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ReFED



Opportunities to Reduce Food Waste in the 2023 Farm Bill

APRIL 2022



Prevention



Recovery



Recycling



Coordination

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ReFED is a national nonprofit working to end food loss and waste across the food system by advancing data-driven solutions to the problem. We leverage data and insights to highlight supply chain inefficiencies and economic opportunities; mobilize and connect supporters to take targeted action; and catalyze capital to spur innovation and scale high-impact initiatives. Our goal is a sustainable, resilient, and inclusive food system that optimizes environmental resources, minimizes climate impacts, and makes the best use of the food we grow. To learn more about solutions to reduce food waste, please visit www.refed.org.

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WWF is one of the world's leading conservation organizations, working for 60 years in nearly 100 countries to help people and nature thrive. With the support of 1.3 million members in the United States and more than 5 million members worldwide, WWF is dedicated to delivering science-based solutions to preserve the diversity and abundance of life on Earth, halt the degradation of the environment, and combat the climate crisis. Visit www.worldwildlife.org to learn more.

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TABLE OF CONTENTS

- EXECUTIVE SUMMARY.....i
- INTRODUCTION.....1
- FOOD WASTE PREVENTION.....3
 - Standardize and Clarify Date Labels.....3
 - Launch a National Food Waste Education and Awareness Campaign.....5
 - Provide Funding to K-12 Schools to Incorporate Food Waste Prevention Practices in Their Programs.....7
 - Promote Food Education and Food Waste Education in K-12 Programming.....8
 - Utilize Existing Federal Household-Level Food Education Programs to Increase Food Waste Awareness.....9
 - Provide Grant Funding for New Technologies to Reduce Food Spoilage and Food Waste.....11
 - Implement a Certification Program for Businesses that Demonstrate Food Waste Reduction.....12
 - Provide Financial Incentives to Businesses for the Adoption of Technologies that Reduce Food Waste by at Least 10%.....13
- SURPLUS FOOD RECOVERY.....14
 - Strengthen and Clarify the Bill Emerson Good Samaritan Food Donation Act.....14
 - Increase Funding Support for Food Recovery Infrastructure and for Post-Harvest Food Recovery.....16
 - Offer Grant Resources and Procurement Programs to Increase Food Recovery from Farms.....18
 - Encourage USDA Grant and Loan Recipients to Donate Surplus Food by Incentivizing Food Donation.....20
 - Expand Federal Tax Incentives for Food Donation.....21
 - Instruct the USDA Risk Management Agency and Approved Crop Insurance Providers to Better Support Gleaning.....22
- FOOD WASTE RECYCLING.....24
 - Provide Grants to Support Proven State and Local Policies that Reduce Food Waste Disposed in Landfills or Incinerators.....24
 - Provide Grants and Loans for the Development of Organic Waste Processing Infrastructure.....26
 - Require Federal Food Procurement Contractors to Measure, Recover, Recycle, and Prevent Food Waste in Federal Contracts.....29
 - Support Compost End Markets Through Crop Insurance Benefits and Increased Federal Procurement of Compost Products.....29
 - Encourage Diversion of Food Waste into Animal Feed Where Appropriate.....31
- FOOD WASTE REDUCTION COORDINATION.....33
 - Increase Funding for the USDA Food Loss and Waste Reduction Liaison and Create a Broader Research Mandate.....33
 - Provide Funding for the Federal Interagency Food Loss and Waste Collaboration.....34
 - Establish New Positions for Regional Supply Chain Coordinators at the USDA.....35
- Appendix A: U.S. Food Loss & Waste Policy Action Plan Recommendations and Additional Report Recommendations.....37
- Appendix B: Table of Recommendations and Implementation Opportunities by Title.....38
- Appendix C: Table of Pending Federal Legislation.....40

