

Roadmap to Reduce U.S. Food Waste

2016 SERDC
Summit

Nov 2016
Hunt Briggs, RRS



ReFED

Rethink Food Waste
Through Economics & Data

RRS 

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.

On March 9th, 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



ACTION

- Reduction/ prevention
- Recovery
- Reuse/ Recycle

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



Atticus Trust



New York City



City of Phoenix



WORLD RESOURCES INSTITUTE



Ahearn Family Foundation



City of Seattle

HENRY P. KENDALL FOUNDATION



THE CLANEIL FOUNDATION



newventurefund



THE PROBLEM OF FOOD WASTE

The Baseline Problem in the US

Every year, American consumers, businesses and farms spend \$218 billion (roughly 1.3% of GDP) on food that is never eaten.

U.S. Food Waste utilizes:

18% of Cropland

19% of Fertilizer

21% of Freshwater

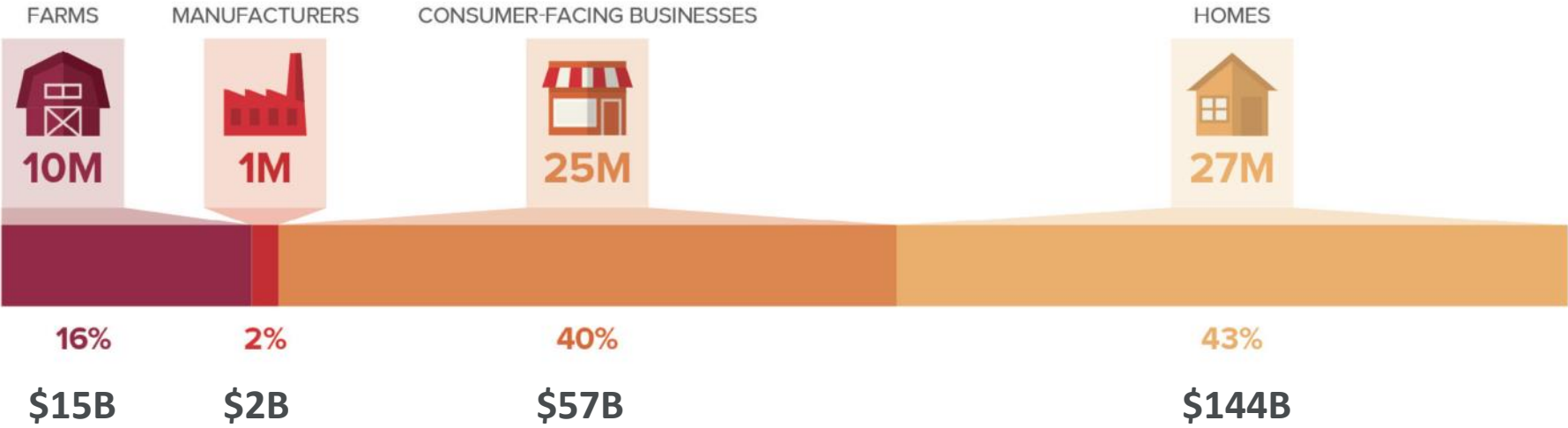
21% of landfill volume



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

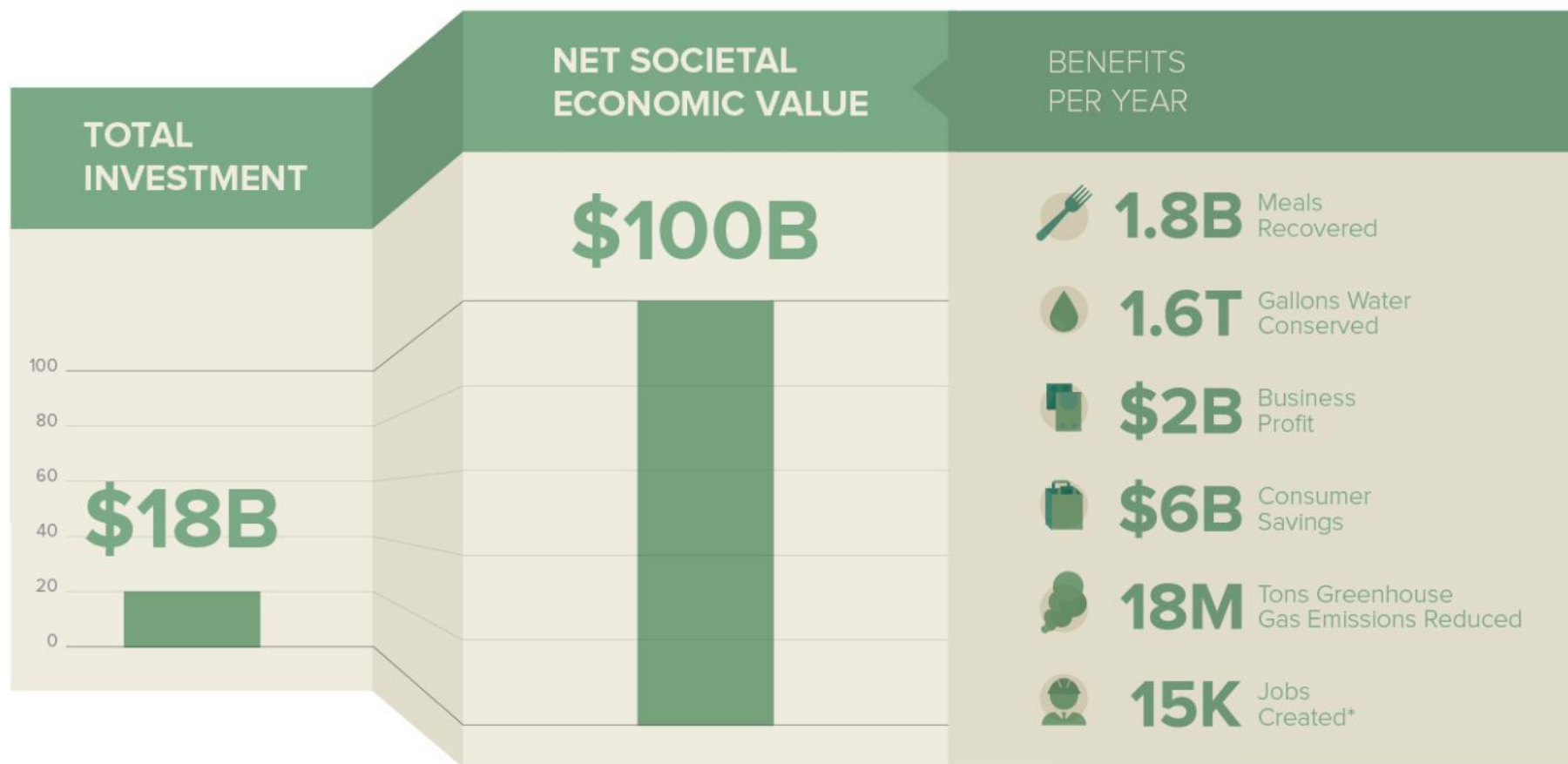


FOOD WASTED BY WEIGHT — 63 MILLION TONS (\$218 billion)



THE SOLUTIONS AND ECONOMIC ANALYSIS

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



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

8 solutions

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 Solutions	In-Vessel Composting
	Commercial Greywater
Agricultural Products	Community Composting
	Centralized Composting
	Animal Feed
	Home Composting

