

2018 U.S. Food Waste Investment Report

Trends in Private, Public, and Philanthropic Capital

Including a Special Report on Foundation Funding



Fall 2018

ReFED is an entrepreneurial nonprofit that works with decision-makers across the food system to reduce U.S. food waste. We promote individual and collective solutions by convening, connecting, and advising food system leaders to take actions that spur economic growth, increase food security, and protect the environment.



Capital & Innovation

ReFED's Capital & Innovation team focuses on solving the \$218 billion problem of U.S. food waste by catalyzing the \$18 billion investment needed to create \$100 billion in societal economic value.

KEY ACTIVITIES:



Thought Leadership

Serving as the leading source of data, insights, and guidance on food waste related capital and innovation activity.



Stakeholder Engagement

Building awareness, education, and engagement amongst funders, innovators, and businesses.



Promotion of Priority Solutions

Driving adoption of effective food waste solutions.

A Note From ReFED's Capital & Innovation Director

As food waste has become a global priority, entrepreneurs, businesses, funders, and policymakers around the world have taken notice. As a result, we've observed unprecedented growth in the number of new and innovative products and services that turn wasted food into jobs, hunger relief, and environmental benefits.

ReFED's 2016 [Roadmap to Reduce U.S. Food Waste](#) estimated that \$18 billion in funding was needed to reduce U.S. food waste by 20% over a 10-year period. This investment would yield \$100 billion in societal economic value, while serving as an important first step towards achieving Sustainable Development Goal 12.3, which calls on all nations to halve food waste and reduce food loss by 2030.

Since 2016, we've seen private, public, and philanthropic investment grow as the food waste movement matures and innovations begin to scale.

A FEW NOTABLE EXAMPLES:

Private

More than \$125 million of venture capital and private equity funding has been invested in food waste startups including [Apeel Sciences](#) and [Full Harvest](#) during the first 10 months of 2018.

Public

[CalRecycle](#), a branch of California's Environmental Protection Agency, has granted \$100 million in climate investments since 2014, including \$10 million to food waste prevention and rescue grantees since 2016.

Philanthropic

The Rockefeller Foundation has continued to fund food waste solutions via its [\\$130 million YieldWise Initiative](#), launched in 2016.

The Kroger Co. Foundation established its [\\$10 million Zero Hunger | Zero Waste Innovation Fund](#) in 2017.

Informed by work in the field with network partners, our first U.S. Food Waste Investment Report details several key trends we've identified in the dynamic food waste capital and innovation landscape:

1. Big business is joining the food waste innovation game.
2. New market-based innovations continue to emerge and show no sign of slowing down...in fact, they're beginning to scale.
3. A full spectrum of interconnected capital types is being deployed.
4. Philanthropic giving has increased steadily including a strong showing of public sector support.
5. Many funders are thinking globally, but acting locally, leading to a rise in place-based funding.
6. Emerging policy is incentivizing food waste solutions.

This report also includes a deep-dive into foundation food waste funding, using data from ReFED's Foundation Investment Tracker. In 2019, we plan to further develop robust private and public investment trackers and methodologies.

As food waste innovations continue to emerge and more businesses recognize the powerful effect food waste reduction can have on their bottom lines, I'm incredibly encouraged by the potential of this sector. Solving the problem of food waste, and food system inefficiency more broadly, is entirely possible and is a no-regrets decision that makes dollars and cents for our shared triple bottom line.



Alexandria Coari
Capital & Innovation Director



Table of Contents

5	The Food Waste Problem and Investment Opportunity
7	The State of the (Food Waste) State
20	Special Report on Foundation Funding
21	<i>Key Takeaways</i>
22	<i>Direct & Indirect Food Waste Funding</i>
28	<i>Prevention, Recovery, Recycling and General Insights</i>
33	<i>Top Funders & Recipients</i>
40	<i>Developing a New Philanthropic Funding Strategy</i>
43	Appendix
46	<i>Sources & Methodology</i>
48	<i>Acknowledgements</i>



U.S. Food Waste: A \$218 Billion Dollar Opportunity

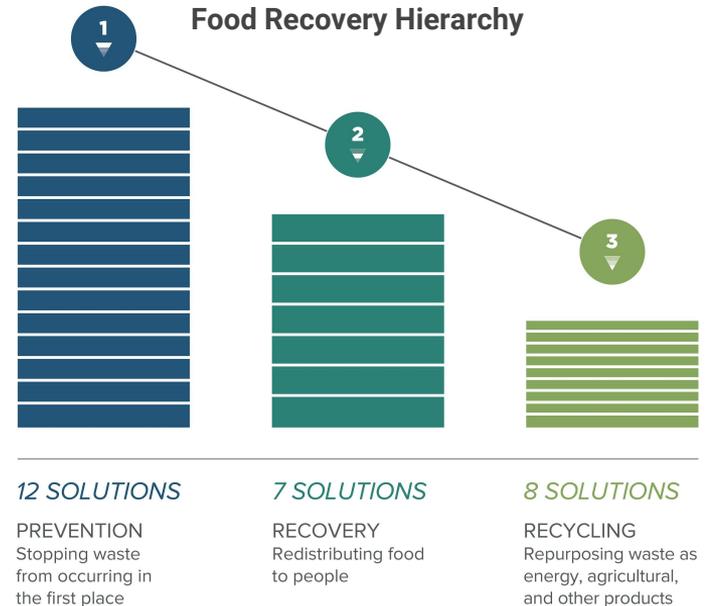
THE PROBLEM

U.S. consumers, businesses, and farms spend \$218 billion a year, or 1.3% of GDP, growing, processing, transporting, and disposing food that is never eaten.

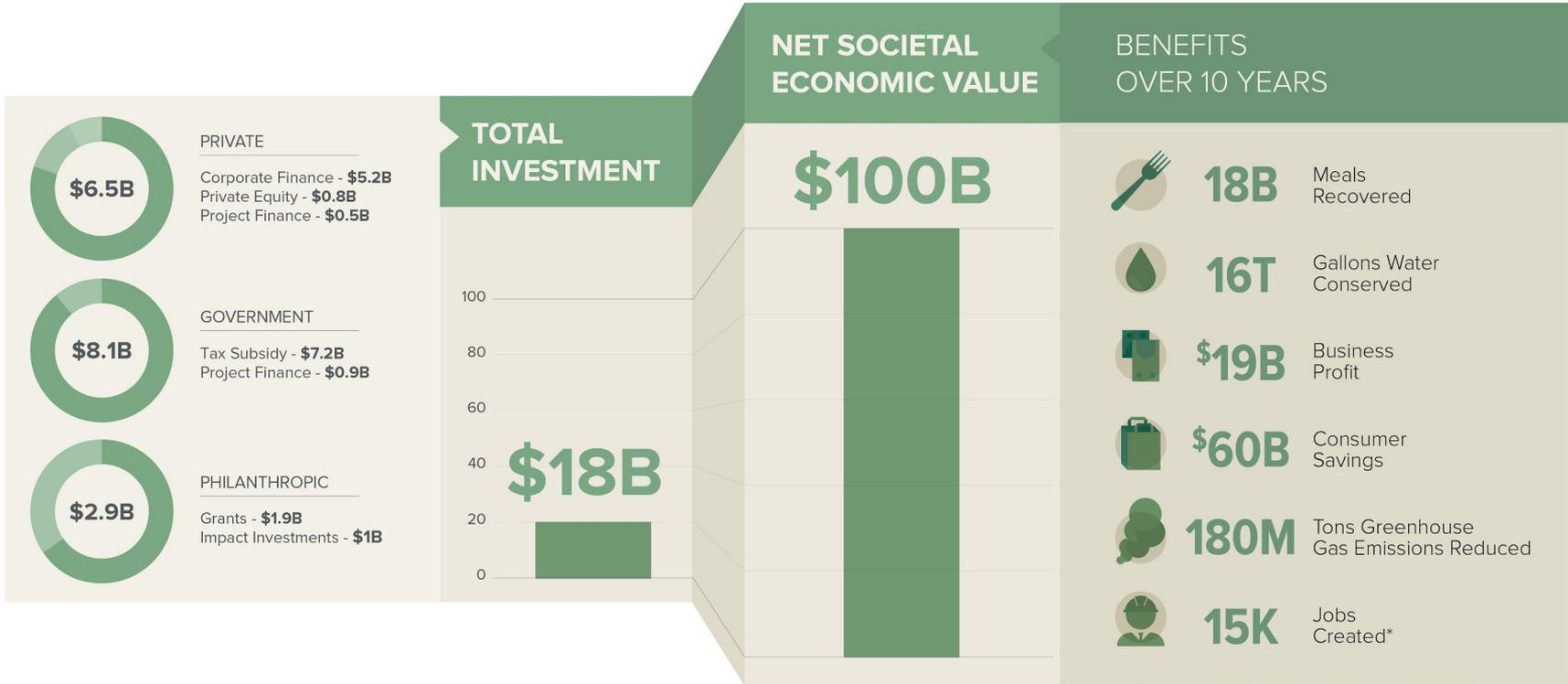


THE SOLUTION(S)

ReFED's [Roadmap](#) identifies 27 feasible, scalable, and cost-effective solutions that could reduce food waste by 20%.