EXECUTIVE SUMMARY

The United States produces and imports an abundance of food each year, but approximately 35% of it goes unsold or uneaten.¹ Annually, 80 million tons of surplus food are not consumed. Of this, 54.2 million tons go to landfill or incineration, or are left on the fields to rot.² Farmers, manufacturers, households, and other businesses in the United States spend \$408 billion each year to grow, process, transport, and dispose of food that is never eaten.³ This waste carries with it enormous economic, environmental, and social costs, but also represents great opportunity. ReFED, a national nonprofit working with food businesses, funders, policymakers, and more, to reduce food waste, analyzed 40+ food waste solutions, and found that the implementation of these solutions has the potential to generate \$73 billion in annual net financial benefit, recover the equivalent of 4 billion meals for food insecure individuals, save 4 trillion gallons of water, and avoid 75 million tons of greenhouse gas emissions annually.⁴

The federal government has an important role to play in the continued effort to reduce food waste. In 2015, the United States Department of Agriculture (USDA) and the United States Environmental Protection Agency (EPA) jointly announced the nation's first-ever food waste reduction goal, aiming to cut food waste in the United States by 50% by the year 2030.⁵ While the food waste reduction goal is a step in the right direction, in order to make this goal a reality, it is imperative for the federal government to make food waste reduction a legislative priority.

Congress has started to take these necessary steps. In 2018, for the first time ever, Congress included measures in the Farm Bill to reduce food waste, for example, by clarifying liability protections for food donors, financing food recovery from farms, encouraging food waste recycling through community compost funding, and better coordinating food waste reduction efforts across the federal government.⁶ Many of these programs were suggested in the *Opportunities to Reduce Food Waste in the 2018 Farm Bill* report, on which this report is based.⁷ While the inclusion of these programs was an important first step, there is significant room for improvement in the 2023 Farm Bill. The farm bill authorizes roughly \$500 billion over five years in expenditures across the entire food system, and the upcoming farm bill is poised to use a portion of this funding to build upon the successful pilot programs launched in 2018 and ensure more comprehensive investment in food waste reduction.

Opportunities to Reduce Food Waste in the 2023 Farm Bill details how Congress can take action to reduce food waste and offers specific recommendations of provisions to include in the 2023 Farm Bill. Given the bipartisan support for measures to reduce food waste,⁸ the next farm bill provides an exciting opportunity to invest in food waste reduction efforts for greater social, economic, and environmental benefits. This report breaks food waste recommendations into four categories, based on whether they are intended to prevent food waste, increase food recovery, recycle food scraps through composting or anaerobic digestion, or coordinate food waste reduction efforts.

Below are a summary of the four categories and the top recommendations for each that are described in greater detail later in this report as well as mentions of relevant pending federal legislation (that are also included in further detail in Appendix C):



FOOD WASTE PREVENTION

Prevention efforts focus on interventions at the root causes of food waste—they locate and address inefficiencies in the food system and food related practices before excess food is produced, transported to places where it cannot be utilized, or discarded rather than eaten. More than 85% of greenhouse gas emissions from landfilled food waste result from activities prior to disposal, including the production, transport, processing, and distribution of food.⁹ The greenhouse gas emissions embodied in the food wasted by consumers and consumer-facing businesses account for more than 260 million metric tons of carbon dioxide equivalent (CO₂e) per year,¹⁰ which is equivalent to the annual emissions of 66 coal-fired power plants.¹¹ Food waste prevention efforts keep millions of tons of food out of the landfill and have the most potential for environmental,



economic, and social benefits. Altogether, the food waste prevention policies discussed in this section have the potential to annually divert nearly 7 million tons from landfills, while generating more than \$27.4 billion each year in net financial benefit.¹²

Standardize and Clarify Date Labels

There is no federal regulation for date labels used on food. Instead, each state decides whether and how to regulate date labels, leading to a patchwork of inconsistent regulations and myriad date labeling terms such as “sell by,” “best by,” “expires on,” and “use by.” Manufacturers have broad discretion over what dates to affix to their food products, often using dates that typically reflect food quality and taste rather than food safety. Yet businesses, individuals, and even state regulators frequently misunderstand date labels and interpret them to be indicators of safety, leading to the unnecessary waste of wholesome food. Some states even restrict or forbid the sale or donation of past-date foods that are still safe to donate and eat. These inconsistent and misguided state laws lead to wholesome foods unnecessarily being discarded rather than donated. In order to reduce consumer confusion and the resulting food waste, the 2023 Farm Bill should standardize date labels through the Miscellaneous Title or a new Food Waste Reduction Title.