Criteria for Selection

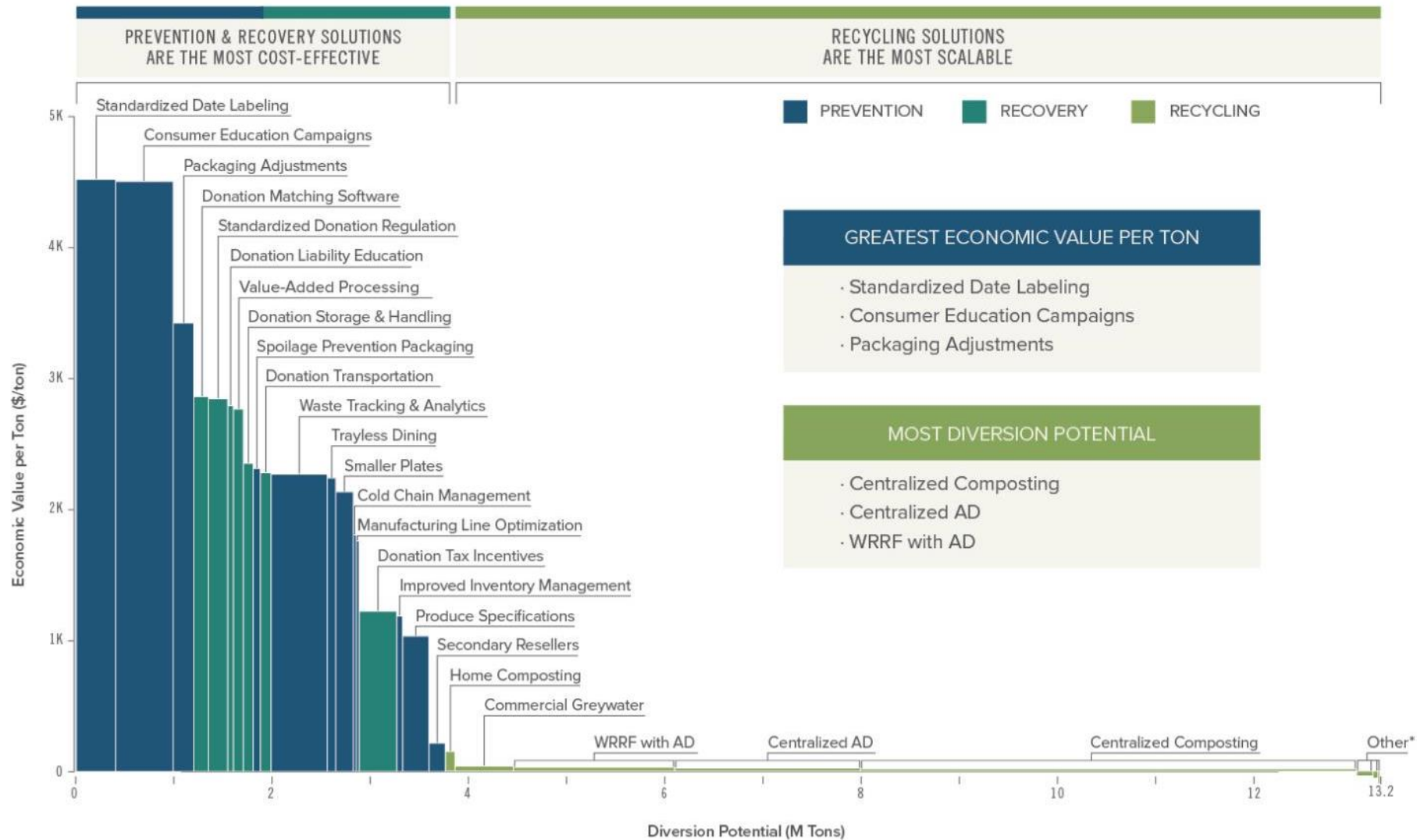
Available Data

Cost effective

Feasible

Scalable

Marginal Food Waste Abatement Cost Curve



Prevention



Generally low levels of investment and food valued at high wholesale/retail prices

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

Top 3 Most Scalable Solutions:

- *Standardized Date Labeling*
- *Consumer Education Campaigns*
- *Waste Tracking & Analytics*



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.