An \$18 Billion Investment Into 27 Solutions Can Yield \$100 Billion in Societal Economic Value



*Jobs created is a total number, not annual new jobs.
Jobs and environmental benefits not included in \$100b calculation.



The State of the (Food Waste) State



1. | Big business is joining the food waste innovation game

There is growing recognition across the value chain, from retailers and restaurants to international shipping companies, that committing to food waste innovation makes good business sense. Benefits include the financial (*an estimated \$18.2 billion profit opportunity for grocery retailers alone*), but also boosted brand affinity and a chance to learn how to compete like entrepreneurs in the ultra-competitive future-of-food market.

WHAT WE'VE SEEN

[Two-thirds of the world's 50 largest food companies](#) participate in programs with a food loss and waste reduction target, while half of all US retail market share has committed to the [national goal to reduce food loss and waste by 50% by 2030](#).

[On its journey towards a zero waste future, in 2017 Walmart](#) donated the equivalent of 562 million meals in the US and sold more than 262 million units of meat, baked goods, dairy and dry goods via dynamic discounting policies and systems that reduce prices on food close to its expiration date; helping prevent food waste.

[Kroger's Zero Hunger | Zero Waste social impact plan](#) includes a commitment to completely eliminate food waste in all stores by 2025.

[General Mills revealed plans for a major expansion of its food recovery philanthropy](#), with a new competitive nonprofit grants program launched November 2018, and deployed a national "Taste Not Waste" consumer campaign via one of its biggest brands, Betty Crocker.

[Sysco's 2025 CSR goals](#) include a mandate to divert 90% of waste from landfill.

[The Chobani Incubator launched a new Food Tech Residency](#) to solve challenges along the entire food and agriculture supply chain including waste reduction.

[Tyson Foods launched an Innovation Lab](#) with its inaugural assignment to develop a concept that tackles food waste, resulting in the creation of its first product, Yappah!

[Chipotle Mexican Grill and Chipotle Cultivate Foundation announced the Chipotle Aluminaries Project](#), an accelerator program for growth-stage startups in the areas of food waste and recovery, among others.

[FoodTrack by Maersk](#), the world's largest container shipping company, launched an intensive month-long program for early-stage startups fighting food waste.



1. | Big business is joining the food waste innovation game

TAKEAWAYS

Within an increasingly competitive retail environment, retailers are looking for new ways to cut costs with food waste rising as a top priority for the C-Suite.

Given continued momentum from major businesses making commitments to food waste innovation in-house and otherwise, funders can potentially take comfort in seeing these strong demonstrations of demand; creating a welcoming (though not completely risk-free) investment environment.

ADDITIONAL FOOD FOR THOUGHT

Big business is increasingly focused on prevention innovation as its main food waste reduction strategy through a combination of internal efforts and external partnerships. It remains to be seen how much opportunity exists for individual innovators to scale operations as standalone entities versus being acquired or competing directly against similar innovations designed in-house.



2. | New market-based innovations continue to emerge and show no sign of slowing down...in fact, they're beginning to scale

The number of innovators and solution providers focused on food waste continues to grow, with mainstream outlets like the Wall Street Journal, Forbes, and TechCrunch are covering the trend. Additionally, several organizations have started to reach tipping points of scale; expanding geographically, hiring more employees, and running successful commercial pilots.

WHAT WE'VE SEEN

ReFED estimates that \$650 million of the \$1.8 billion annual total investment needed to reduce U.S. food waste by 20% should come in the form of private capital from venture capital, private equity and project finance.

- [71% of ReFED's Innovator Database](#) is composed of market-based, for-profit solution providers focused largely on the prevention and recycling categories.
- More than \$125 million of venture capital and private equity funding was invested in food waste startups including Apeel Sciences (\$70M), WISErg (\$19M), Full Harvest (\$9M), FoodMaven (\$9M), TeleSense (\$7M) and Blue Cart (\$5M) Jan-Sept 2018. ReFED will be developing a more robust private investment tracker in the coming year.

A growing number of food waste innovators have gone through high-profile accelerator programs to help them scale:

- Food-X: RiseNYC, FreshSurety, Wasteless, Re-Nuble
- Village Capital: GoodR, Seal the Seasons, Cambridge Crops
- Food System 6: Full Cycle BioPlastics, Renewal Mill
- FoodBytes! and Terra: ReGrained, Imperfect Produce, Pulp Pantry, Ingest.ai

Several successful innovation case studies have emerged including:

- Harps Food Stores saw a [65% increase in margin and a 10% lift in sales](#) across the avocado category from piloting Apeel Sciences' shelf-extension innovation.
- With the help of Spoiler Alert's software and professional services, HelloFresh [reduced its landfill bound food waste by 65% and nearly doubled its percentage of unsold inventory donated to charities to 61%](#).
- Just three years after launching in San Francisco with only three co-founders, [Imperfect Produce is now reportedly worth \\$180 million](#), operates in 11 cities, and employs more than 400 people.



2. | New market-based innovations continue to emerge and show no sign of slowing down...in fact, they're beginning to scale

TAKEAWAYS

The food waste innovation sector is an exciting and rapidly changing space, but there is still a great deal of experimentation. Continuing to support pilots, innovation, and capacity building (for both nonprofits and for-profits) will be important for the next few years.

Consistent and universal measurement of progress towards the end goal of reducing food waste is still lagging. Duplication and reinvention of the innovation wheel will continue if this persists.

Given the variety of emerging innovations and range in stage of maturity, it remains critical to match the right form of funding with each opportunity; aligning on growth trajectory expectations, profitability ambitions, balance of purpose versus profit, and exit strategy.

ADDITIONAL FOOD FOR THOUGHT

With the ever-increasing size of funding rounds and major proof points for food businesses, we could potentially see the crowning of food waste's first unicorn company (\$1 billion valuation) in the next few years; joining the ranks of global powerhouses like Uber and Airbnb.



3. | A full spectrum of interconnected capital types is being deployed

Despite the relatively nascent food waste investment space, different forms of complementary capital are already being utilized to help de-risk and scale both for-profit and nonprofit organizations.

WHAT WE'VE SEEN

California-based food waste prevention startup [*Apeel Sciences closed a \\$70 million round of financing*](#) led by Silicon Valley giants Andreessen Horowitz and Viking Global. The innovator got its start in 2012 with a \$100,000 research grant from the Bill and Melinda Gates Foundation.

[*Through \\$350,000 in philanthropic funding from The Walmart Foundation to the Closed Loop Foundation, in Spring 2017, a Food Waste Solution Search was launched*](#) to spur innovation and build the capacity of the sector. Two of the program's winning for-profits, Full Cycle Bioplastics and Renewal Mill, went on to subsequently unlock additional funding from the private sector.

Following the passage of [*Reg CF*](#), which allows private, early-stage companies to publicly advertise capital raises to non-accredited individuals, upcycling innovator, [*ReGrained, kicked off its seed round by raising \\$690,000 via Indiegogo's equity crowdfunding platform and closed the round in September 2018*](#) with additional, more traditional investors, including strategic partner, Griffith Foods (\$2.5 million total).

Following initial capacity support in the form of foundation grants from a handful of donors, the [*San Diego Food System Alliance \(SDFSA\) was awarded a \\$500,000 grant from CalRecycle*](#) to provide tools and technical assistance to large food production facilities to reduce food waste and donate edible food.

The Connecticut Green Bank leverages low-interest loans to unlock organics recycling capacity by bringing additional investment to projects, including a [*\\$2 million low-interest loan for an anaerobic digester*](#) that catalyzed over \$10 million in follow-on investments.



3. | A full spectrum of interconnected capital types is being deployed

TAKEAWAYS

The multiplier effect of different forms of capital supporting food waste projects highlights how catalytic this approach can be. Funders should continue to identify ways of connecting organizations to multiple and appropriate types of funding depending on their stage of growth.

Innovation to diversity the range of funding methods that are available to investors and innovators beyond traditional grant, debt and equity is still needed.

ADDITIONAL FOOD FOR THOUGHT

Although Silicon Valley may be all about venture capital today, it wasn't built on it. Given the unique nature of the food waste space, the inherent need for a smart mix of public, private, and philanthropic capital, and the time it can take for a new idea to reach scale, the use of more development-style financing methods like the concepts of patient capital (pioneered by Acumen) and blended finance could potentially be useful to get more innovations tested, funded, and scaled.

One such instrument recently developed by Santa Clara University's Miller Center for Social Entrepreneurship is the [Variable Payment Obligation \(VPO\)](#). VPOs are a new class of structured exit investments designed to help accelerate innovators to positive cash flow utilizing a gradual payback mechanism.



4. | Philanthropic giving has increased steadily including a strong showing of public sector support

Philanthropic funding, especially foundation funding, continues to grow and play a critical role in supporting early-stage food waste innovation and that which lacks market-based applications. At the same time, various government funding programs have come online, including funding at the city, state, and federal levels.

WHAT WE'VE SEEN

ReFED estimates that \$290 million of the \$1.8 billion annual total investment needed to reduce U.S. food waste by 20% should come in the form of philanthropic funding from private and public sources, corporate foundations, family offices, and impact investments.

