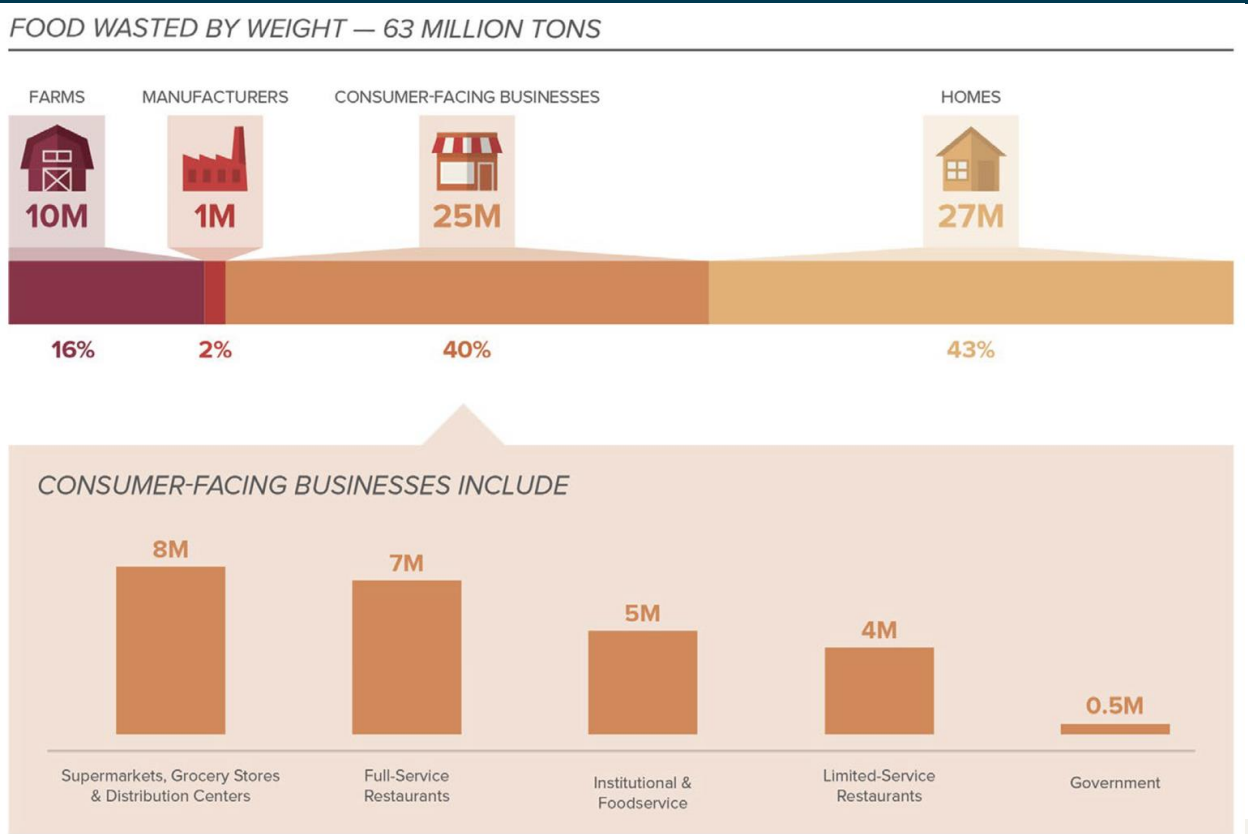
FIGURE 2. **Recommended scope for interpreting SDG Target 12.3**



Source: Adapted from FLW Protocol 2016.

ReFED’s Original Roadmap

How much food waste is there?



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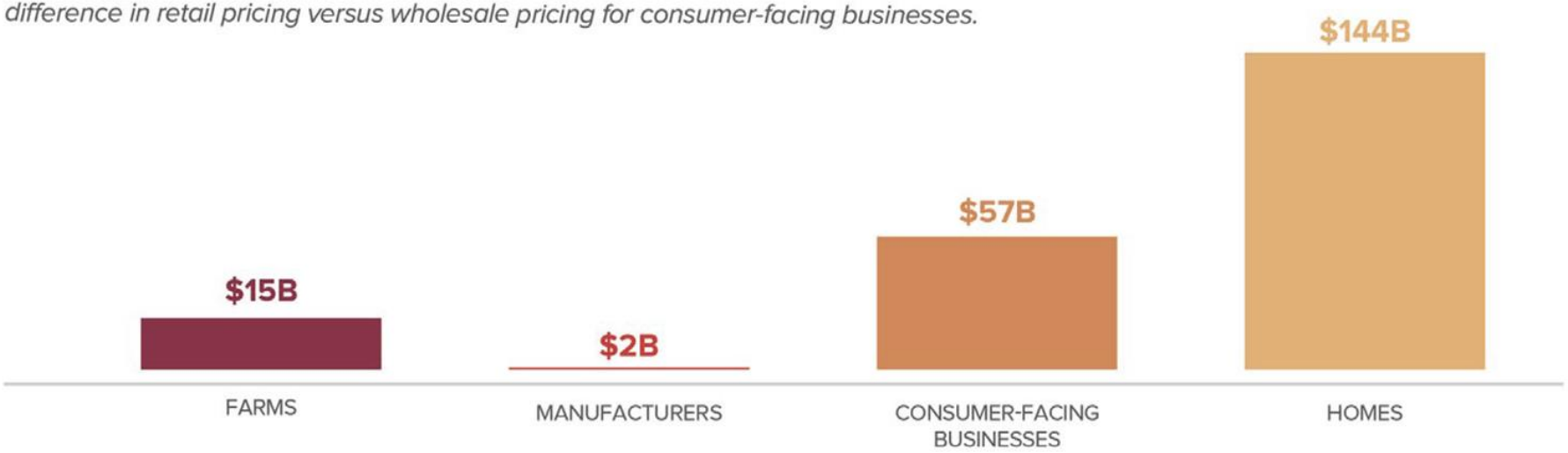
How much is it worth?

VALUE OF WASTE — $218 BILLION

The financial cost of food waste ends up costing consumers the most due to the difference in retail pricing versus wholesale pricing for consumer-facing businesses.



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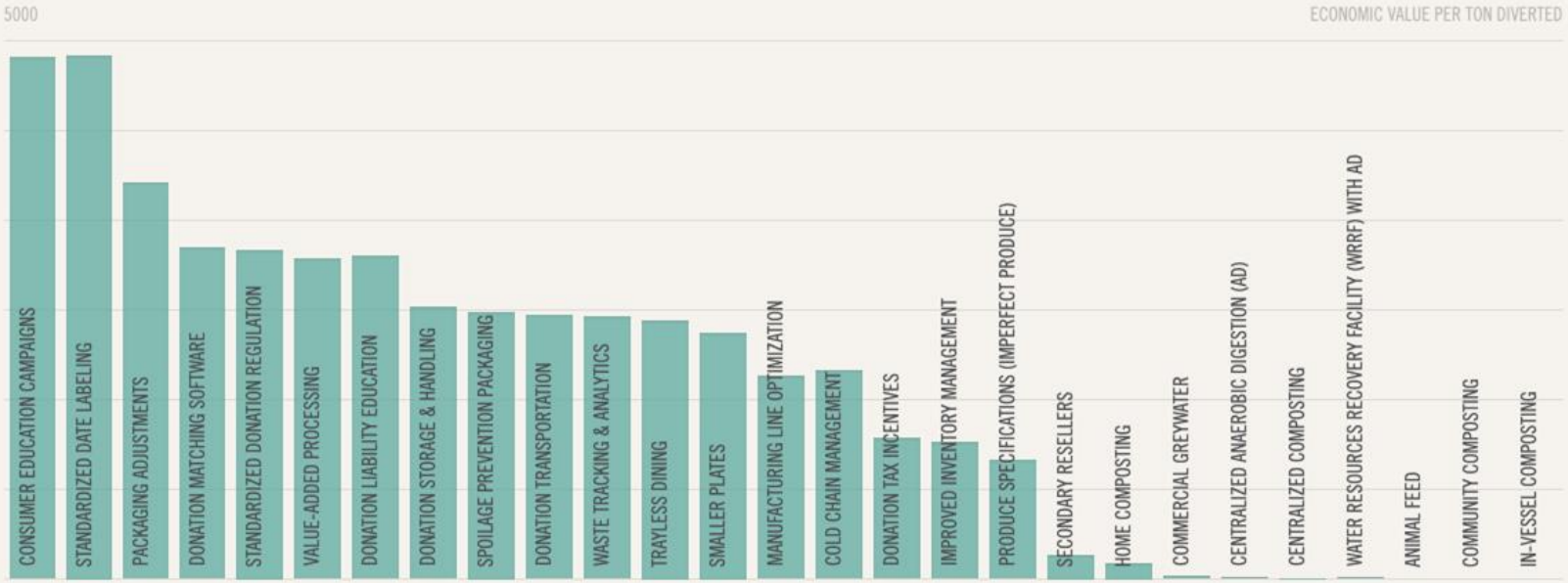
FINANCIAL BENEFIT | WASTE DIVERTED | EMISSIONS REDUCED | WATER SAVED | JOBS CREATED | MEALS RECOVERED

