A Roadmap to Reduce US Food Waste

Food Waste International Workshop

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What is the ReFED Roadmap?

ReFED is a nonprofit collaboration formed in 2015 of over 30 business, nonprofit, foundation and government leaders committed to reducing food waste in the United States.

In March, ReFED launched *A Roadmap to Reduce U.S. Food Waste by 20 Percent,* the first ever national economic study and action plan driven by a multi-stakeholder group committed to tackling food waste at scale.



AWARENESS

- · Amount of food wasted
- · Causes of that waste
- Impacts on the environment & economy



Important stakeholders are not acting. The Food waste issue is complex and fragmented and there is limited transparency on system flows and costs. All of these factors stagnate change and make it difficult to target the highest impact solutions.



ACTION

- · Reduction/ prevention
- Recovery
- · Reuse/ Recycle



ReFED Steering Committee, Advisory Council, and *Roadmap* Team



The Overbrook Foundation







Atticus Trust

















































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HENRY P. KENDALL FOUNDATION











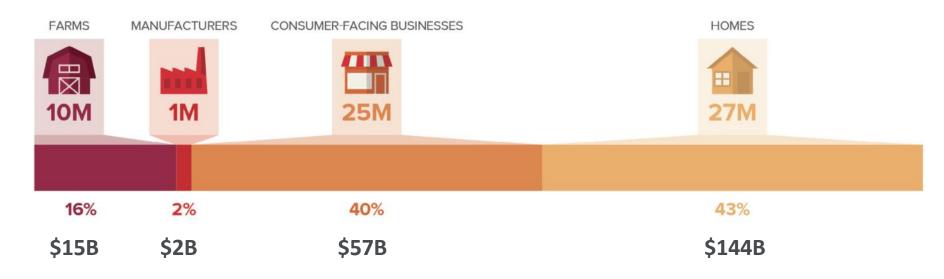
THE PROBLEM OF FOOD WASTE —



ReFED Food Waste Baseline: Nearly 63M tons of waste per year



FOOD WASTED BY WEIGHT — 63 MILLION TONS (\$218 billion)



THE SOLUTIONS AND ECONOMIC ANALYSIS

Data Analysis: 13M tons of potential (20%)

Prevention

Stopping waste from occurring in the first place

12 solutions

Most Cost Effective

Recovery

Redistributing food to people

7 solutions
Best at Alleviating Hunger

Recycling

Repurposing waste as energy and agricultural products

<u>8 solutions</u> *Greatest Diversion Potential*



REDUCE 13.2 M TONS

PREVENTION: 2.6 M TONS

RECOVERY: 1.1 M TONS

RECYCLE: 9.5 M TONS



27 Solutions Evaluated

Prevention Solutions	
Packaging, Product & Portions	Standardized Date Labeling
	Packaging Adjustments
	Spoilage Prevention Packaging
	Produce Specifications (Imperfect Produce)
	Smaller Plates
	Trayless Dining
Operational & Supply Chain Efficiency	Waste Tracking & Analytics
	Cold Chain Management
	Improved Inventory Management
	Secondary Resellers
	Manufacturing Line Optimization
Consumer Education	Consumer Education Campaigns

Recovery Solutions	
Donation Infrastructure	Donation Matching Software
	Donation Storage & Handling
	Donation Transportation
	Value-Added Processing
Donation Policy	Donation Liability Education
	Standardized Donation Regulation
	Donation Tax Incentives

Recycling Solutions	
Energy & Digestate	Centralized Anaerobic Digestion (AD)
	Water Resource Recovery Facility (WRRF) with AD
On-Site Business Processing	In-Vessel Composting
Solutions	Commercial Greywater
Agricultural Products	Community Composting
	Centralized Composting
	Animal Feel
	Home Composting

Criteria for Selection

Available Data
Cost effective
Feasible
Scalable



Prevention



Standardized Date Labeling



Waste Tracking & Analytics



Trayless Dining & Smaller Plates



Packaging Innovation



Imperfect Produce

Solutions tend to be capital-light → Involve changing behavior through packaging changes, software, and marketing