- Foundation Funding (see Special Report on Foundation Funding for further details)
 - Foundation food waste funding reached \$134 million Jan-Sept 2016 - an increase of 70% over five years - and remains focused on providing grants, versus using more impact investment-style vehicles like PRIs or MRIs.
 - Increased levels of funding are flowing into prevention initiatives, but the category remains dwarfed by funding for food recovery and food banks.
 - While only three foundations gave direct grants larger than \$500,000 for food waste programs, 30 foundations made 3 or more grants.
- Public Capital
 - Includes a range of funding mechanisms from grants to loans.
 - The [Foundation for Food and Agricultural Research](#) established a food loss and waste challenge area to drive up to \$20 million for research projects via matching grants.
 - The [Tennessee Department of Environment and Conservation](#) awarded \$4 million to 13 organizations to expand their food rescue programs in 2017.
 - The [Oregon Department of Environmental Quality announced a grant program](#) to help businesses prevent food waste in the state.

Philanthropic climate funders have also become more engaged in funding food waste solutions as awareness of the climate and food connection grows (Project Drawdown ranked [food waste reduction as third on its list of 100 top solutions to address climate change](#)).

- CalRecycle, California's Department of Resources Recycling & Recovery, has awarded \$100 million of climate investments since 2014, including [\\$10 million to food waste prevention and rescue grantees](#) since 2016.



4. | Philanthropic giving has increased steadily including a strong showing of public sector support

TAKEAWAYS

More philanthropic funders are entering the food waste investment space as they recognize how strategies to fight food waste can be used as a means to multiple ends (whether their mandate is ultimately to drive economic development, curb hunger, or protect the environment).

Historically, foundation funding has largely targeted food security and the food banking network, but pathways are beginning to emerge with a stronger focus on food waste prevention and recycling.

Funders can learn about opportunities in a specific region or a focus area by building relationships with government grant program administrators, who can share what types of projects are receiving funding and where funding gaps persist.

Funders can multiply their impact by working with government funding sources that seek matching funds.

ADDITIONAL FOOD FOR THOUGHT

Government funding programs often have restrictions and high overhead associated with reporting, so may not be as well suited for smaller organizations or organizations trying something more out-of-the-box.

ReFED's Roadmap demonstrated that a 20% reduction could be achieved by scaling existing solutions, but to reach Sustainable Development Goal 12.3 or beyond, continued research is needed in critical areas. Organized initiatives that help coordinate philanthropic dollars for food waste research can expedite the realization of systems-wide benefits.



5. | Many funders are thinking globally, but acting locally, leading to a rise in place-based funding

Funders have started to look locally in order to drive impact in their communities, with measurable successes being seen in a short period of time.

WHAT WE'VE SEEN

[The Rockefeller Foundation awarded NRDC \\$1 million in funding](#) to focus food waste reduction efforts in three cities (Nashville, New York City, and Denver).

[The Claneil Foundation has granted \\$1.45 million since 2015](#) via its Critical Issue Fund focused on the prevention, recovery, and recycling of wasted food including \$100,000 for Center for Eco-Technology to develop Philadelphia's food recovery and recycling ecosystem.

Atticus Trust provided funding to hire a dedicated staff member to drive activity across businesses and in partnership with city government; supporting Nashville's food recovery and recycling ecosystem.

To accompany the state's organics landfill ban put in place October 2014, the Massachusetts Department of Environmental Protection (MassDEP) runs a [Recycling Business Development Grants Program and Recycling Loan Fund](#) to help local processors and manufacturers create sustainable markets for eligible materials and add necessary infrastructure for the local recycling economy.

- In 2016, \$175 million of industry activity and 910 jobs were created (a 150% increase over the estimated 360 total jobs created in 2010).

Alongside California's SB 1383 which targets reduction of short-lived climate pollutants, including methane, CalRecycle, manages several [Greenhouse Gas Reduction Grant and Loan Programs](#) including a Food Waste Prevention and Rescue Grant Program.



5. | Many funders are thinking globally, but acting locally, leading to a rise in place-based funding

TAKEAWAYS

While the most successful food waste reduction programs will require robust funding and infrastructure support, funders can drive direct impact in their communities with as little as \$50,000 in funding.

Each city and state has a different food waste management starting point (e.g., food recovery infrastructure, compost facility availability, public awareness, etc.) and will need slightly different solutions. Understanding the landscape will help funders more effectively support the location's key needs.

ADDITIONAL FOOD FOR THOUGHT

Keep an eye out for updates from the [*two-year pilot partnership between the city of Denver and NRDC*](#). Funded by The Rockefeller Foundation, the pilot involves the development of a Food Action Plan that strives for a 57% reduction of residential food waste in the city's trash collection and 55% reduction in the number of food-insecure households by 2030.



6. | Emerging policy is incentivizing food waste solutions

As policymakers have become increasingly aware of the scale of U.S. food waste and the significant social, environmental, and economic benefits afforded by solutions, they've continued to introduce new policies designed to discourage waste and incentivize solutions.

WHAT WE'VE SEEN

ReFED estimates that \$810 million of the \$1.8 billion annual total investment needed to reduce U.S. food waste by 20% should come in the form of government support via mostly existing legislation such as donation tax incentives.

In the past year, 91 new pieces of food waste-related legislation were introduced in 30 states, 22 of which have already passed into law.

At the federal level, a bipartisan [Congressional Food Waste Caucus](#) was launched this year to inform national policy, while proposed drafts of the 2018 Farm Bill contained several food waste provisions, including \$25 million in annual funding for composting and food waste reduction pilots, food waste research, spoilage prevention, and a national milk donation program.

Emerging policy trends include:

- **Donation Liability Protections:** the federal [Bill Emerson Good Samaritan Food Donation Act](#) shields food donors from liability, but several states have established more extensive protections to further promote food recovery.
- **Donation Tax Incentives:** while federal tax incentives exist to encourage food donation, 12 states now offer additional tax incentives.
- **Organic Waste Bans and Waste Recycling Laws:** enacted in five states and six municipalities, these policies limit (or prohibit) food from being landfilled, which ultimately promotes prevention, recovery, and recycling solutions.
 - Since being implemented in 2014, the [Massachusetts landfill ban](#) has [spurred considerable growth](#) in the state's organics diversion and reuse industry. By 2016, Massachusetts had created 910 jobs, gained \$175 million of industrial activity and [diverted 260,000 tons of food waste](#) via compost, anaerobic digestion, donation, wastewater processing and animal feed.



6. | Emerging policy is incentivizing food waste solutions

TAKEAWAYS

Public policy promoting food waste reduction receives bipartisan support as a cost-effective means of achieving a wide range of social, environmental, and economic benefits.

Sound policy creates favorable conditions for food waste innovators and businesses planning to implement solutions, providing clear incentives for waste reduction, and discouraging (or outright prohibiting) status quo levels of food waste.

The ongoing emergence of new food waste policy is encouraging forward-thinking innovators, businesses, and investors to create, adopt, and fund solutions.

ADDITIONAL FOOD FOR THOUGHT

Signed in 2016, [*SB 1383 directs CalRecycle*](#) to adopt regulations and requirements to achieve a 50% reduction in organic waste disposal by 2020 and a 75% reduction by 2025. The law further requires that 20% of the amount of edible food currently disposed be recovered for human consumption by 2025. As a result, the need and demand for food waste innovations and infrastructure will continue to grow.

On October 28, 2018, the [*USDA, EPA and FDA announced the signing of a joint agency formal agreement under the Winning on Reducing Food Waste Initiative*](#) aimed at improving coordination and communication across federal agencies.

For the latest information about federal and state food waste policy, visit ReFED's [*U.S. Food Waste Policy Finder*](#).



Special Report on Foundation Funding

This year's Food Waste Investment Report includes a deep-dive into foundation funding, a key component of philanthropic funding overall, which plays a unique and catalytic role in providing early-stage risk capital that helps to unlock additional food waste funding and support from private and public funders.



Key Takeaways: Foundation Food Waste Funding

PREVENTION

Increasing capital levels with growing recognition of economic and environmental benefits, not just social. Still small compared to recovery funding.

Fewer clear-cut opportunities for traditional forms of philanthropic funding and may require approaches not used by many foundations.

RECOVERY

Highest level of existing funding.

Need for continued philanthropic funding remains given limited existence of market-rate solutions that would otherwise attract other forms of capital.

RECYCLING

Lowest level of existing funding.

Costly projects that are extremely policy dependent.

The biggest opportunity here may be to coordinate with government programs.

GENERAL

A growing number of grants are being issued to organizations that work across the food recovery hierarchy for general education building and city-level initiatives that span the food waste spectrum.

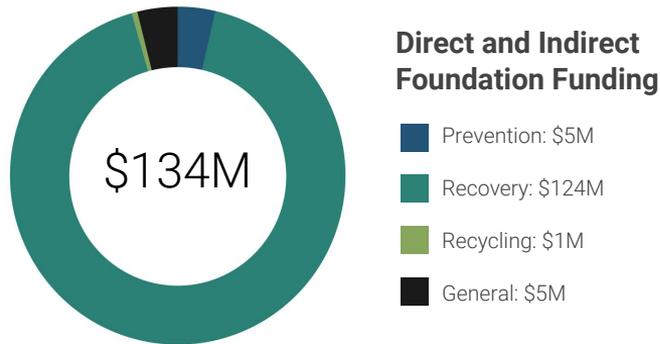


Foundation Food Waste Funding Reached \$134 million Jan-Sept 2016, An Increase of 70% Over Five Years

Philanthropic funding, especially from foundations, continues to play a critical role in supporting food waste reduction and innovation.