The aggregate financial benefit to society (consumers, businesses, governments, and other stakeholders) minus all investment and costs per ton of food waste diverted. It shows the amount of benefit received per ton of reduction and is calculated as the Economic Value per Ton.



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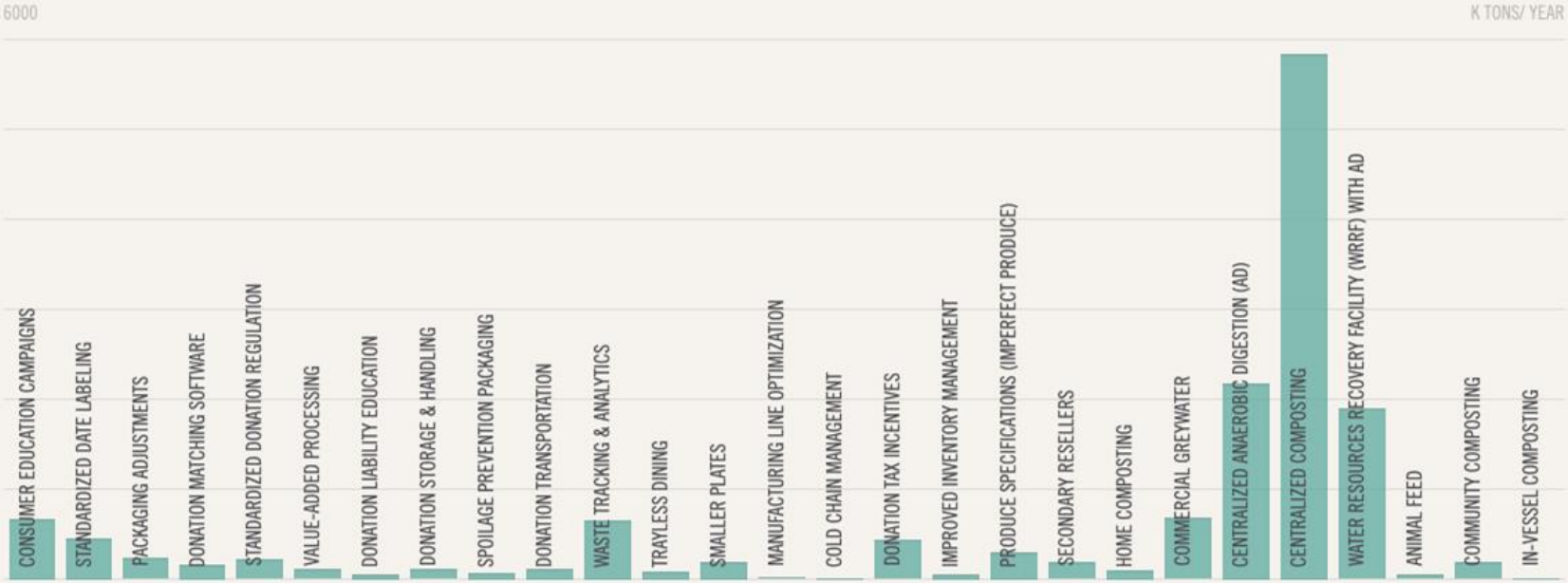
FINANCIAL BENEFIT | **WASTE DIVERTED** | EMISSIONS REDUCED | WATER SAVED | JOBS CREATED | MEALS RECOVERED

The tons of annual waste that can feasibly be diverted from landfills and on-farm losses per solution.



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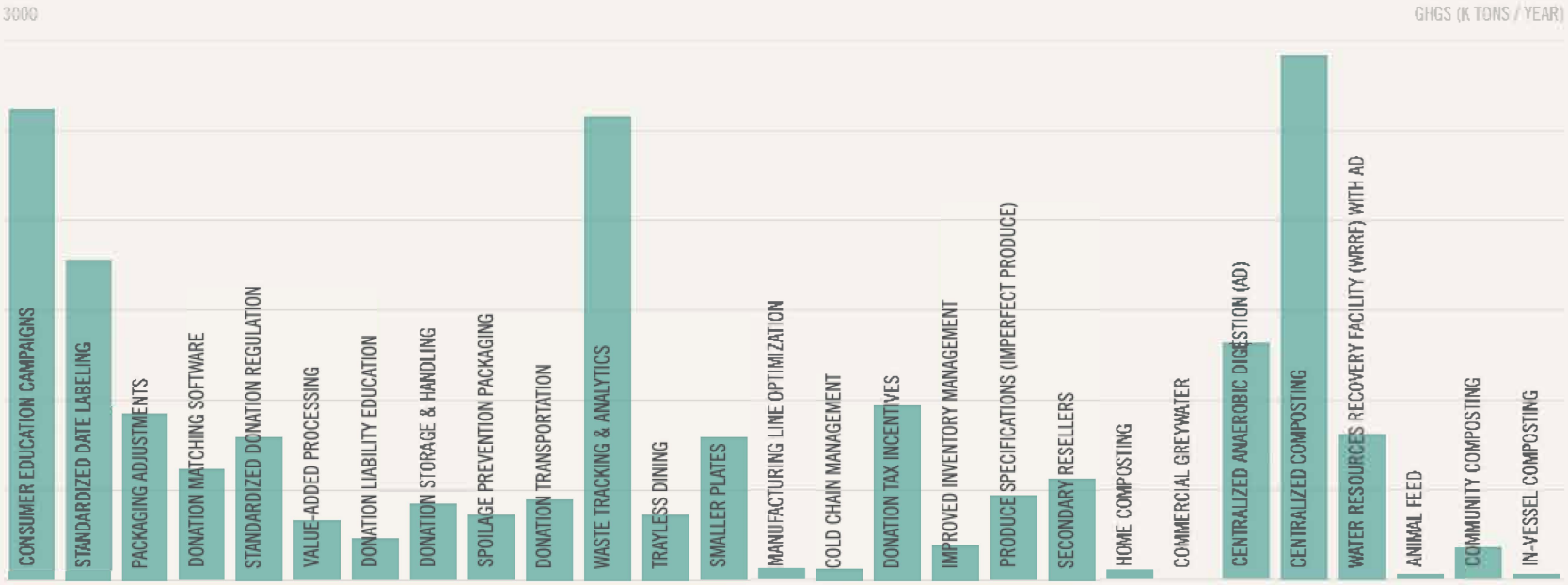
FINANCIAL BENEFIT | WASTE DIVERTED | **EMISSIONS REDUCED** | WATER SAVED | JOBS CREATED | MEALS RECOVERED

Greenhouse gases are reduced per solution by avoiding the resources that go into producing, processing, and transporting food, as well as the methane emissions from food disposed of in landfills.