Launch a National Food Waste Education and Awareness Campaign

American consumers alone are responsible for 37.2% of all U.S. food waste.¹³ Research shows that while consumers understand the importance of food waste reduction in the United States, they do not recognize their own role in these efforts. So far there have been successful small-scale campaigns to educate consumers, but to really move the needle, a coordinated, well-funded national campaign is needed. The 2023 Farm Bill can address and correct wasteful practices by providing \$7 million annually through 2030 for a national food waste education and awareness campaign—with \$3 million for research into effective consumer food waste reduction strategies and \$4 million for consumer-facing behavior change campaigns—within the Miscellaneous or a Food Waste Reduction Title.

Relevant Pending Legislation

Food Date Labeling Act of 2021 (H.R. 6167, S.3324 117th Cong. 1st Sess., 2021); School Food Recovery Act of 2021 (H.R. 5459, 117th Cong. 1st Sess., 2021)



SURPLUS FOOD RECOVERY

Food recovery solutions aim to recover surplus food and redistribute it to individuals experiencing food insecurity. Recovering surplus food within the supply chain and reducing barriers to food donation could result in the recovery of roughly 2.3 million additional tons of food each year and a net financial benefit of \$8.8 billion.¹⁴ Nearly half of this new food recovery potential comes from farms, more than a third from restaurants, and the rest from grocers and retailers.¹⁵

Strengthen and Clarify the Bill Emerson Good Samaritan Food Donation Act

Many businesses are reluctant to donate food because of perceived liability concerns associated with donation, such as a food recipient getting sick.¹⁶ To eliminate these barriers to surplus food donation, the 2023 Farm Bill should strengthen and clarify the Bill Emerson Good Samaritan Food Donation Act, which protects food donors from liability.¹⁷ It should do so by delegating authority over the Act to the USDA and mandating that the USDA publish regulations interpreting the Act. The 2023 Farm Bill should also modify the Act to protect donors who donate directly to individuals and organizations that charge a small fee for donated food.

Increase Funding Support for Food Recovery Infrastructure and for Post-Harvest Food Recovery

The USDA should expand investments in food recovery infrastructure and innovative food recovery models to overcome barriers to increased food recovery and donation. To support the development of food recovery operations, Congress should increase funding for food infrastructure efforts, either through new 2023 Farm Bill investments or by making several funding initiatives from the COVID-19 response permanent. Additionally,



Prevention



Recovery



Recycling



Coordination

it should continue supporting innovative food recovery models by increasing funding for the Community Food Projects Competitive Grants Program within the Nutrition Title and earmarking a portion of the grants for food recovery projects. Congress should also increase funding for the Local Agriculture Market Program in the Horticulture Title, increase its applicability to food waste reduction beyond just “on-farm food waste,” and earmark a portion of its funding for food waste prevention and recycling and food recovery.

Relevant Pending Legislation

Further Incentivizing Nutritious Donations of Food (or FIND) Act of 2022 (H.R. 7313, 117th Cong. 2nd Sess., 2022); Food Donation Improvement Act of 2021 (H.R. 6521, S.3281, 117th Cong. 1st Sess., 2021); Fresh Produce Procurement Reform Act of 2021 (H.R. 5309, 117th Cong. 1st Sess., 2021).