Direct foundation funding (explicit funding for food waste initiatives or general funding to recipients whose missions are intrinsically tied to fighting food waste) nearly tripled from \$7 million in 2012 to \$20 million YTD 3Q16.

While these figures may seem nominal, they should be considered within the context of an additional \$114 million of indirect foundation funding, meaning the total foundation food waste funding reached \$134 million YTD 3Q16 - an increase of 70% over five years.



Since the establishment of ReFED's foundation funding baseline in 2012, food waste funding picked up speed with the number of individual funders, recipients, and grants growing at an average yearly rate of 22%, 15%, and 21%, respectively.

Foundation funding generally remains focused on making grants, versus using impact investment-style mechanisms like PRIs or MRIs. While average grant size hovered around \$30,000 between 2012-2015, this figure increased significantly to \$56,000 YTD 3Q16.

The landscape of direct foundation food waste funding consists of a handful of major funders and a much larger number of small funders (since 2015, only three foundations gave food waste grants larger than \$500,000, while 381 funders gave grants between \$5,000 and \$100,000). 392 funders have provided 1-2 food waste grants, while 30 have more defined food waste programs and are consistently making 3 or more grants.

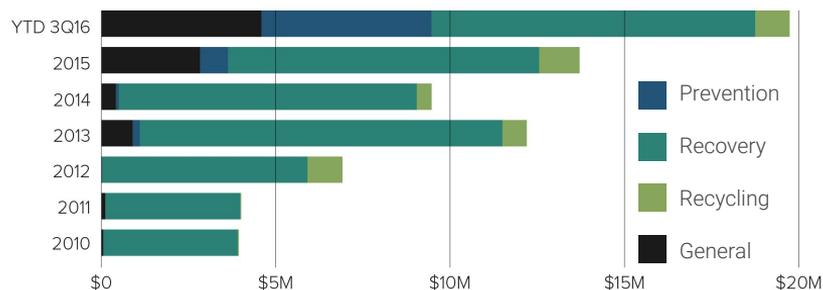
Important Footnotes:

- All Special Report on Foundation Funding figures and analysis is based on a minimum grant size threshold of \$5,000 and the most available data as of May 2018 (e.g., historical data up to September 2016) given standard grant reporting schedules and the time lag of tax returns.
- See the Sources and Methodology section for further details.



The Food Waste and Food Bank Funding Connection

Direct Foundation Food Waste Funding

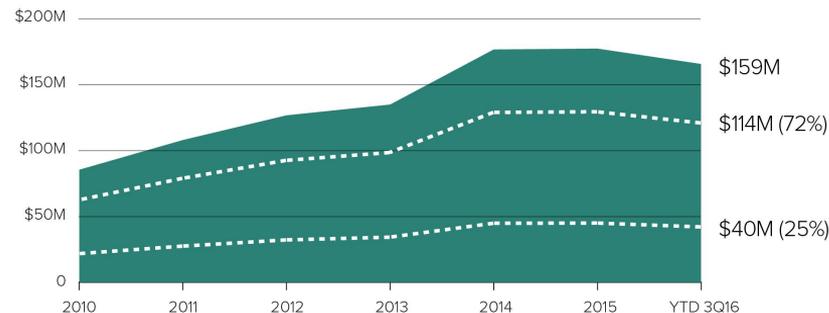


Direct foundation food waste funding has nearly tripled since 2012, reaching \$20 million YTD 3Q16.

Important Definitions:

- **Direct Food Waste Funding:** Explicit funding for food waste initiatives or general funding to recipients whose missions are intrinsically tied to fighting food waste.
- **Indirect Food Waste Funding:** A portion of general funding to food banks and similar social enterprises, not explicitly for food waste initiatives, but for whom between 25-72% of food distributed to beneficiaries is recovered food.

Indirect Foundation Food Waste Funding



\$159 million of additional foundation funding was also granted to food banks and similar social enterprises¹ (e.g., commercial kitchens like DC Central Kitchen or LA Kitchen), which, according to a 2017 Feeding America Annual Report, source between 25-72% of their food supply through recovery of otherwise wasted food. Therefore, this addition of indirect food waste funding of up to \$114 million means total foundation funding for food waste overall reached \$134 million YTD 3Q16.

Feeding America, the third largest U.S. charity, is a major regrantor in the recovery space. In 2017, the organization redistributed \$56 million exclusively to member food banks. \$14 million (25% of grants) were for food rescue, helping prevent food waste at retail locations and rescue fresh produce. For the purposes of this report, grants from foundations to Feeding America or directly to a member food bank were included, however regrants from Feeding America to its members were not to avoid double counting.

¹ While overall food bank funding is estimated to be several hundred million dollars, \$159 million comes from grants greater than \$5,000 in size.



Foundation Food Waste Funding Breakdown YTD 3Q16

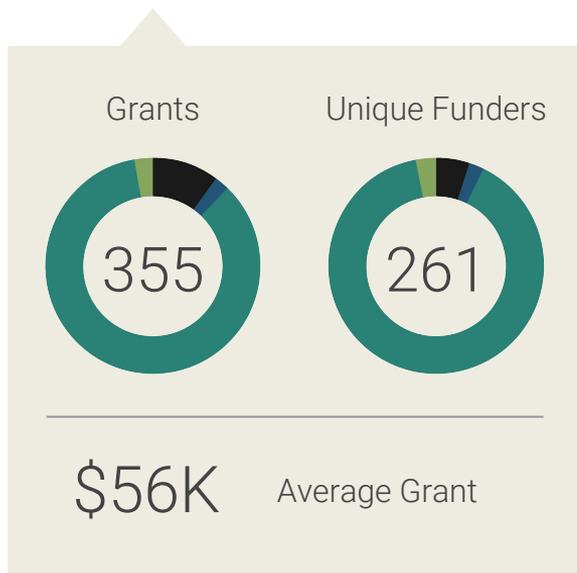
\$20M
Direct Funding



\$114M
Indirect Funding¹



\$134M
Total Funding



Food Recovery Hierarchy

- Prevention
- Recovery
- Recycling
- General

¹ Up to 72% of food distributed to beneficiaries is recovered food; 2017 Feeding America Annual Report.



\$20M in Direct Foundation Food Waste Funding Across the Food Recovery Hierarchy YTD 3Q16



Unique funder numbers are not mutually exclusive by food waste hierarchy.



Examples of Direct Foundation Food Waste Funding YTD 3Q16

Donor	Recipient	Amount Disbursed	Purpose
The Rockefeller Foundation	Zero Point Zero Production Inc	\$3,600,000	Production of the film <i>Wasted</i> and corresponding awareness campaign and educational curriculum.
The Rockefeller Foundation	Cornell University	\$150,000	Development of curriculum and certificate program to educate corporate executives on championing issues of food waste and loss.
The Clark Foundation	City Harvest	\$400,000	General food recovery support.
The California Wellness Foundation	LA Kitchen	\$250,000	Operating support to improve health outcomes and employment of formerly incarcerated adults and former foster youth in the food service industry.
The San Francisco Foundation	Food Runners	\$207,000	General support and endowment fund.
The Rockefeller Foundation	Feeding America	\$200,000	Identifying and testing methods to more effectively reduce food waste and loss to make more food available to vulnerable communities in the U.S.
The Walmart Foundation	Global Green USA	\$417,000	Integration of composting facilities and use of compost into green building and community design, and evaluating methods for resident outreach and technology to measure waste in multifamily buildings.
The Chicago Community Trust	Seven Generations Ahead	\$114,000	Building markets for food scrap composting in Illinois.
The Rockefeller Foundation	Natural Resources Defense Council	\$650,000	Testing food waste assessment methodologies and developing replicable tools to help reduce food waste at the municipal level in the U.S.
The Walmart Foundation	New Venture Fund	\$600,000	Building ReFED's organizational capacity and programs to catalyze implementation of the <i>Roadmap to Reduce U.S. Food Waste</i> .
The Rockefeller Foundation	Daniel J. Edelman Inc.	\$500,000	Increasing the visibility and understanding of the issue of food waste.
The Walmart Foundation	World Resources Institute	\$300,000	Encourage suppliers and others across the supply chain to use the Food Loss and Waste (FLW) standard.
Allen H and Selma W Berkman Charitable Trust	Natural Resources Defense Council	\$100,000	Leveraging Nashville food waste work in other cities.
The Rockefeller Foundation	World Wildlife Fund	\$85,000	Catalyzing sustainable sourcing and food waste reduction in the U.S. hospitality sector.