Top 3 Most Scalable Solutions:

- *Donation Tax Incentives*
- *Standardized Donation Regulation*
- *Donation Matching Software*

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 (highly variable scale)*
- *Centralized Anaerobic Digestion (AD)*
- *Water Resource Recovery Facility with AD*

KEY LEVERS FOR 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.



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

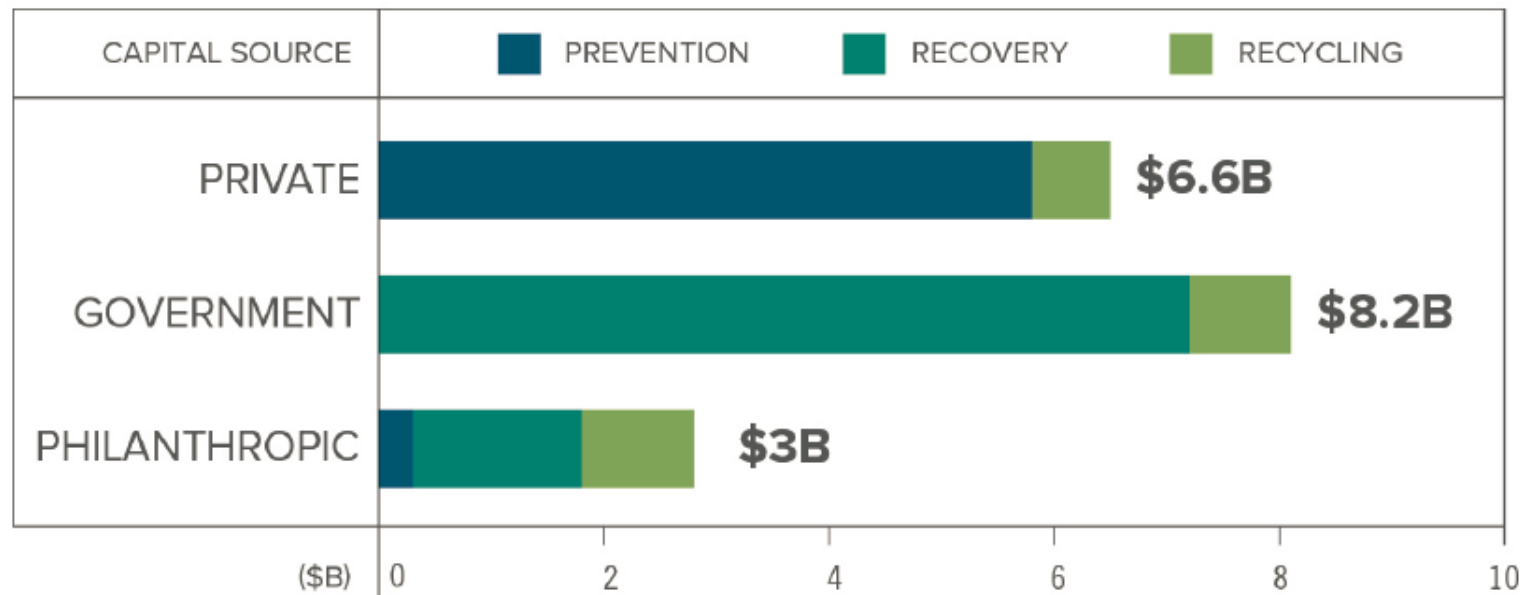
National Consumer and Employee campaigns



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



Big Opportunity: *Form impact investment funds focused on food waste solutions, while better incorporating social and environmental benefits into government budgeting.*



Policy

Near Term Priorities

- Donation Tax Incentives — Maintain and build upon the recent expansion of permanent federal food donation tax incentives for all farms and food businesses.
- Food Donation Regulation — Create a common standard of safe handling practice regulations among state and local health departments.
- Recycling Best Practices — Spread best practices to encourage recycling, such as streamlined permitting of processing facilities, improved enforcement of waste bans, and expanded incentives to encourage diversion of food waste from landfills.