FOOD WASTE RECYCLING

Food waste is the largest component of landfills nationwide—contributing over 36 million tons to landfills each year¹⁸ and accounting for 24.1% of landfilled municipal solid waste.¹⁹ Food waste alone produces 4% of all U.S. greenhouse gas emissions per year.²⁰ Further, instead of being wasted, these organic inputs could contribute to better soil matter and reduce soil loss, contributing to a more circular economy. Despite improvements in food waste prevention and recovery initiatives, some food is inevitably discarded. Recycling remaining food waste has the annual potential to divert 20.9 million tons of food scraps from landfills and produce a net financial benefit of \$239.7 million.²¹ The 2023 Farm Bill should support methods of food waste management that are sustainable, economically beneficial, and limit the use of landfill space and reliance on incinerators.

Provide Grants to Support Proven State and Local Policies that Reduce Food Waste Disposed in Landfills or Incinerators

Landfills continue to be overburdened by food waste.²² States and cities are running out of space to store organic waste as they continue to rely on landfills to manage this waste.²³ Further, as food items decompose in landfills, they release harmful greenhouse gases at alarming rates, which can cause potential harm to human health, agriculture, and other natural ecosystems and resources.²⁴

State and local policies such as organic waste bans, waste diversion requirements, landfill taxes, and Pay-As-You-Throw policies have been shown to move the needle on reducing food waste and are essential to divert food waste from landfills and incinerators. When food waste generators that produce a certain threshold of food waste (e.g., grocery stores and hospitals) are prevented from transporting organic waste to landfills or have a strong financial reason not to waste food, they will make changes such as offering smaller portions, donating surplus food, recycling food scraps, and repurposing their leftovers. The 2023 Farm Bill should provide \$650 million in yearly funding for ten years for state, local, and tribal governments, independently or as part of a public-private partnership to plan or implement proven policies that reduce food waste in landfills and incinerators.²⁵ As part of this program, Congress should require the USDA (in collaboration with EPA) to maintain a database of the state and local food waste reduction policies that have proven success, and data on their impacts. Congress can establish this program in the 2023 Farm Bill within the Miscellaneous Title or a dedicated Food Waste Reduction Title.

Provide Grants and Loans for the Development of Organic Waste Processing Infrastructure

In addition to implementing waste bans, waste diversion requirements, zero waste goals, and waste prevention plans, state and local communities must also develop their organic waste processing capabilities to manage the organic waste diverted from landfills and to realize the benefits of these strategies. Both compost and anaerobic digestion infrastructure have the potential to convert food waste into productive soil amendments.

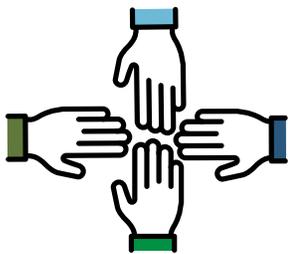
These organic waste processing capabilities are also costly. In the 2018 Farm Bill, Congress authorized the creation of the Community Compost and Food Waste Reduction Project (CCFWR) to provide pilot funding for local governments in at least ten states to study and pilot local compost and food waste reduction plans.²⁶ CCFWR



funding enables localities to enhance their waste prevention capacities and has already fostered a positive impact within communities.²⁷ Congress should build on the existing CCFWR program and adopt new strategies to develop composting and anaerobic digestion infrastructure. In order to scale the program's benefits, Congress should increase the total and per project funding available for the CCFWR program in the next farm bill. In addition, as CCFWR projects are generally small community projects, Congress should provide larger funding for the development of new compost and anaerobic digestion facilities, by providing \$200 million per year for ten years in new composting infrastructure.

Relevant Pending Legislation

Cultivating Organic Matter through the Promotion Of Sustainable Techniques (or COMPOST) Act of 2021 (H.R. 4443, S.2388, 117th Cong. 1st Sess. 2021); Zero Food Waste Act of 2021 (H.R. 4444, S.2389, 117th Cong. 1st Sess. 2021).



FOOD WASTE REDUCTION COORDINATION

Data and research on food waste are critical to providing insight on areas that future policymaking should prioritize. A lack of comprehensive research and federal agency coordination in this space prevents effective management of national resources to address food waste. In the 2018 Farm Bill, Congress established a USDA Food Loss and Waste Reduction Liaison, a welcome step towards reducing food waste and increasing food recovery at the federal level. The 2023 Farm Bill should build upon this by further developing and funding food waste reduction coordination.