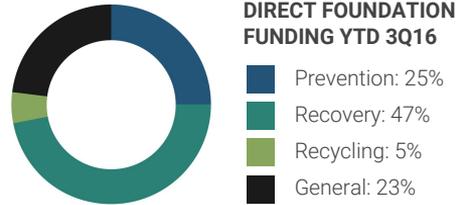
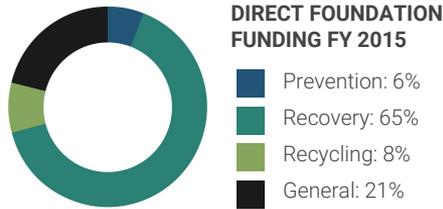
Examples of Indirect Foundation Food Waste Funding YTD 3Q16

Donor	Recipient	Amount Disbursed	Purpose
Lilly Endowment	Gleaners Food Bank of Indiana	\$10,000,000	Endowment fund and capacity building.
Lilly Endowment	Second Helpings	\$7,500,000	Endowment fund and capacity building.
Robert W. Woodruff Foundation	Georgia Food Bank Association	\$4,000,000	Build the capacity of Georgia's food banks to provide more food to people in need.
Silicon Valley Community Foundation	Second Harvest Food Bank (Santa Clara & San Mateo)	\$3,400,000	No description provided.
Conagra Brands Foundation	Feeding America	\$3,400,000	Hunger relief.
Comic Relief	Feeding America	\$2,500,000	General support.
Morgan Stanley Foundation	Feeding America	\$1,900,000	Children's health.
Bank of America Charitable Foundation	Feeding America	\$1,500,000	Program and operating support.
Thomas J. Long Foundation	Alameda County Community Food Bank	\$1,500,000	Expand infrastructure, build the capacity of the member agency network and achieve full participation in existing school nutrition programs.
The Entertainment Industry Foundation	Feeding America	\$1,500,000	General support.
Fidelity Charitable Gift Fund	Second Harvest Food Bank (Santa Clara & San Mateo)	\$1,200,000	No description provided.
Margaret A Cargill Foundation	Feeding America	\$1,000,000	Relief, Recovery and Resilience Network Initiative.



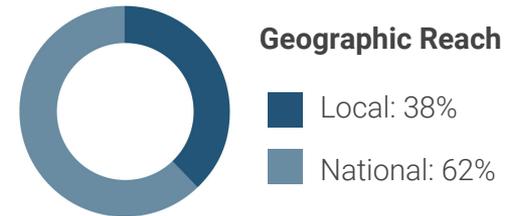
Prevention Category Insights

- While the food recovery hierarchy developed by the EPA prioritizes prevention, solutions in this category are only beginning to receive significant funding (25% of direct food waste funding YTD 3Q16 versus 6% in 2015)—an exciting development since prevention solutions have the potential to yield the greatest economic and environmental value per dollar invested. An ongoing barrier is the fact that most prevention funding opportunities are for-profit solutions, which presents a challenge for many foundations.



- As foundation grant funding of prevention solutions begins to grow, venture capital, private equity funding, and impact investment dollars (including from foundations) are also providing vital support to the sector. In the coming years, we hope to see foundation funding of prevention solutions rise as new and increasingly proven impact investment-style financing mechanisms such as demand dividends, PRIs, and MRIs are implemented.
- Foundation funders can also drive impact by supporting research and pilots, which can ultimately enable other capital providers to invest larger dollars and more rapidly scale solutions, and by funding initiatives requiring leadership and coordination for collective action (e.g., standardized date labels and packaging).

U.S. Prevention Innovator Composition¹



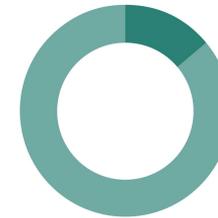
¹ ReFED Innovator Database.



Recovery Category Insights

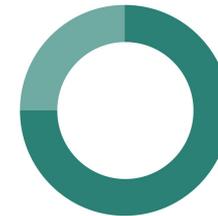
- The recovery of otherwise wasted food and the food banking system are intrinsically tied - when we fight food waste, we fight hunger. For instance, in 2016 alone, Feeding America rescued 2.8 billion pounds of food and redirected it to people who struggle with hunger.
- As a result, it can be difficult to decouple food bank funding from food waste recovery funding. While some funders may give grants to food banks without considering the impact on food waste, other funders, such as The Rockefeller Foundation or The Walmart Foundation (the latter of which has granted more than \$100 million to Feeding America since 2005), intentionally fund the space with an eye towards fighting both food waste and hunger.
- Total foundation food waste funding for the recovery category reached \$124 million YTD 3Q16 (\$9.3 million direct and \$114.4 million indirect), significantly dwarfing funding of prevention (\$4.9 million), recycling (\$1.0 million) and general (\$4.6 million) categories.

U.S. Recovery Innovator Composition¹



Organization Status

- For profit: 14%
- Non profit: 86%



Geographic Reach

- Local: 75%
- National: 25%

¹ ReFED Innovator Database.



Recovery Category Insights

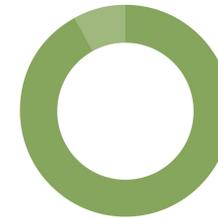
- As the next generation of food recovery emerges (e.g., focused on providing fresh, healthy and prepared foods, along with more choice) there are opportunities for funders to support these important enhancements to the system with even more dynamic funding.
 - This often requires initial funding to expand infrastructural capacity and create new jobs dedicated to running these operations. The Second Harvest Food Bank of Middle Tennessee is one organization at the forefront of such a strategy; developing programs that process recovered, surplus food at a scale large enough that they can ultimately become financially self-sustaining.
- Social enterprise models (e.g., commercial kitchens or job creation and training programs) are part of a growing category of new approaches to food recovery that have emerged.
 - Innovators like DC Central Kitchen, CommonWealth Kitchen, Kitchens for Good, and Food Shift aim to take a holistic approach to solving hunger, diverting food from landfills, and creating new revenue streams using what would otherwise be wasted food. Technology-based enterprises like Replate also fall in this category.
 - In October 2018, six-year old [*LA Kitchen announced it was shutting down*](#) due to insufficient funding and trouble securing adequate partnerships. While there remains significant potential for these types of social enterprises, the need for further innovation and best practice sharing of effective and efficient operating and financing models remains.
- Outside the nonprofit food recovery model, a handful of for-profit companies have formed to connect surplus food to those who need it.
 - Businesses that use online food donation marketplaces and mobile technologies to facilitate food recovery benefit by acquiring robust data, which can be used to identify frequently wasted foods and inform future purchasing decisions that improve operational efficiency (e.g., GoodR, Copia, Spoiler Alert, and Divert, Inc.).
 - Many of these services also compile donation receipts to make it easy for businesses to claim tax deductions.



Recycling Category Insights

- Foundation funding for recycling has focused primarily on small-scale composting systems. In comparison, government funding (both grants and loans) has focused on large-scale infrastructure. As a result, recycling presents a great opportunity for foundations to leverage their dollars in a catalytic way by providing grants for technical assistance, matching funds, or low-interest loans or loan guarantees for infrastructure to help unlock additional government funding.
- Funders can support several areas of research to spur additional recycling growth:
 1. Assessing of small-scale and decentralized recycling infrastructure compared to centralized systems.
 2. Developing end-use applications for digestate from anaerobic digestion at wastewater treatment plants and financing mechanisms to encourage plant operators.
 3. Analyzing the effectiveness and economic impacts of organics landfill bans.
- While composting appears simple on its surface, efficiently operating a system that produces high-quality compost requires training and skill. [The Institute for Self Reliance's Composting Report](#) and associated training materials and classes (funded by The Schmidt Family Foundation among others) are a valuable resource for local composters entering the business. The number of local organics haulers and processors has increased dramatically over the past five years and this grant funding has supported the growth of that industry.

U.S. Recycling Innovator Composition¹



Organization Status

- For profit: 92%
- Non profit: 8%



Geographic Reach

- Local: 37%
- National: 63%

¹ ReFED Innovator Database.



General Category Insights

- Foundation funding of general food waste initiatives (e.g., funding for food waste initiatives not specified to be uniquely prevention, recovery, or recycling-related) grew significantly starting in 2015 with a 586% increase year-over-year and another 62% increase YTD 3Q16.
- Much of the 2015 increase can be attributed to the establishment of ReFED, itself a multistakeholder nonprofit working across the food recovery hierarchy, and the publication of its Roadmap to Reduce U.S. Food Waste. Additionally that year, major environmental nonprofits like World Resources Institute, World Wildlife Fund, Natural Resources Defense Council and Environmental Defense Fund doubled down on their food waste-specific activity.
- 2016 represented the launch of The Rockefeller Foundation's \$130 million Yieldwise Initiative, which kicked off a more consistent and frequent cadence of funding at large dollar amounts.



Top Direct Food Waste Funders and Recipients Overall (2015-YTD 3Q16)

Top Foundation Funders



The Rockefeller Foundation



The Walmart Foundation

Anonymous



Fidelity Charitable Gift Fund¹



Fink Family Foundation

Anonymous

Top Recipients



City Harvest



Zero Point Zero Production Inc



Natural Resources Defense Council



New Venture Fund (including ReFED)



Forgotten Harvest



Food Forward

¹ The majority of Fidelity Charitable grants were disbursed to one organization, City Harvest.