Largest net environmental benefit by avoiding wasted resources in agriculture – twice the GHG impact per ton reduced of recycling

Major focus for innovation – 44% of food waste innovators in ReFED's database prevention-focused

Major Barriers:

- Lack of social license
- Information gaps and organizational silos
- Misalignment of cost and benefits

Recovery





3 pillars to scale:

- 1) Enabling policy that financially incentivizes donations from businesses with standardized regulations
- 2) Education for businesses on donor liability protections and safe food handling practices
- 3) Logistics and infrastructure to transport, process, and distribute excess food.



Recycling







Nearly three-quarters of total *Roadmap* diversion potential

3 main recycled products: compost, biogas, animal feed

Northeast, Northwest, and Midwest show the highest economic value per ton from recycling due to high disposal fees and high compost & energy prices

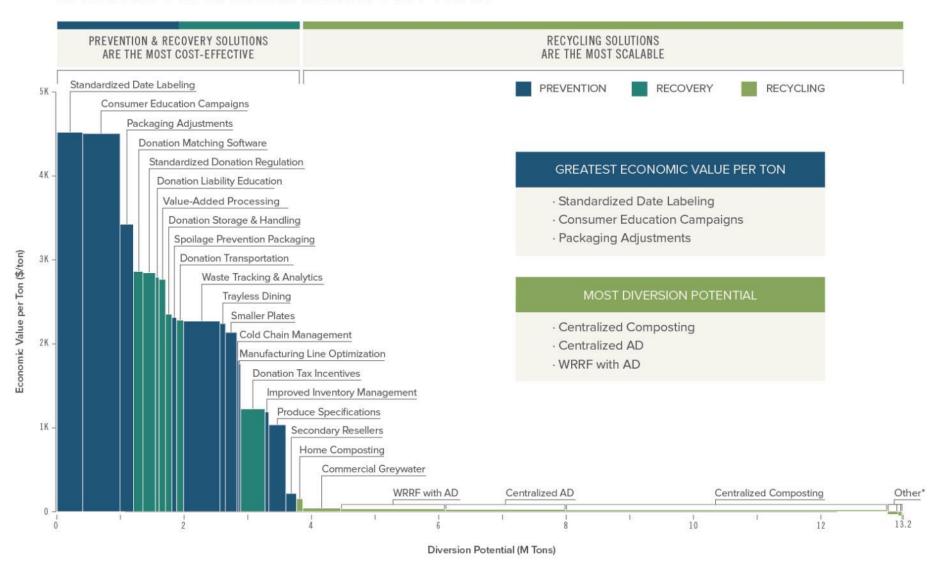
Top levers to scale recycling: (1) increase in landfill disposal costs, (2) efficiencies in hauling and collection through siting near urban centers, and (3) denser routes

Top 3 Most Scalable Solutions:

- Centralized Composting
- Centralized Anaerobic Digestion (AD)
- Water Resource Recovery Facility with AD