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The ReFED Insights Engine and Roadmap to 2030

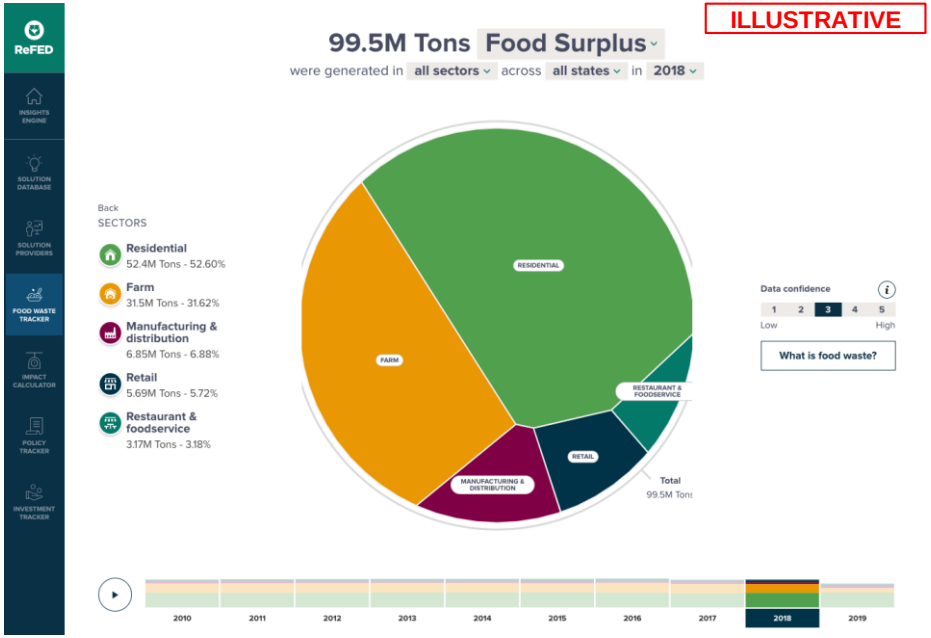
Informing the Future: The ReFED Insights Engine

The **ReFED Insights Engine** is an online data center designed to serve as the next generation of data, insights, and guidance on U.S. food waste reduction.

Through a variety of online tools and resources, users will be able to:

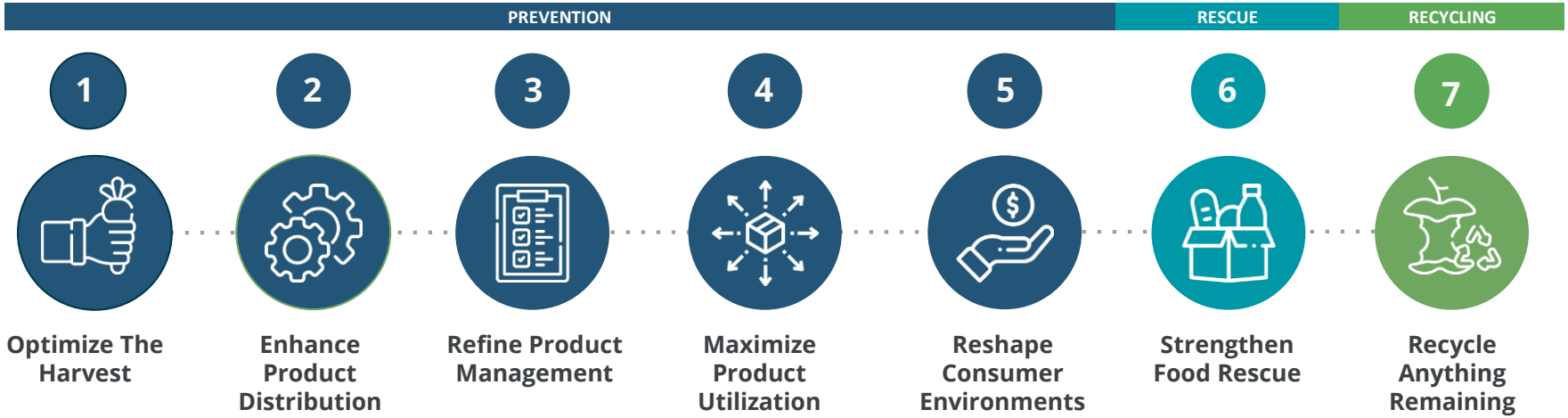
- View a quantitative analysis of solutions
- Generate customized analyses of solutions pertinent to a stakeholder's situation
- Understand the public, private, and philanthropic investments needed
- Identify and connect with solutions providers
- Calculate the environmental and social impacts of each solution

Live Demo: https://refed-frontend.vizzuality1.now.sh/



Informing the Future: *Roadmap to 2030*

The *Roadmap to 2030* will condense key takeaways from the Insights Engine to **articulate an action plan with seven priority action areas for key food system stakeholders**.



PRELIMINARY DRAFT- NOT FINAL

Informing the Future: *Roadmap to 2030*

PREVENTION | RESCUE | RECYCLING

1 — *Optimize The Harvest*

Avoiding over-production, then harvesting as much as possible. For wild-caught products, sourcing only what is needed.

2 — Enhance Supply Chains

Leveraging technology to create smart systems that help efficiently move products to maximize freshness and selling time.

3 — Refine Product Management

Aligning purchases with sales as closely as possible, and finding secondary outlets for surplus. Building out systems and processes for optimal on-site handling.

4 — Maximize Product Utilization

Designing facilities, operations and menus to make use of as much of each product as possible . Upcycling byproducts into food products.

5 — Reshape Consumer Environments

Driving consumers towards better food management and less waste by creating shopping, cooking, and eating environments that promote those behaviors. Shifting culture to place more value on food.

6 — Strengthen Food Rescue

Furthering the rescue of high-quality, nutritious food by increasing capacity, addressing bottlenecks and improving communication flow.

7 — 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.

PRELIMINARY DRAFT- NOT FINAL

Optimize the Harvest: Preliminary Results

Preliminary results show that Optimize the Harvest solutions have low net financial benefit, but high potential for tons to be captured with new solutions