Top Direct Food Waste Funders and Recipients by Category (2015-YTD 3Q16)

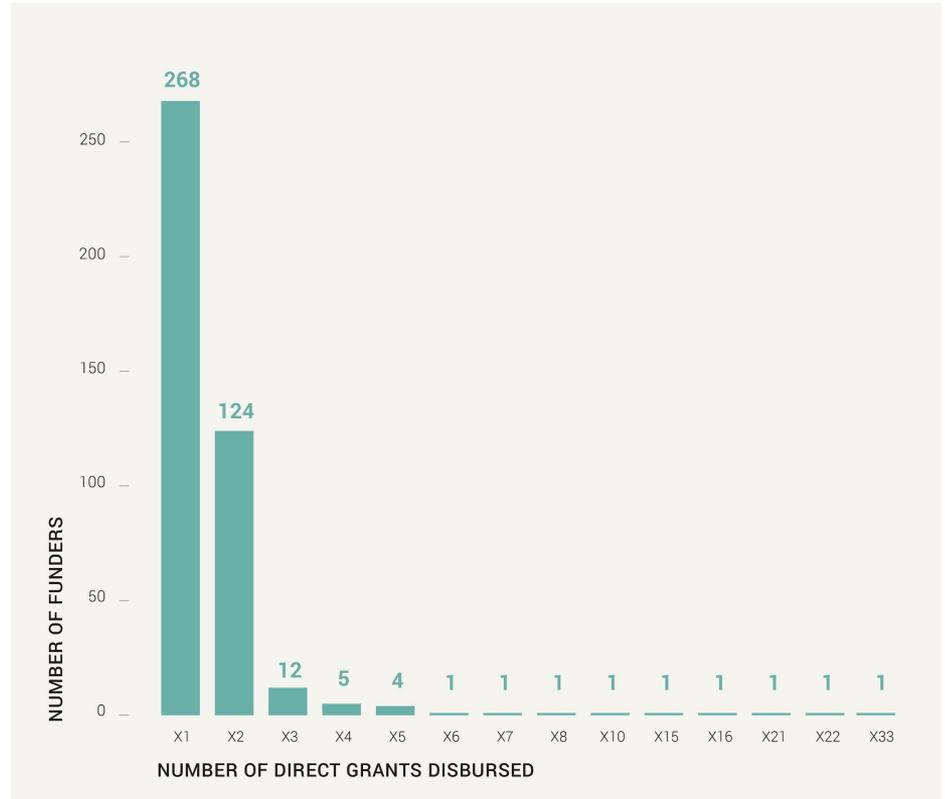
PREVENTION		RECOVERY		RECYCLING		GENERAL	
Top Foundation Funders	Top Recipients	Top Foundation Funders	Top Recipients	Top Foundation Funders	Top Recipients	Top Foundation Funders	Top Recipients
The Rockefeller Foundation	Zero Point Zero Production Inc	Fidelity Charitable Gift Fund	City Harvest Forgotten Harvest	The Walmart Foundation	Global Green USA	The Rockefeller Foundation	New Venture Fund (including ReFED)
Anonymous	Natural Resources Defense Council	The Walmart Foundation	Food Forward	The Chicago Community Trust	Closed Loop Foundation	The Walmart Foundation	Natural Resources Defense Council
Anonymous	Initiative for a Competitive Inner City, Inc.	The Clark Foundation	Lovin Spoonfuls	The Schmidt Family Foundation	Growing Power ¹	Fink Family Foundation	World Wildlife Fund
Pisces Foundation	Cornell University	Bank of America Charitable Foundation	LA Kitchen	The Rockefeller Foundation	Seven Generations Ahead	Anonymous	Global Feedback Limited
Anonymous	New Venture Fund (including ReFED)	The California Wellness Foundation	Food Finders	Community Foundation of Jackson Hole	Institute for Local Self-Reliance	Anonymous	Daniel J. Edelman Inc.
Anonymous	New York Times Company	The Thompson Family Foundation, Inc.		Fink Family Foundation	New York Foundation for Architecture Inc.	W. L. Lyons Brown Foundation	IDEO
						Claneil Foundation, Inc.	World Resources Institute
						Allen H and Selma W Berkman Charitable Trust	Ag Innovations Network
						Pisces Foundation	Keystone Center
						The California Endowment	University Of Maryland

¹ Growing Power ceased operations in November 2017.



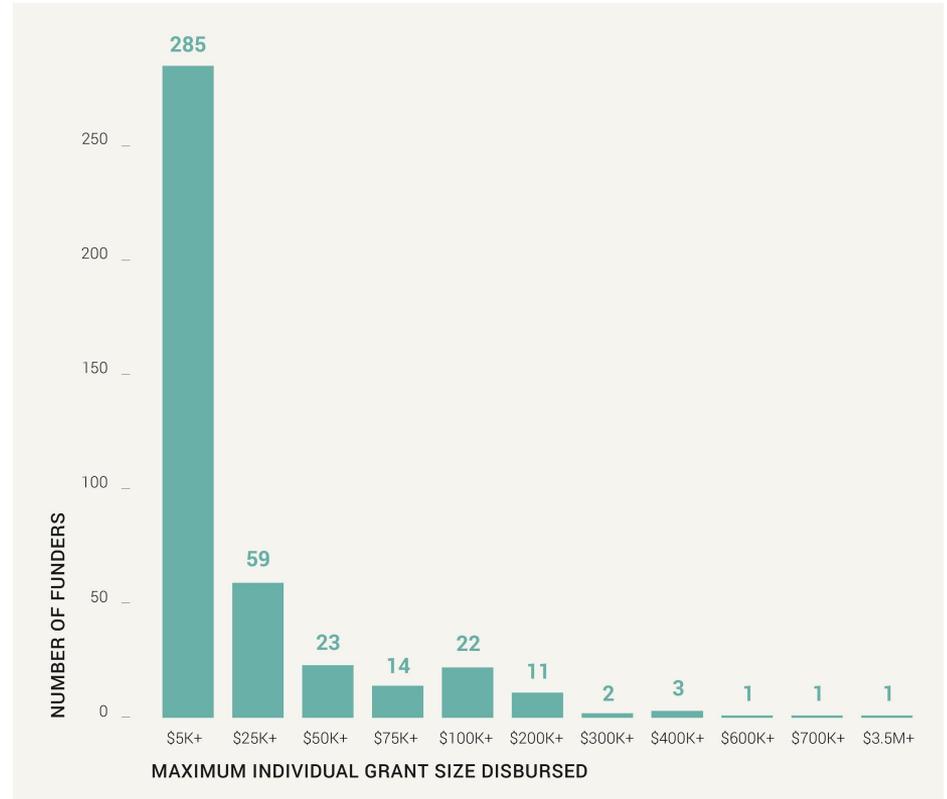
Most Active Direct Foundation Food Waste Funders (2015-YTD 3Q16)

# OF FOOD WASTE GRANTS DISBURSED	FUNDERS
33	Fidelity Charitable Gift Fund 
22	The Rockefeller Foundation 
21	The Fink Family Foundation 
16	The Walmart Foundation 
15	Bank of America Charitable Foundation 
10	Rochester Area Foundation 
8	The Claneil Foundation 
7	The Kroger Co. Foundation 
6	Harris and Frances Block Foundation 



Maximum Direct Foundation Food Waste Grant Size (2015-YTD 3Q16)

MAXIMUM INDIVIDUAL GRANT SIZE DISBURSED	FUNDERS
\$3.5M+	The Rockefeller Foundation 
\$700K+	Anonymous
\$600K+	The Walmart Foundation 
\$400K+	Anonymous Clark Foundation W.L. Lyons Brown Foundation 
\$300K+	Anonymous The Carls Foundation 



Top Indirect Food Waste Funders and Recipients Overall (2015-YTD 3Q16)

Top Foundation Funders



Bank of America Charitable Foundation



Lilly Endowment



Fidelity Charitable Gift Fund



The Walmart Foundation



Robert W. Woodruff Foundation



Conagra Brands Foundation

Top Recipients



Feeding America



Second Harvest Food Bank (Santa Clara & San Mateo)



Gleaners Food Bank of Indiana



Second Helpings (Indianapolis)