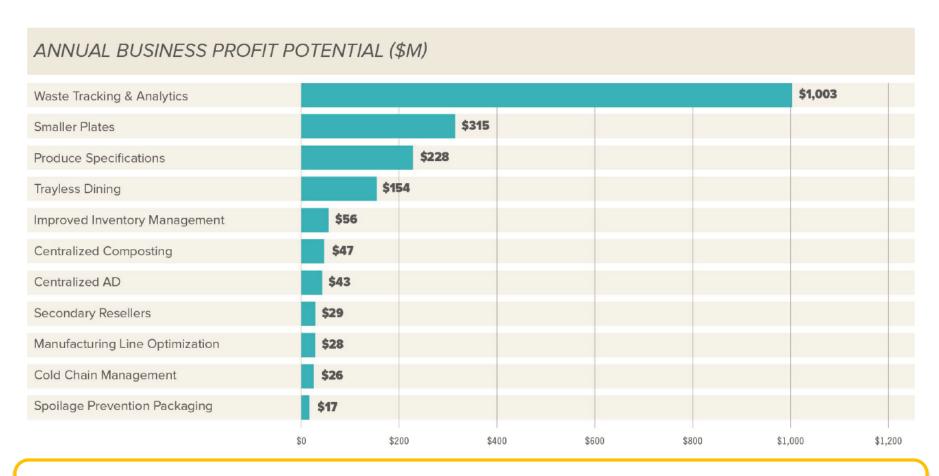


MARGINAL FOOD WASTE ABATEMENT COST CURVE





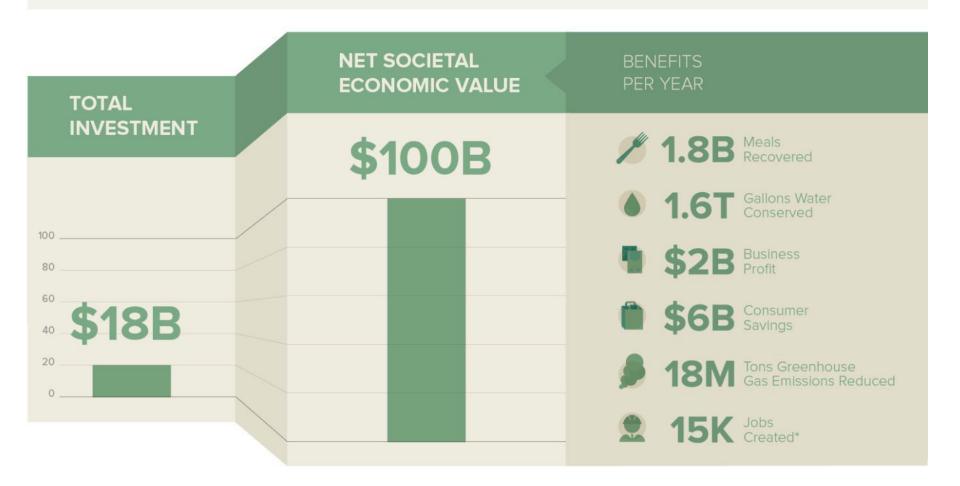
Business Profit Potential: \$2 Billion per year



Nearly 80% of the business profit potential is estimated to reside within restaurants, institutions, and foodservice, such as waste tracking & analytics in commercial kitchens



AN \$18 BILLION INVESTMENT IN 27 SOLUTIONS TO REDUCE U.S. FOOD WASTE BY 20% WILL YIELD \$100 BILLION IN SOCIETAL ECONOMIC VALUE OVER A DECADE





THE PATH AHEAD TO TAKE — ACTION

Levers to Drive Action Across all Stakeholders

Four crosscutting actions needed to quickly cut 20% of waste and put the U.S. on track to achieve a broader 50% food waste reduction goal by 2030.