Increase Funding for the Food Loss and Waste Reduction Liaison and Create a Broader Research Mandate

The Food Loss and Waste Reduction Liaison (the Liaison) fills an important role for federal food waste reduction. The Liaison coordinates food waste reduction efforts across agencies, researches and publishes research on sources of food waste, supports organizations engaged in food loss prevention and recovery, and recommends innovative ways to promote food recovery and reduce food waste.²⁸ However, the Liaison only receives enough funding to staff the individual Liaison position with no funding for additional support staff, which inhibits the Liaison's ability to fulfill their statutory mandate.²⁹ Congress should increase the funding and develop the Liaison position into a Food Loss and Waste Office, so that there are more staff and capacity to carry out the duties set out in the farm bill. Congress should also identify modernizing and expanding national food waste data and farm food waste loss measurement as explicit goals for the Liaison, using the additional funding provided.

Provide Funding for the Federal Interagency Food Loss and Waste Collaboration

In 2018, the United States Food and Drug Administration (FDA), the USDA, and the EPA launched an interagency task force known as the Federal Interagency Food Loss and Waste Collaboration (the Collaboration) that is committed to working towards the national goal of reducing food loss and waste by 50% by 2030.³⁰ The Collaboration plays a vital role in the federal government's involvement in food loss and waste reduction efforts. Congress should authorize \$2 million in annual funding for the Collaboration in the 2023 Farm Bill to better position it to meet the United States' 2030 food waste reduction goal.³¹ Congress should require a broader set of federal agencies to engage in the Collaboration such as the Department of Defense, the Department of Transportation, the Department of Homeland Security, the Department of Education, and the General Services Administration, among others. Congress should also require the Collaboration to deliver regular reports to Congress on its progress towards achieving the national food waste reduction goal. These provisions can be included in the Miscellaneous Title or in a new Food Waste Reduction Title.

Relevant Pending Legislation

National Food Waste Reduction Act of 2021 (H.R. 3652, 117th Cong. 1st Sess. 2021).



Prevention



Recovery



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INTRODUCTION

The amount of food wasted in the United States poses an enormous problem. Even though an abundance of food is produced and imported in the United States each year, about 35% of it goes unsold or uneaten.³² This means that annually, 80 million tons of surplus food are not consumed. Of this, 54.2 million tons go to landfill or incineration, or are left on the fields to rot.³³ Food loss and waste carries enormous economic, social, and environmental costs. Farmers, manufacturers, households, and other businesses in the United States spend \$408 billion each year to grow, process, transport, and dispose of food that is never eaten.³⁴ Producing food that ends up uneaten consumes 21% of all freshwater, 19% of all fertilizer, and 19% of all cropland used for agriculture in the United States.³⁵ Food waste generates about 270 million metric tons of carbon dioxide equivalent (CO₂e) greenhouse gas emissions each year, the same as 58 million passenger vehicles.³⁶

Despite the surplus of food produced, 10.5% of American households faced food insecurity in 2019 and 2020, both before and after the COVID-19 pandemic began.³⁷ While the food insecurity rate did not rise in 2020 because of the massive federal investment in financial and direct assistance, the pandemic exposed the need for food system reform to ensure that our food supply can adapt and continue to serve the needs of Americans even when faced with unprecedented disruptions. The amount of food that goes to waste each year makes little sense when paired with the data on the number of food insecure households. In fact, according to the United States Environmental Protection Agency (EPA), significantly more food is wasted than would be required to feed every food-insecure individual in the United States.³⁸