Georgia Food Bank Association

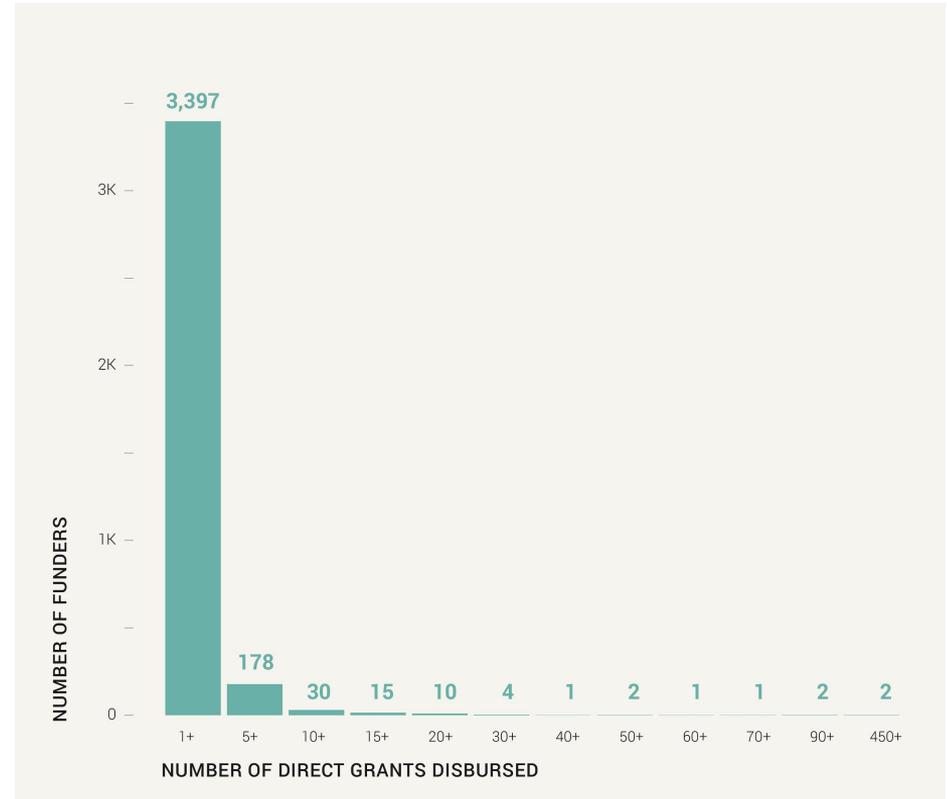


Food Lifeline



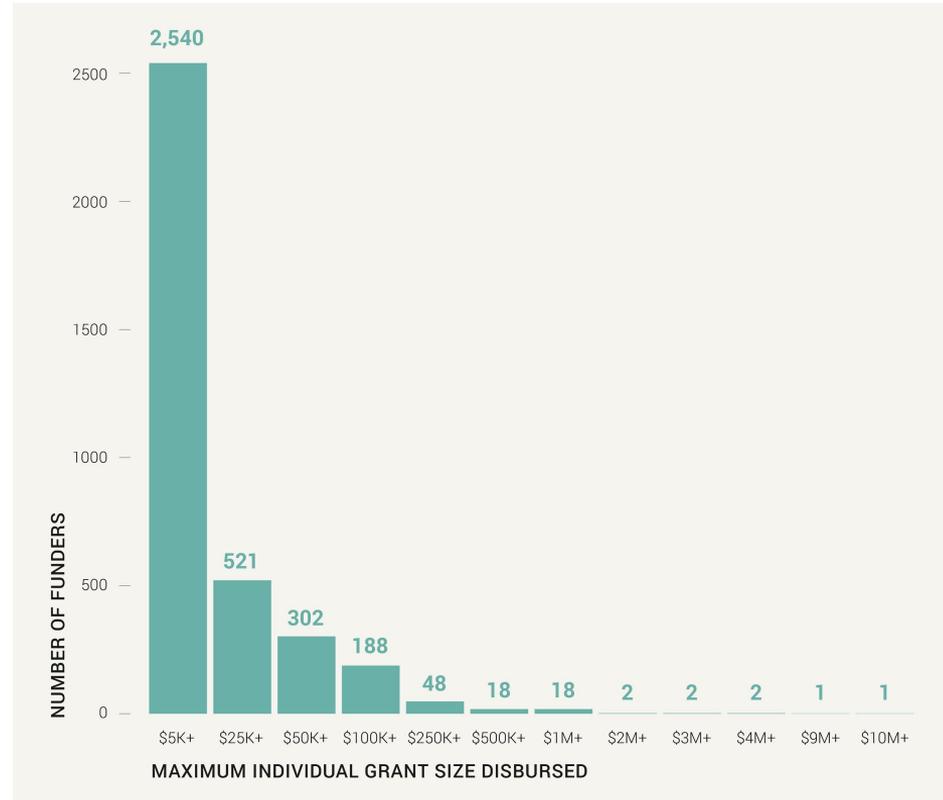
Most Active Indirect Foundation Food Waste Funders (2015-YTD 3Q16)

# OF FOOD WASTE GRANTS DISBURSED	FUNDERS
450+	Bank of America Charitable Foundation  Fidelity Charitable Gift Fund 
90+	TD Charitable Foundation  The Kroger Co. Foundation 
70+	Silicon Valley Community Foundation 
60+	Seattle Foundation 
50+	Grainger  Wells Fargo Foundation 
40+	Woodforest Charitable Foundation  <i>Enriching Lives Through the Art of Giving®</i>



Maximum Indirect Foundation Food Waste Grant Size (2015-YTD 3Q16)

MAXIMUM INDIVIDUAL GRANT SIZE DISBURSED	FUNDERS
\$10M+	Lilly Endowment 
\$9M+	The Walmart Foundation 
\$4M+	Laura and John Arnold Foundation  Robert W Woodruff Foundation 
\$3M+	Conagra Brands Foundation  Silicon Valley Community Foundation 
\$2M+	Comic Relief  Morgan Stanley Foundation 



Developing a New Philanthropic Funding Strategy

While we're encouraged by positive momentum and increased funding levels, further philanthropic leadership and new strategies, including public commitments to signature food waste funding approaches, will help build the innovation ecosystem faster and compel others to collaborate.

Historically, philanthropic food waste funding, including foundation funding, has largely targeted food security and the food banking network via food recovery efforts. While the U.S. food recovery system may have originally been designed and optimized to handle shelf-stable packaged and dry goods, pathways are beginning to emerge for funders to support the next generation of food recovery, along with a stronger focus on food waste prevention and recycling.

	PREVENTION	RECOVERY	RECYCLING
Major Funding Sources Today	<ul style="list-style-type: none"> • Corporate investment • Venture capital, private equity • Philanthropy 	<ul style="list-style-type: none"> • Government tax incentives • Philanthropy 	<ul style="list-style-type: none"> • Government loan and grant programs • Project finance • Venture capital, private equity
Areas Being Funded Today by Foundations	<ul style="list-style-type: none"> • Research, consumer education, coordination, convening 	<ul style="list-style-type: none"> • General food bank capacity 	<ul style="list-style-type: none"> • Research • Compost and anaerobic digestion infrastructure
Future Grant Opportunities	<ul style="list-style-type: none"> • Early risk capital for new solutions. • Support for solutions where business benefit hasn't been proven. • Areas where leadership and coordination are needed for collective action (e.g., standardized date labels, packaging). • Support for accelerators/incubators that can help organizations pilot/develop. 	<ul style="list-style-type: none"> • Next generation of food recovery (e.g., fresh and prepared foods, health and nutrition focus, efficient delivery with dignity at its core, and job creation potential via social enterprise models like commercial kitchens). • More research to develop a simple, science-based framework for food safety to better guide donations. Analysis of barriers that prevent improvements in food waste and recovery outcomes. 	<ul style="list-style-type: none"> • More research of small-scale and decentralized recycling infrastructure, end-use applications for digestate from anaerobic digestion at wastewater treatment plants. • Analysis of appropriate financing mechanisms that encourage plant operators and the effectiveness of organics landfill bans.



Funders Can Drive Outsized Impact by Focusing on Key Philanthropic Gaps and Strategic Levers

Support and scale solutions & strategies lacking a market-rate application	Research and Measurement	<ul style="list-style-type: none"> • Map underutilized community assets and assess small-scale, decentralized recycling infrastructure versus centralized systems • Better quantify financial savings to businesses and analyze barriers in the retail and food service sectors preventing increased reduction and recovery outcomes • Develop simple, science-based framework for food safety to better guide donations • Quantify on-farm losses • Apply blockchain technology to quickly identify locations with product surplus and connect them with markets in need • Assess end use applications for digestate from anaerobic digestion at wastewater treatment plants and financing mechanisms to encourage plant operators • Analyze the effectiveness and economic impacts of organics landfill bans 	Develop capacity for market-based solutions	Seed Pilot Projects and Proof of Concepts	<ul style="list-style-type: none"> • Food product creation through value-added processing • Secondary marketplaces for discounted food and donations • Create a network of social enterprise kitchens that interface with food banks and retail/catering outlets • Support new distribution models to increase choice and access of food assistance • Leverage trends and technology from the sharing economy to improve the food donation sector
	Education and Awareness	<ul style="list-style-type: none"> • Consumer awareness campaigns • Food business employee education 		Provide Risk Capital and Technical Assistance for Infrastructure	<ul style="list-style-type: none"> • Offer PRIs for on-farm processing lines and expanded capacity at food banks with social enterprise models
	Convening and Coordination	<ul style="list-style-type: none"> • Pre-competitive, multi-stakeholder initiatives such as standardized date labeling and packaging • Ecosystem conferences and networking events • Funder and innovation workshops 			
	Capacity Building	<ul style="list-style-type: none"> • Provide microgrants to food assistance organizations to enhance processing and operating capacity • Support the adoption and utilization of technology platforms • Support recovery models with job creation and training as a key component of operations and sustainable revenue generation 			
	Policy and Advocacy	<ul style="list-style-type: none"> • Fund research that supports enhanced tax deductions and credits • Support organizations that can help to streamline state and city regulations 			



Want to stay up-to-date on the latest developments in the fight against food waste?