Net Financial Benefit →	LOW
Tons of Surplus →	HIGH
Climate Mitigation →	MEDIUM

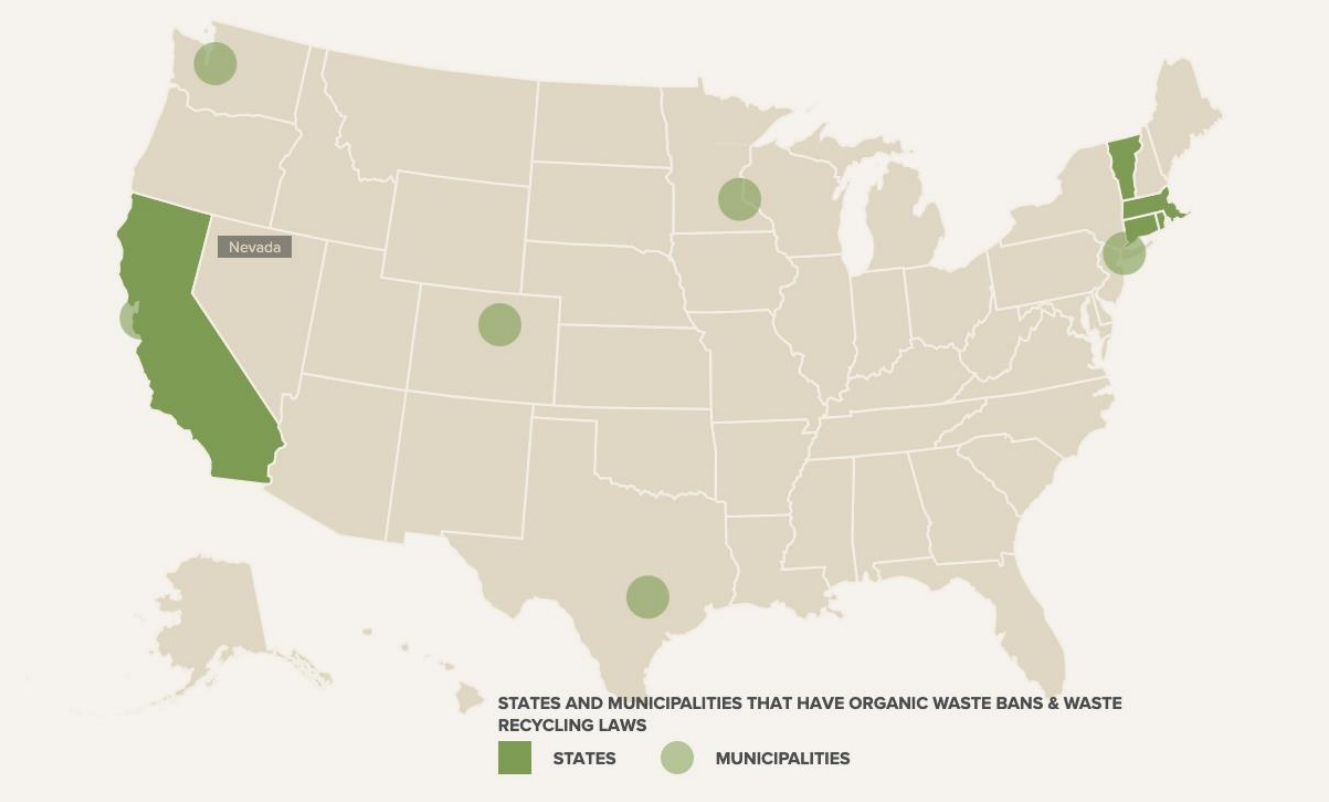
PRELIMINARY DRAFT- NOT FINAL

Optimize the Harvest Solutions (Specialty Crop Focus)

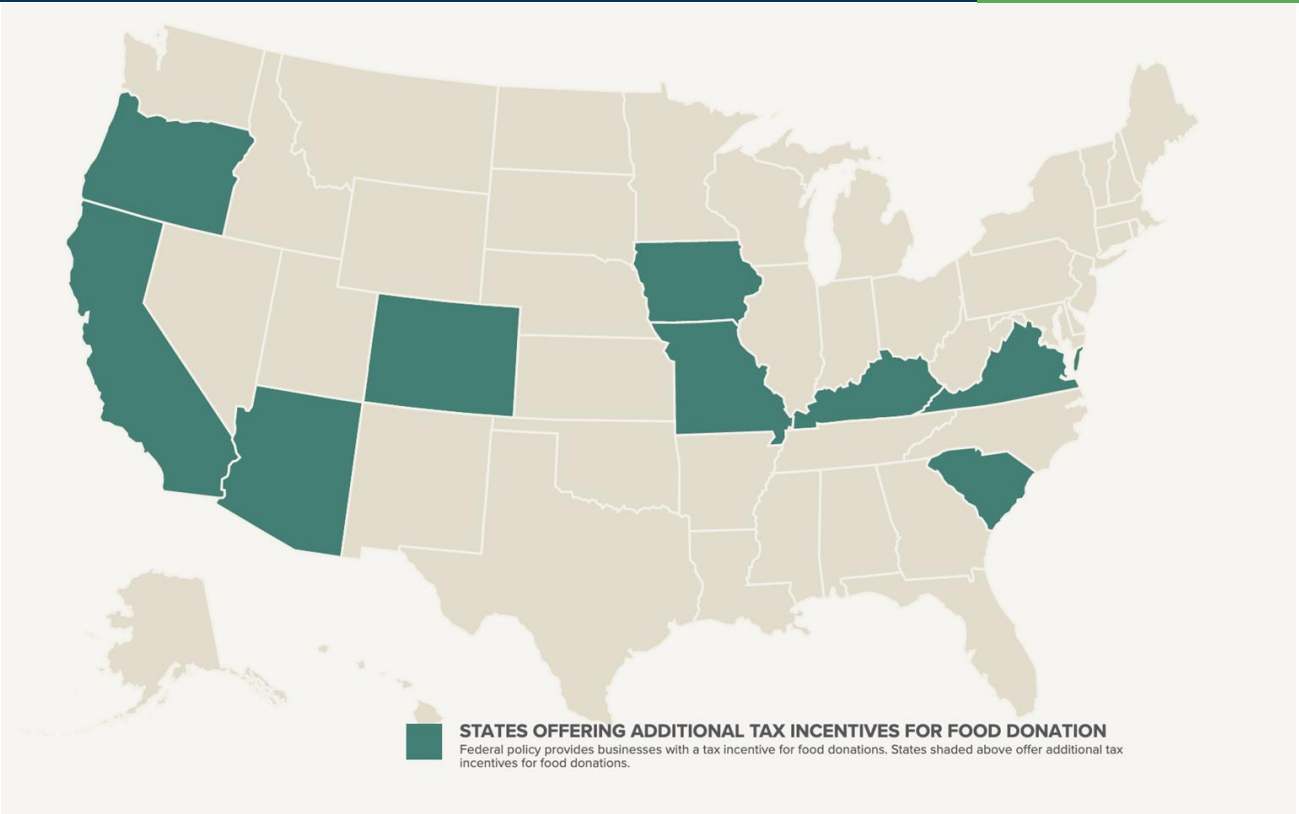
Best Practices	Modeled Solutions	Unmodeled
Sanitation Practices In-field Sanitation Monitoring Optimized Harvesting Schedules	Buyer Spec Expansion Partial Order Acceptance Gleaning Imperfect Product Lines	Field Cooling Units Labor Matching Software Innovative Grower Contracts Improved Communication for Planting Schedules Risk-Based Quality Procedures Smaller Harvest Lot

PRELIMINARY DRAFT- NOT FINAL

Landfill Bans



State Tax Incentives



A Word on Data

Thank you

For questions and more information please contact:

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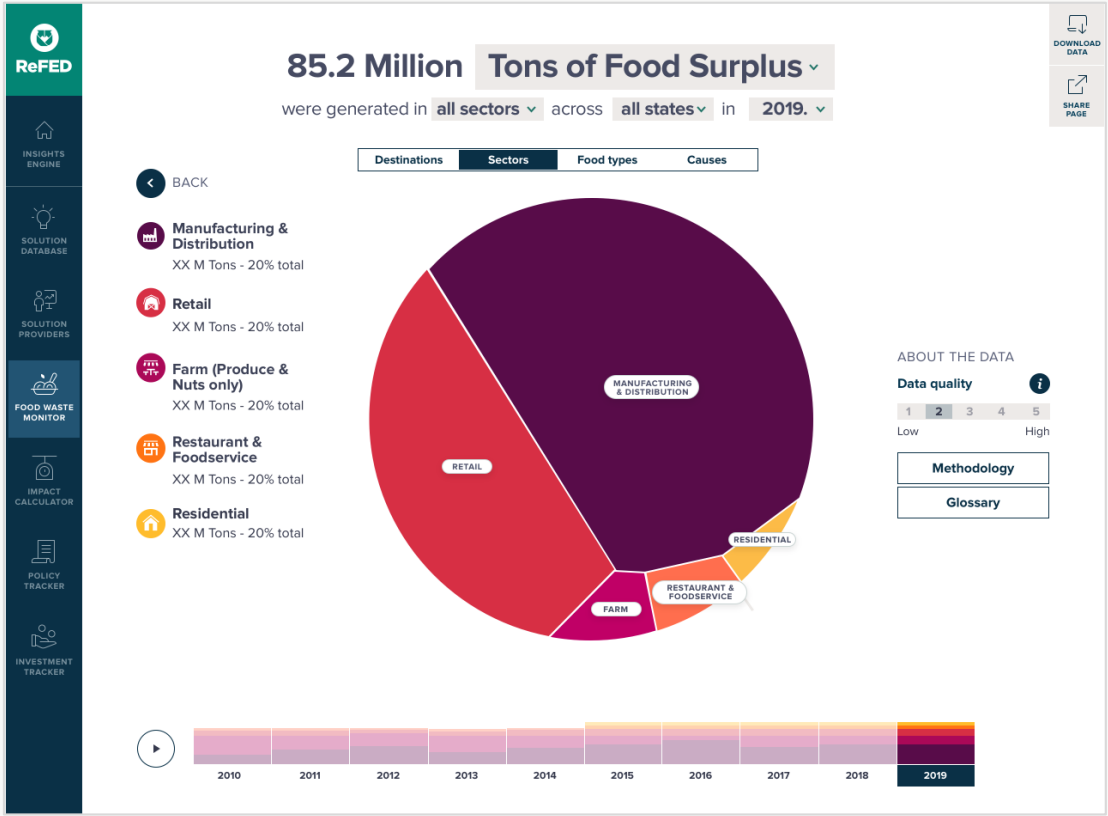
Appendix

ReFED Insights Engine: U.S. Food Waste Monitor

DATA IS ILLUSTRATIVE



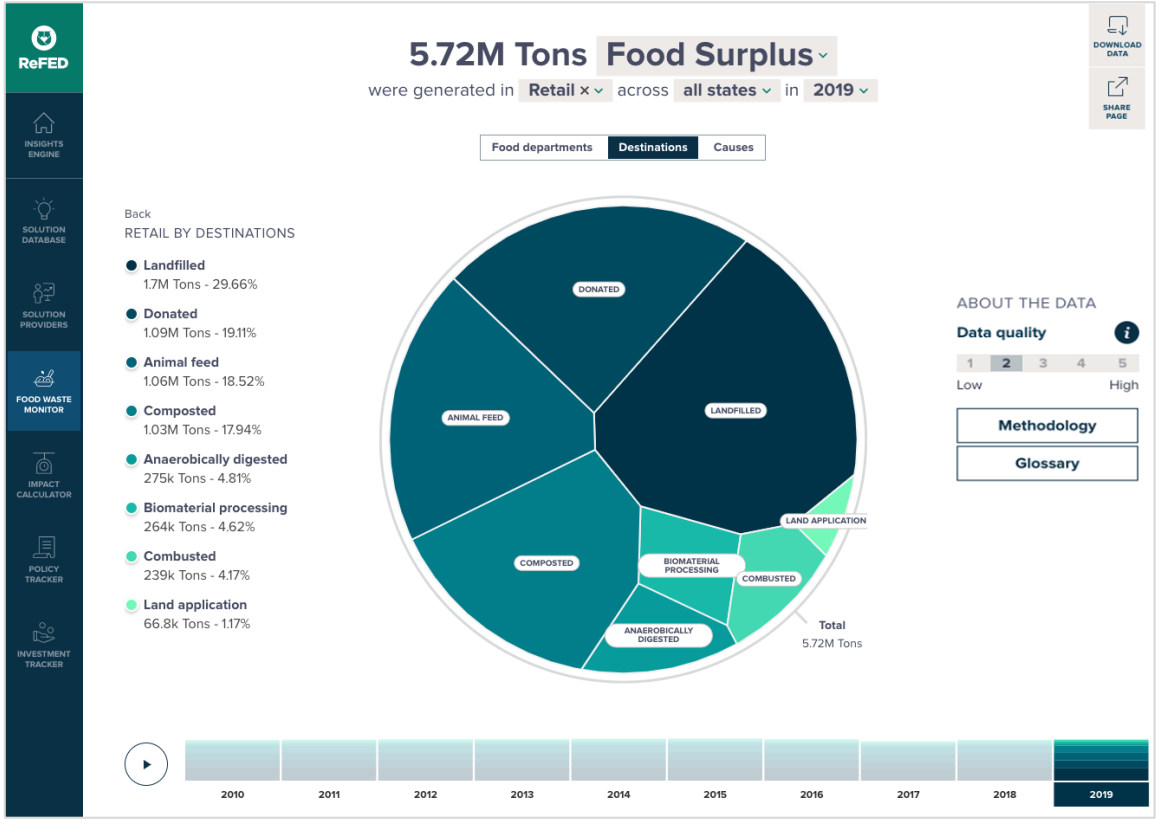
Combines 50+ public and proprietary datasets to quantify the amount and cost of surplus food in the U.S. with breakdowns by sector, food type, and state.

Sample Use Cases:

- **Food Businesses** can identify hot spots to prioritize programs
- **Entrepreneurs** can identify opportunities areas for innovation
- **Food Recovery Organizations** can prioritize their sourcing strategy for specific food types, sectors, and geographies
- **Researchers** can identify data gaps to guide future research.

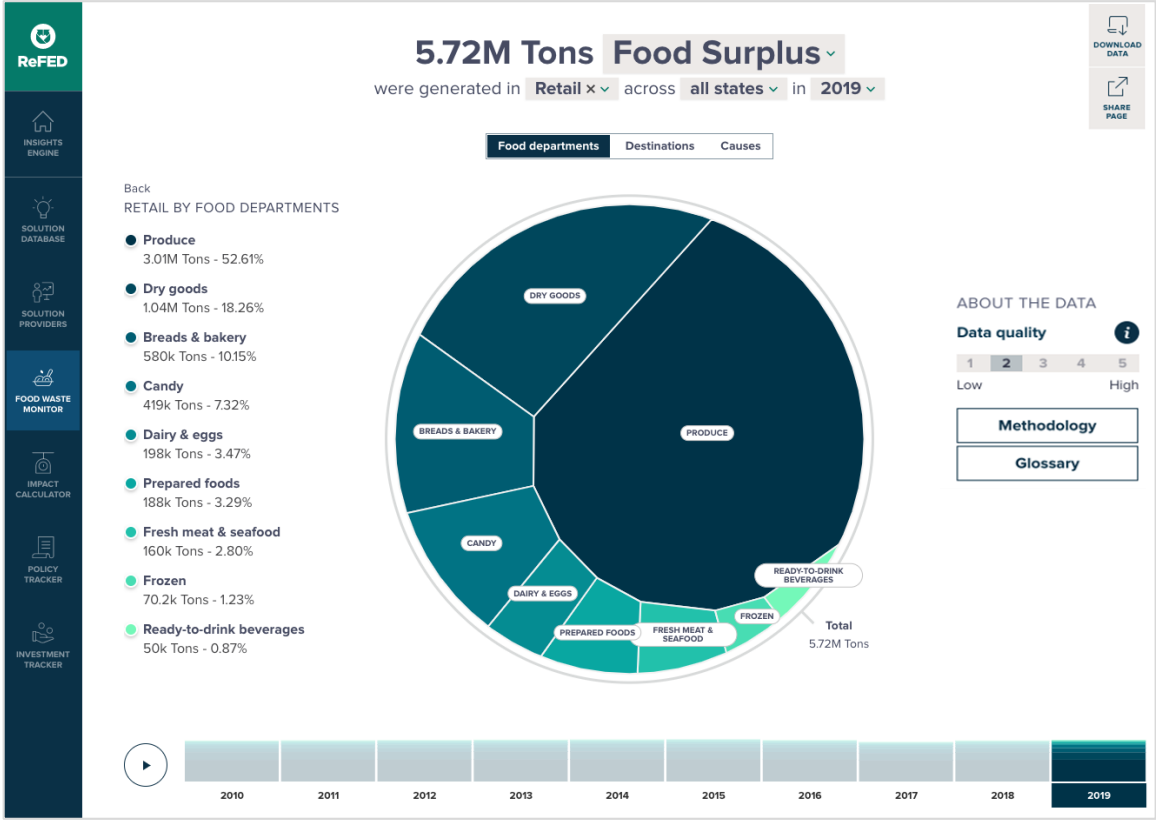
Food Waste Monitor: Destination Breakdown