Reducing food waste is an important area for resource conservation and climate change mitigation that remains underdeveloped in federal policy. However, in recent years, the federal government has initiated efforts that acknowledge its important role in the effort to reduce food waste. In 2015, the U.S. Department of Agriculture (USDA) and the EPA jointly announced the nation's first-ever food waste reduction goal, aiming to halve U.S. food waste by 2030.³⁹ In 2018, the USDA, the EPA, and the United States Food and Drug Administration (FDA) signed an Memorandum of Understanding

to work together towards this goal.⁴⁰ In 2019, these three agencies launched the *Federal Interagency Food Loss and Waste Collaboration* (formerly the *Winning on Reducing Food Waste Federal Interagency Collaboration*) which set priority actions to reduce food loss and waste, including enhancing interagency coordination, increasing consumer education and outreach efforts, and improving coordination and guidance on food loss and waste measurement.⁴¹

State and local actors also are recognizing and acting on the need for reform. At the local level, many cities, including New York, Austin, San Francisco, and Washington, D.C., promote food waste reduction through creative initiatives to reduce and better manage food waste.⁴² For example, San Francisco introduced the first ever mandatory composting requirements for businesses and residents in 2009.⁴³ Since then, at least seven large cities or counties followed San Francisco's lead and implemented organic waste bans or mandatory organic waste recycling laws.⁴⁴ States have also implemented a variety of policies to reduce food waste. These include tax incentives for food donation,⁴⁵ organic waste bans,⁴⁶ and liability protections for food donors and food recovery organizations that exceed the federal floor.⁴⁷

Reducing food waste has unique bipartisan appeal because it can simultaneously increase profits and efficiencies across the food system, increase access to wholesome food, and protect the planet from the harmful environmental consequences associated with wasted food. According to an analysis by ReFED, a national nonprofit working with food businesses, funders, policy makers, and more, to reduce food waste, implementing 40 priority food waste solutions has the potential to generate \$73 billion in annual net financial benefit, recover the equivalent of 4 billion meals for food-insecure individuals every year, and create 51,000 jobs over ten years.⁴⁸ Adding to these economic and social benefits, food waste solutions also have the potential to save 4 trillion gallons of water and avoid 75 million tons of greenhouse gas emissions annually, among other environmental benefits.⁴⁹

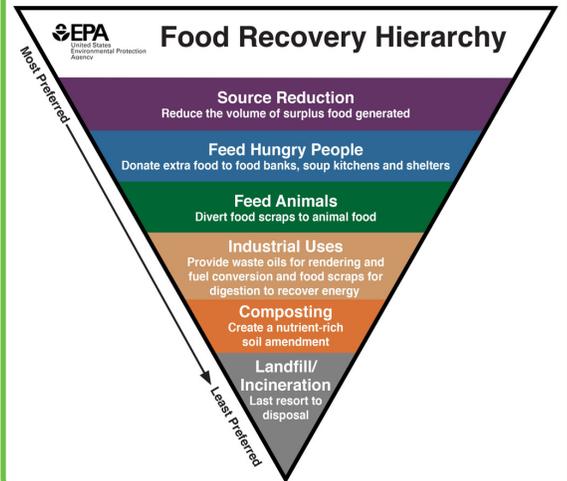
In order to meet our national food waste reduction goal, the federal government must make food waste reduction a priority in all of its policy areas.



In the 2018 Farm Bill, Congress responded for the first time ever to the pressing need for action on food waste reduction, with an unprecedented inclusion of various food waste related programs and funding.

Food Waste Provisions Included in the 2018 Farm Bill:

- Pilot Project to Support State and Local Composting and Food Waste Reduction Plans
- Grant Resources for Food Recovery Infrastructure Investments
- Food Loss and Food Waste Liaison and Study on Food Waste
- Food Donation Standards for Liability Protections
- Milk Donation Program
- Local Agriculture Marketing Program
- Spoilage Prevention
- Carbon Utilization and Biogas Education Program



Of particular relevance is the farm bill. Passed every five years, the farm bill is the largest piece of food and agriculture-related legislation in the United States and provides a predictable and visible opportunity to address food waste on a national scale. With food waste becoming a major focus in both states and the federal government, this legislation offers an opportunity to address multiple sectors of the food and agricultural system and effect system-wide change to reduce food waste. In 2018, Congress, for the first time ever, included measures related to food waste in the farm bill.⁵⁰ These provisions are enumerated in the first Text Box above and are described in more detail as relevant throughout this report. Many of these provisions were suggested in the *Opportunities to Reduce Food Waste in the 2018 Farm Bill* report, on which the current report is based.