Big Opportunity: *Pass comprehensive federal food waste legislation that ties together nearly a dozen individual policies and signals a market shift to food businesses.*



Innovation

PREVENTION

For Profit

NGO

RECOVERY

For Profit

NGO

RECYCLING

Compost/Product

Waste-to-Energy

HUNGER RELIEF

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Big Opportunity: Incubator network focused on 5 Big Ideas: Packaging & Labeling, IT-enabled Transportation & Storage, Logistics Software, Valued-add Compost Products, Distributed Recycling



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.
- In late April, NRDC and the Ad Council will launch the first widespread public service campaign promoting food waste awareness.

Employee Education

- Half of *Roadmap* solutions require employee involvement in day-to-day execution
- Training can avoid the removal of product from shelves when it is still safe to eat, identify food that can be donated, and properly source-separate scraps to remove contaminants for recycling.
- Quickest path to widespread employee training would be to link a new Food Waste Certification to existing Food Safety Certification programs

Big Opportunity: *Expand national social-based marketing campaign to achieve widespread consumer awareness and behavior change in coordination with a national food waste employee certification effort.*



Education

Consumer Education

One of the most cost effective of the 27 solutions

Spurs action at retail, such as Standardized Date Labeling, Spoilage Prevention Packaging, Imperfect Produce.

In April, NRDC / Ad Council launched widespread awareness campaign.

Employee Education

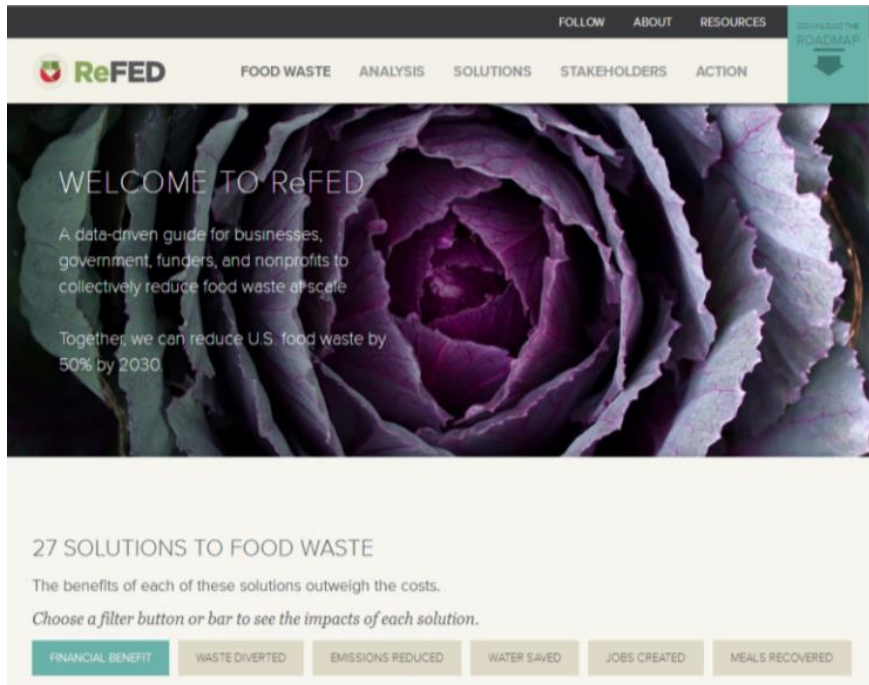
Required in 50% of Solutions

Time-appropriate culling, promote donations, and properly source-separate.

Leverage existing Food Safety Certification programs

Big Opportunity: *Expand national social-based marketing campaign to achieve widespread consumer awareness and behavior change in coordination with a national food waste employee certification effort.*

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

Contact Us to join a multi-stakeholder working group to take action

Contact: info@refed.com