DATA IS ILLUSTRATIVE



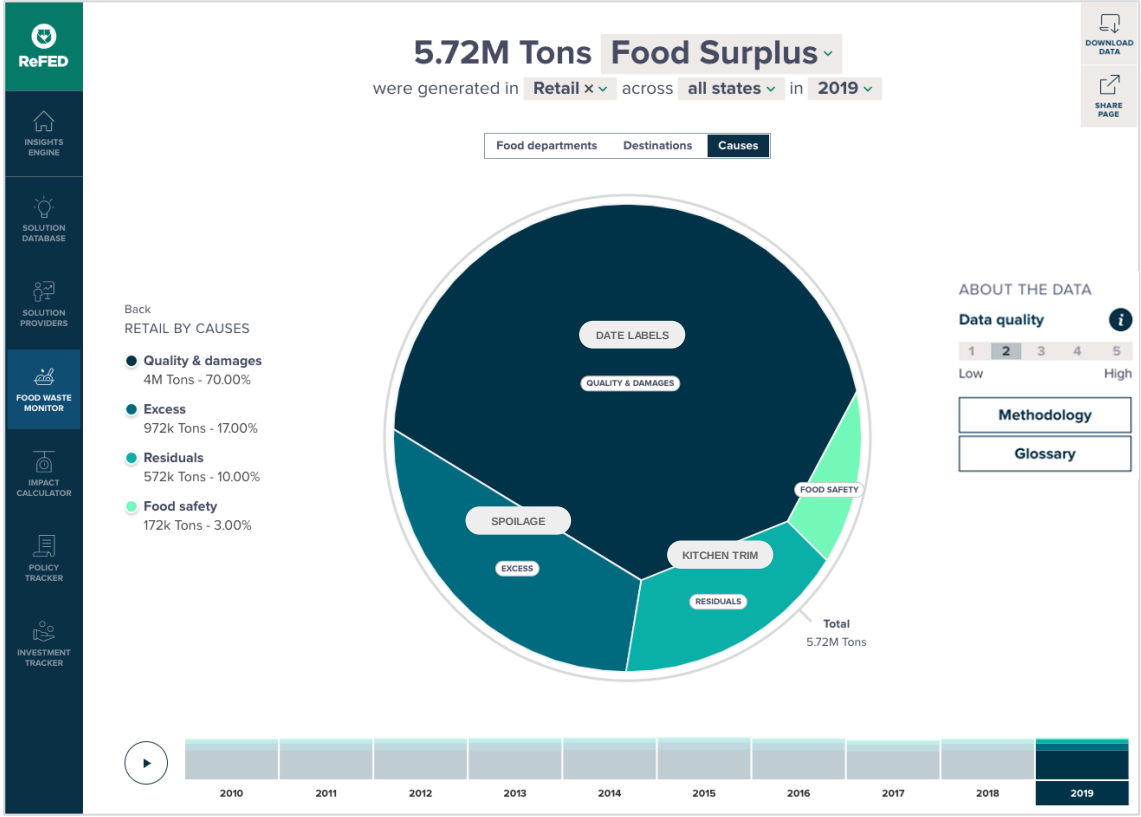
Food Waste Monitor: Food Type Breakdown

DATA IS ILLUSTRATIVE

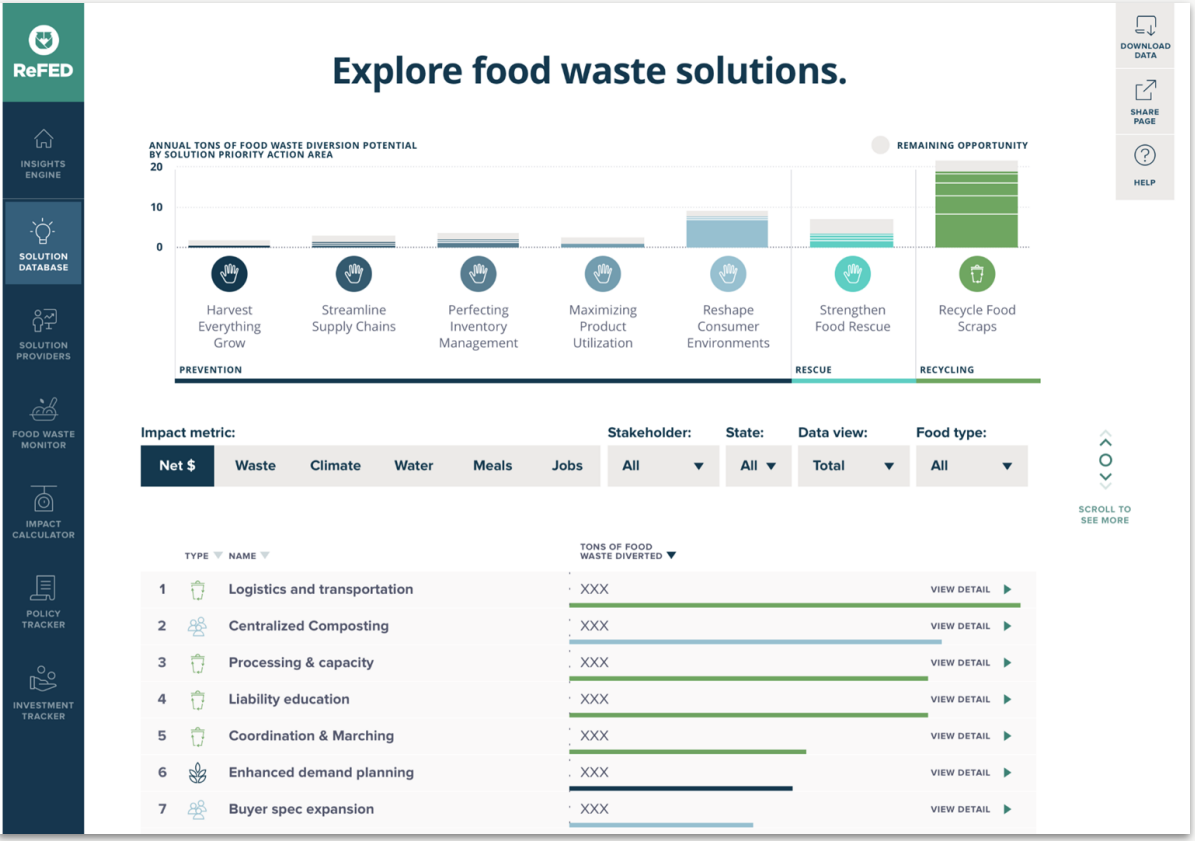


Food Waste Monitor: Cause Breakdown

DATA IS ILLUSTRATIVE



ReFED Insights Engine: Solutions Database



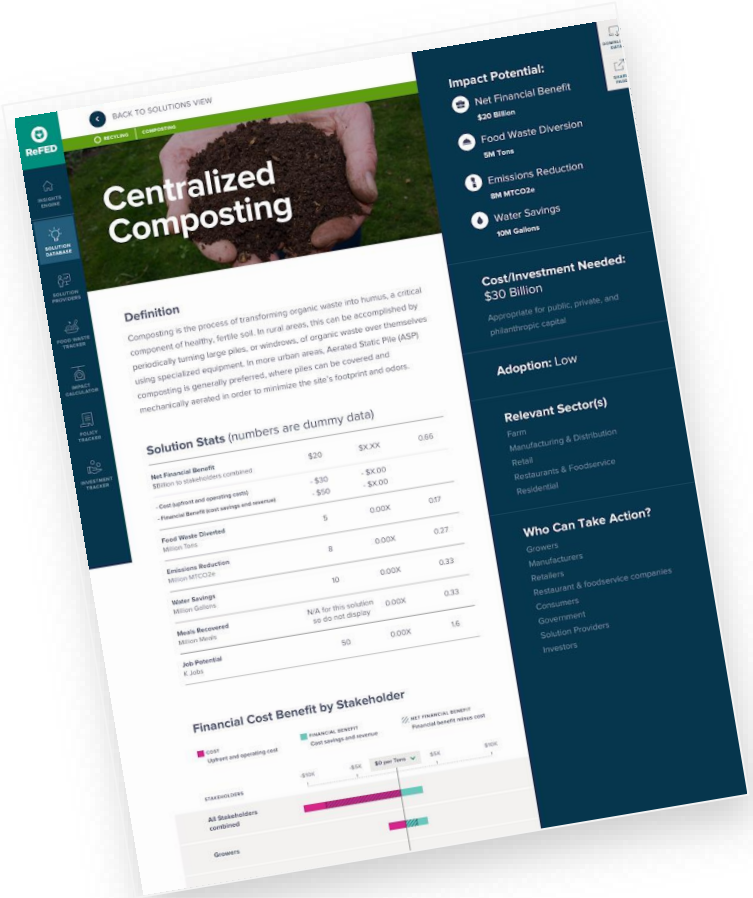
DATA IS ILLUSTRATIVE

Prioritizes solutions by stakeholder to understand the environmental and social impact potential of each.

Sample Use Cases:

- **Climate Funders** can determine the highest impact GHG solutions for specific regions.
- **State Agencies** can see what solutions will divert the greatest amount of food from landfills in their state.