These provisions offer an important starting point for investing the resources needed to meet our national food waste reduction goals. This report offers opportunities for Congress to build upon its noteworthy achievements in the 2018 Farm Bill by expanding the pilot programs and grants initiated in the 2018 Farm Bill and developing noteworthy and necessary new programs. Building from the preliminary funding in the 2018 Farm Bill, the 2023 Farm Bill is poised to help the federal government take more effective and wide-ranging action to reduce food waste. Food waste reduction programs could be included in a dedicated Food Waste Reduction Title or by modifying existing titles and programs to incorporate food waste reduction as a priority. Several provisions presented in this

report could alternatively be implemented through standalone federal legislation.

The recommendations presented in this report are organized to reflect the priorities outlined in the EPA Food Recovery Hierarchy (pictured above).⁵¹ As in the Food Recovery Hierarchy, this report highlights food waste prevention as the most important goal and begin by making proposals to prevent waste. Waste prevention efforts aim for intervention at the root causes of food waste—they locate and address inefficiencies in the food system and food related practices before excess food is produced, transported to places where it cannot be utilized, or discarded rather than eaten. Waste prevention efforts keep millions of tons of food out of the landfill, and altogether, the waste prevention policies discussed have the potential for the most considerable environmental benefit. Next, the report outlines opportunities to facilitate redirection of wholesome surplus food to food-insecure individuals by connecting farmers, retailers, or food service establishments with food banks, food rescue organizations, community organizations that provide food, emergency feeding operations, and other intermediaries (collectively referred to as “food recovery organizations”). Then, the report outlines recommendations for supporting recycling food scraps through composting or anaerobic digestion, rather than disposing of waste in landfills or incinerators. The report concludes with recommendations to coordinate and streamline food waste reduction efforts and elevate food waste reduction to be a federal priority. Taken together, the recommendations presented in this report can

strengthen the economy, preserve the environment, help withstand disasters—like pandemics—and improve the lives of millions of Americans, all by reducing the unnecessary waste of healthy,

wholesome food that can be eaten, and by recycling remaining food scraps.



U.S. Food Loss & Waste Policy Action Plan:

On April 6, 2021, the Harvard Law School Food Law & Policy Clinic (FLPC), NRDC (Natural Resources Defense Council), ReFED, and World Wildlife Fund (WWF)—along with many additional supporters, including the American Hotel and Lodging Association, Compass Group, Food Recovery Network, Google, Hellmann’s Best Foods, Hilton, Hyatt, Marriott International, the Kroger Company, Unilever, several local government agencies, and other businesses and non-profit organizations⁵²—published the U.S. Food Loss & Waste Policy Action Plan for Congress & the Administration (Action Plan).⁵³

The Action Plan calls upon Congress and the Biden administration to take ambitious action to achieve the goal of cutting U.S. food loss and waste in half by 2030. It recommends five key policy recommendations ranging from investing in infrastructure and programs that measure and prevent food waste to standardizing date labeling at the federal level. The recommendations in this report that are also included in the Action Plan, and thus endorsed by a broad set of partners, are notated with ★ symbol. They are also listed together in Appendix A.



FOOD WASTE PREVENTION

Standardize and Clarify Date Labels ★

Annual potential to divert 582,000 tons of food waste, reduce 2.73 million metric tons of CO₂e, and save 162 billion gallons of water, with a net financial benefit of \$2.41 billion⁵⁴

ISSUE OVERVIEW

A major driver of food waste is confusion over date labels.⁵⁵ Consumers face an array of unstandardized labels on their food products, and many people throw away food once the date passes because they mistakenly think the date is an indicator of safety. However, for most foods the date is a

manufacturer’s best guess as to how long the product will be at its peak quality. When consumers misinterpret indicators of quality and freshness for indicators of a food’s safety, this increases the amount of food that is unnecessarily discarded.