FARMERS



FEDERAL GOVERNMENT



FOUNDATIONS



INVESTORS





ACADEMIA



FOODSERVICE PROVIDERS



GROCERY RETAILERS



ENTREPRENEURS



POLICY

Commonsense tweaks leading to standardized national policy



FINANCING

New catalytic capital and quantified non-financial impacts



INNOVATION

5 focus areas and innovation incubator networks



EDUCATION

National Consumer and Employee campaigns



Policy

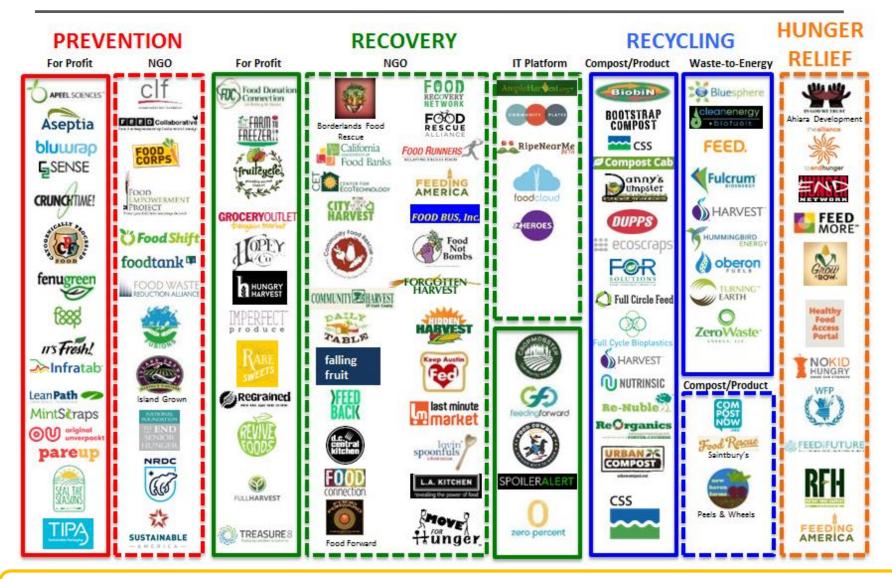
Commonsense policy adjustments are needed to scale federal food donation tax incentives, standardize safe handling regulations, and boost recycling infrastructure by expanding state and local incentives and reducing permitting barriers.

Recent activity:

- The first-ever Congressional Hearing on food waste by the House Agricultural Committee
- Food Date Labeling Act (introduced by Connecticut Sen. Richard Blumenthal and Maine Rep. Chellie Pingree)
- Chef Day of Action promoting:
 - Increased food donations to alleviate hunger
 - Simplified date labeling
 - The donation or sale of imperfect produce from farms.



Innovation

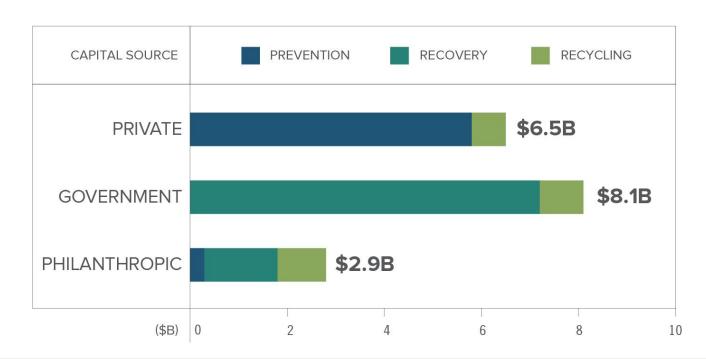


<u>Big Opportunity:</u> Packaging & Labeling, IT-enabled Transportation & Storage, Logistics Software, Valued-add Compost Products, Distributed Recycling

Financing

The Roadmap will require an \$18 billion investment, less than a tenth of a penny of investment per pound of food waste reduced, which will yield an expected \$100 billion in societal Economic Value over a decade.

FINANCING NEEDS FOR 20% REDUCTION IN FOOD WASTE OVER A DECADE





Education

Consumer Education

- One of the most cost effective of the 27 solutions
- Spurs consumer demand for smarter retail offerings, such as Standardized Date Labeling, Spoilage Prevention Packaging, Imperfect Produce, and Trayless Dining.
- Consumer attitudes currently drive food waste at farm/retail level
- Launch of the first widespread public service campaign promoting food waste awareness by NRDC and the Ad Council.
 - Target: Moms & Millennials

Employee Education

- Food service employees play a central role in food waste reduction (avoid unnecessary removal of products, ID donated, and properly source-separate scraps)
- Quickest path to widespread employee training: Food Waste Certification as part of existing Food Safety Training

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How to get involved? Visit refed.com



Interactive Cost Curve ranks solutions by economic value, scalability, and environmental/social benefits

Download and share the Roadmap full report (96pg), Key insights (5pg), and Technical Appendix

Additional Detail on the 27 solutions and priorities for each stakeholder

Future Research Priorities

For additional questions, contact us at info@refed.com