- **Grocery Retailers** can estimate the profit potential of food waste solutions for their business and for their customers.

ReFED Insights Engine: Solution Fact Sheets

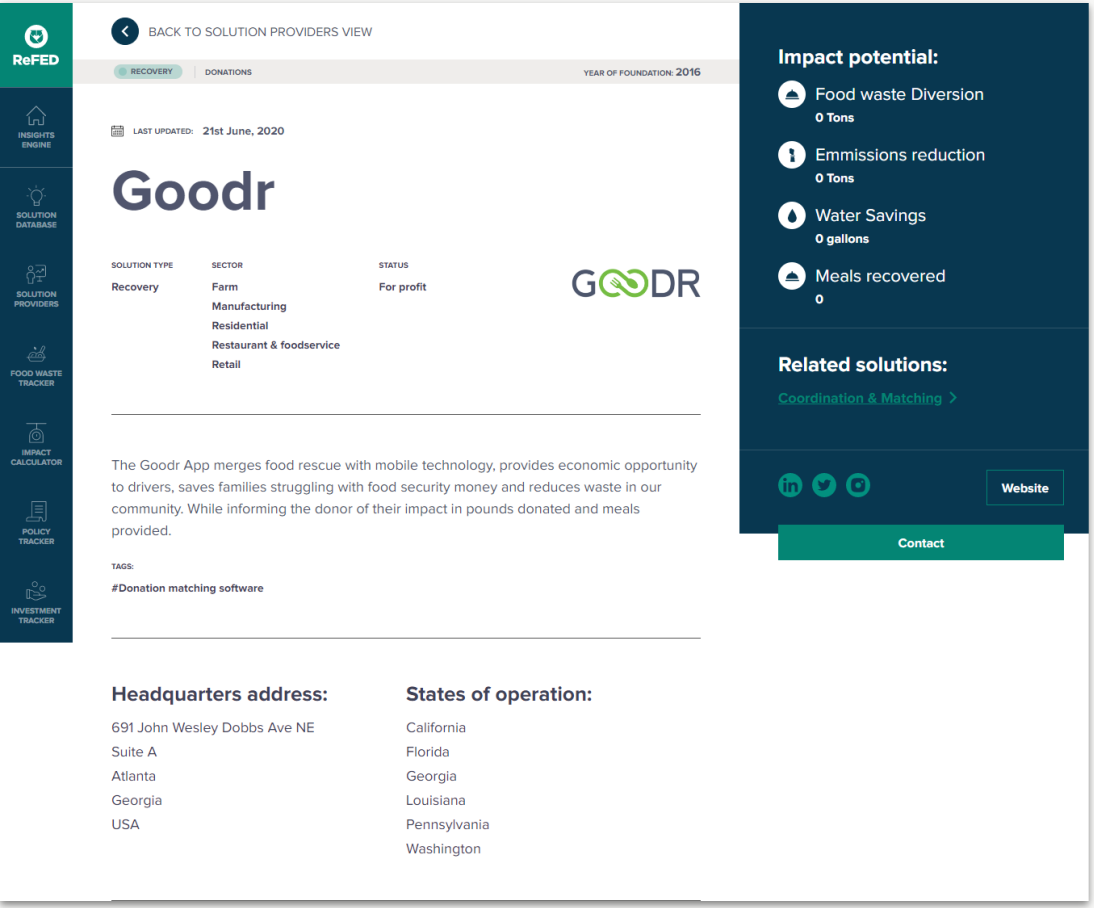


Dives deeper into each solution, including market size, ROI, diversion and impact potential, challenges and stakeholder actions needed.

Sample Use Cases:

- **Sustainability Managers** can use to better understand options, then to pitch a pilot to their leadership.
- **Solution Providers** can share with potential clients and investors.
- **Consultants** can quickly find the numbers needed to run a business case on a particular solution for a client.