Sign up for ReFED's *Capital & Innovation mailing list* for access to future reports, newsletters, and opportunities for collaboration.

Funders: Consider investing in one of the 500+ innovators around the country creating value from food waste and found in ReFED's *Innovator Database*. Join ReFED's *Food Waste Funder Initiative*, a network of 100+ philanthropic, public and private investors and associated events.

Innovators: *Register for ReFED's Innovator Database* to join the growing network of food waste solution providers and attend future ReFED events.

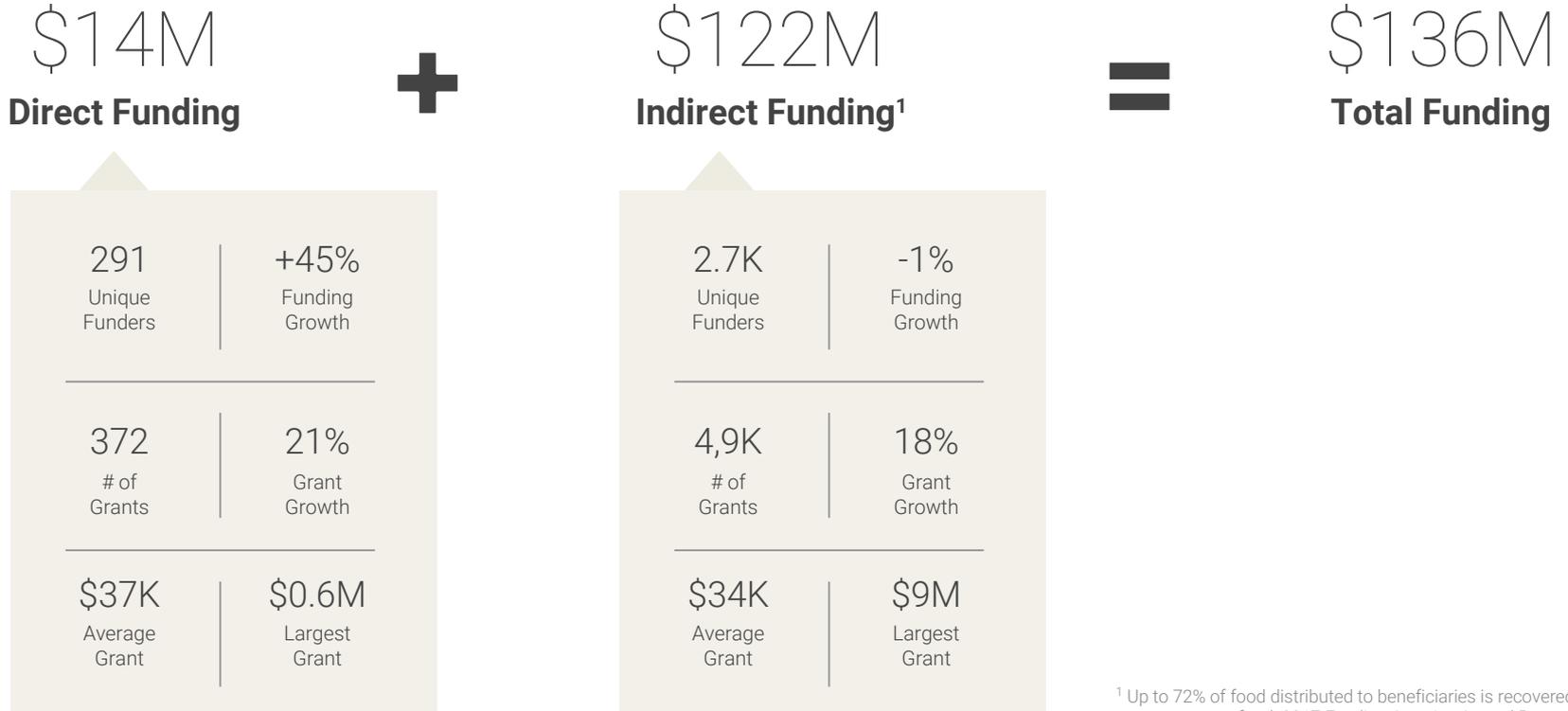
Inquiries? Email
capital@refed.com



Appendix



Foundation Food Waste Funding Breakdown Full Year 2015



¹ Up to 72% of food distributed to beneficiaries is recovered food; 2017 Feeding America Annual Report. Growth figures are year-over-year.



\$14M in Direct Foundation Food Waste Funding Across the Food Recovery Hierarchy - Full Year 2015



Unique funder numbers are not mutually exclusive by food waste hierarchy.
Growth figures are year-over-year.



Special Report on Foundation Funding—Sources and Methodology

Data Sources

ReFED used three primary data sources to develop the foundation funding tracker baseline:

- 1) Electronically-filed 990-PF Tax Form data made available by the IRS on Amazon Web Services.
- 2) Paper-filed 990-PF Tax Form data collected from Foundation Center's Online (FCO) Directory Tool.
- 3) Self-reported data collected through an interview process with several well-known food waste-focused foundations and nonprofits (where the nonprofits provided insight into their total budgets).

ReFED searched these data sources for grants containing food waste-related keywords and for grants given to food waste-related organizations. These grants were then individually reviewed and categorized.

Scope

The following list indicates what is and is not included in this report:

Included

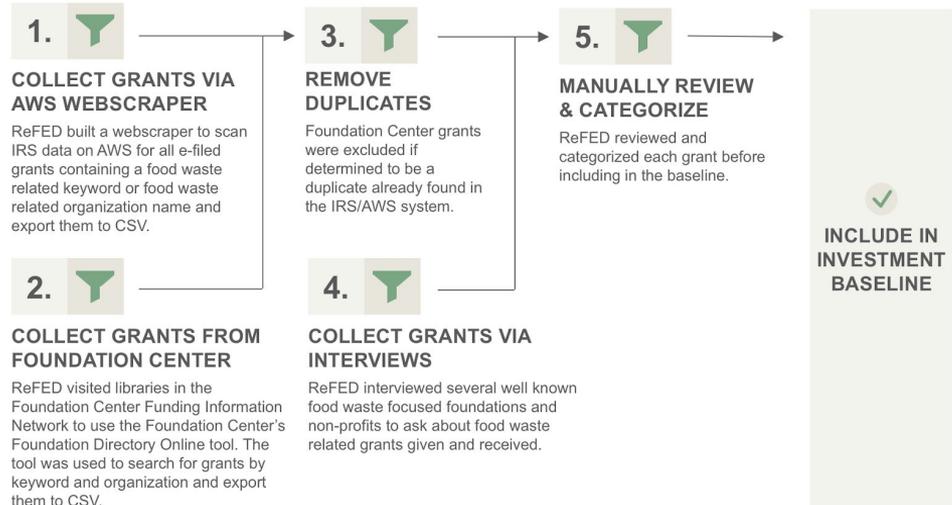
- Grants made by private foundations
- Grants where the benefitting region is the U.S.

Not Included

- Grants made by organizations that are not private foundations
- Donations by individuals
- Re-grants from Feeding America to its member food banks

Data Collection and Review Process

The following diagram summarizes the process used to collect, review, and include grants in the baseline:



For the detailed Special Report on Foundation Funding Technical Appendix, visit www.refed.com/2018InvestmentReport/Technical_Appendix.



Special Report on Foundation Funding—Sources and Methodology

Grant Categorization

Grants were individually reviewed and grouped into one of the following categories:

Grant Categories	Example
Prevention	<ul style="list-style-type: none">Standardized date labelsConsumer education about food waste prevention
Recovery	<ul style="list-style-type: none">Refrigerated storage at a food bankTruck to pick up surplus food donations
Recycling	<ul style="list-style-type: none">Composting programBiodigesters
General	<ul style="list-style-type: none">Food waste reduction program, general funding for food waste organizations
Food Bank or Social Enterprise	<ul style="list-style-type: none">General support for a food bankCommercial kitchen that uses both primary and repurposed surplus food ingredients
Out of Scope	<ul style="list-style-type: none">Refrigerator for vaccine storageComposting toilets

Data gaps

Any food waste-related grants missed by the methodology described can be attributed to one of the following data gaps:

Keyword searches	<ul style="list-style-type: none">Some grants may have been missed because they did not contain one of the keywords used for searching, or because the grant description was vague.
Grants returned via FCO tool keyword search	<ul style="list-style-type: none">The keyword search function did not always return the full number of relevant grants.It's impossible to know how many paper-filed grants were missed by this approach.
Paper-filed grants not included in the FCO tool	<ul style="list-style-type: none">Some grants and some organizations are not available in this system.
Manual error	<ul style="list-style-type: none">Some food waste-related grants may have been excluded due to human error during the data collection and review process.

Limitations of the Data

Time lag of tax returns and grant reporting. With extensions, private foundations can file the 990-PF up to 12 months after the end of their fiscal year. For grants disbursed early in the fiscal year, this can lead to a two-year time lag between grants being distributed and when they are reported to the IRS.

Authorized grant amount vs. disbursed amount. There is a difference between the full authorized grant amount and the amount disbursed each year to the recipient for multi-year grants. Form 990-PF's capture the yearly disbursed amount, not the authorized amount.



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- Philip Curtis, Data & Insights Manager
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