ReFED Insights Engine: Solution Provider Directory

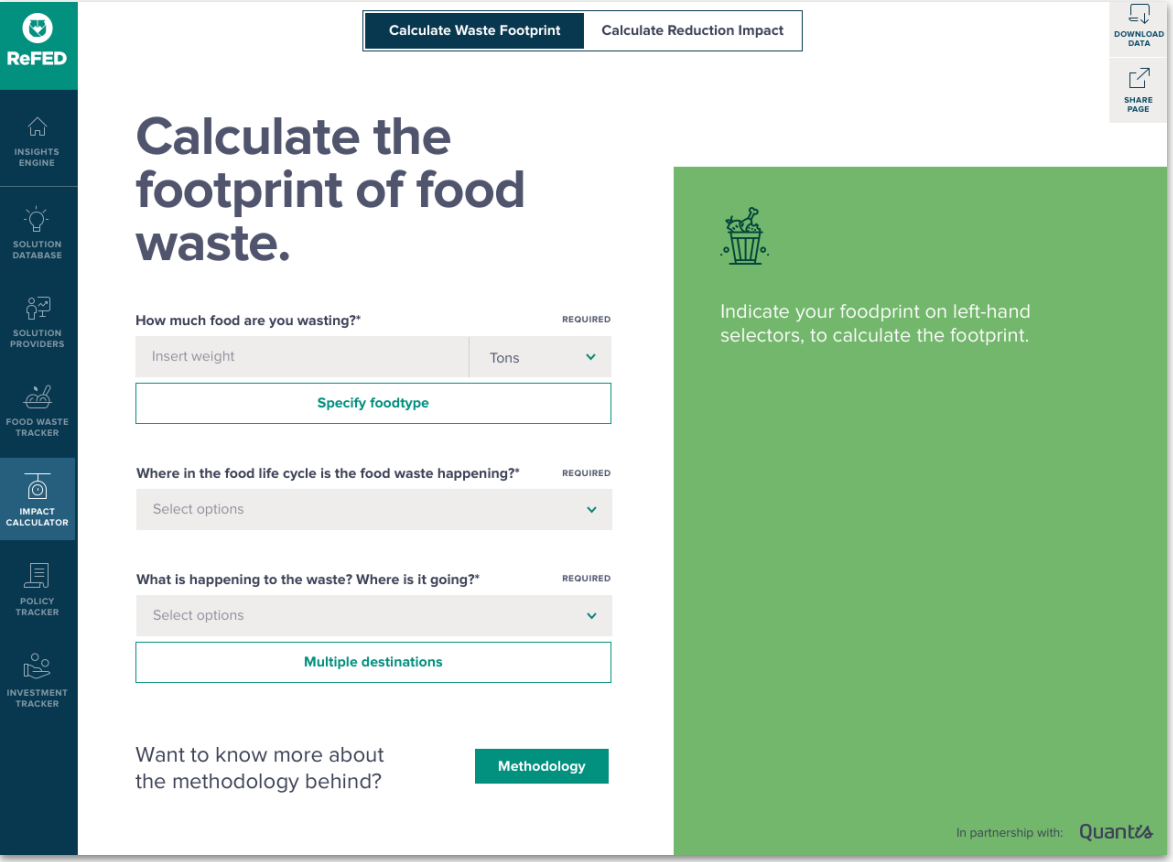


Allows filtered search through directory of food waste solution providers by solution type, service area, size, status, and performance metrics.

Sample Use Cases:

- **Food Businesses** can find food waste solution providers that operate in their area.
- **Investors** can find solution providers that match their investment thesis.
- **Solution Providers** can communicate their environmental and social impact to potential clients and investors.

ReFED Insights Engine: Food Waste Impact Calculator

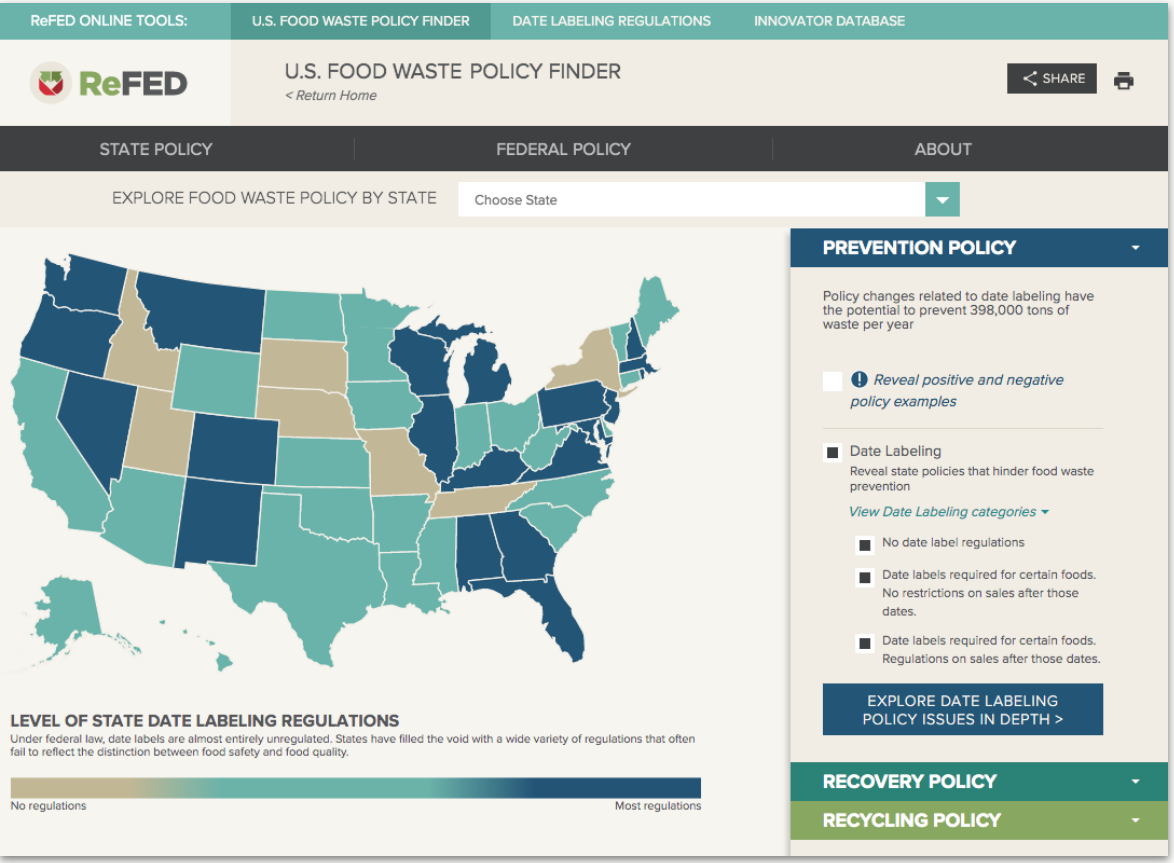


Enables users to convert tons of food waste diverted to environmental and social impacts in a standardized method and format.

Sample Use Cases:

- **Food Banks** can quantify the impact of their organization for their annual report, including metrics such as GHG reduction, meals recovered, health impacts, etc.
- **Food Businesses** can quantify the impact of a specific food waste reduction program to share results with associates.
- **Food Waste Solution Providers** can communicate their impact to potential funders in a credible, standardized way.

ReFED Insights Engine: U.S. Food Waste Policy Tracker (2021)



Tracks food waste-related policies at the federal and state levels and sends notifications when new policies are proposed.

Sample Use Cases:

- **State Policy Makers** can find examples of policies passed in other states.
- **Food Businesses**, **Solution Providers**, and **Advocates** can receive notifications when new food waste-related policies are proposed.

ReFED Insights Engine: U.S. Food Waste Investment Tracker (2021)

DATA IS ILLUSTRATIVE

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U.S. FOOD WASTE INVESTMENT TRACKER

MOCKUP ONLY, DATA NOT REAL

CAPITAL TYPE

Private

SOLUTION PROVIDER

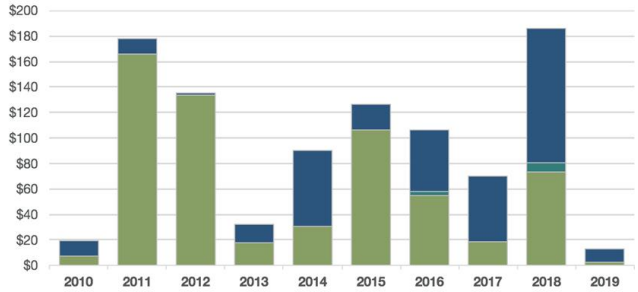
All

INVESTOR

All

U.S. PRIVATE CAPITAL FOOD WASTE INVESTMENT BY HIERARCHY

$ MILLION



FOOD WASTE HIERARCHY	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
PREVENTION	$12	$13	$1	$14	$59	$20	$48	$52	$105	$10
RECOVERY	$0	$0	$0	$0	$0	$0	$3	$0	$8	$0
RECYCLING	$8	$166	$134	$18	$31	$106	$55	$18	$73	$3
TOTAL $ MILLION	**$20**	**$178**	**$135**	**$32**	**$91**	**$127**	**$106**	**$70**	**$186**	**$13**

Quantifies the annual philanthropic, private, and public investment in food waste solutions by funding area, state, recipient, investor, and capital type.

Sample Use Cases:

- **State Agencies** can understand what solutions are underfunded within their state.
- **Funders & Investors** can identify areas of white space, as well as the top recipients of funding for a given solution area.
- **Solution Providers** can see total funding in their solution area.