There is currently no federal scheme regulating date labels on food products other than infant formula.⁵⁶ Congress has given general authority to the FDA and the USDA to protect consumers from deceptive or misleading food labeling.⁵⁷ Both the USDA⁵⁸ and the FDA⁵⁹ published recommendations regarding the language to be used for date labels, but neither agency has used its authority to implement a comprehensive, mandatory regulatory scheme.

In the absence of federal regulation, states have enormous discretion to create regulatory schemes for date labels, resulting in high variability. Most states regulate some food items, while few states have created a comprehensive date labeling scheme, and some do not regulate date labels at



all.⁶⁰ Some states even restrict or forbid the sale or donation of past-date foods, even though most date labels are not safety indicators, creating unnecessary barriers to the donation of safe food.⁶¹

Manufacturers generally are free to select whether to use a date label, which explanatory phrase they will use (e.g., “best by,” “use by,” “best before,” or “sell by”), and how the timeframe for the date will be measured. Manufacturers use a variety of methods to determine the timeframe for label dates, almost all of which are intended to reflect when the food will be at its peak quality and are not intended as safety indicators.⁶² Yet businesses, individuals, and even state regulators frequently misinterpret the dates to be indicators of safety, leading to the unnecessary waste of wholesome, past-date food.⁶³ ReFED estimates this confusion accounts for 20% of consumer waste of safe, edible food—approximately \$29 billion worth of wasted consumer spending per year.⁶⁴

Federal standardization of date labels has the potential to dramatically reduce food waste in the United States. According to ReFED’s Insights Engine, standardizing date labels is one of the most cost-effective ways to reduce food waste, with the potential to divert 582,000 tons of food waste per year from landfills, and the opportunity to provide \$2.41 billion per year in net economic value.⁶⁵

RECOMMENDED DATE LABELING SCHEME

Congress should standardize and clarify date labels by establishing a dual date labeling scheme that applies to all food products nationally and limits date labeling language to two options: either a label to indicate food quality or a label to indicate food safety. This would align with the preexisting industry Voluntary Product Code Dating Initiative established in 2017 by The Food Industry Association (FMI) (formerly the Food Marketing Institute) and the Consumer Brand Association (CBA) (formerly the Grocery Manufacturers Association), which recommends manufacturers use the term “BEST If Used By” where foods are labeled as a quality indicator, and the term “USE By” on foods labeled to indicate that they may pose a safety risk if consumed after this date.⁶⁶ Date labels used to signify food quality, which comprises most date labels on food products, should be required to use the language “BEST If Used By.” For foods that increase in safety risk past the date, manufacturers should use a safety date, indicated with the language “USE By.”

This would build on the momentum already underway. According to CBA, their members self-reported that 87% of products were using these streamlined labels as of 2018, less than two-years after CBA began the initiative.⁶⁷ Further, federal agencies recommend quality labels use the “Best If Used By” language, as evidenced by the USDA Food Safety Inspection Service (FSIS) 2016 recommendation that food manufacturers and retailers use this label to communicate quality⁶⁸ and the FDA’s 2019 open letter supporting voluntary efforts to use “Best If Used By” to indicate quality.⁶⁹ Further, this dual date labeling scheme is ideal for communicating effectively with consumers. A 2016 national consumer survey conducted by FLPC, the National Consumers League, and Johns Hopkins University found that “best if used by” was the language best understood by consumers to indicate quality, while “use by” was one of two phrases that best communicated food safety.⁷⁰

Requiring standard date labels would align the United States with its peer countries. Internationally, the *Codex Alimentarius* 2018 update, General Standard for the Labelling of Prepackaged Foods, sets out a dual date labeling scheme as the model practice.⁷¹ The *Codex Alimentarius* is a set of international food standards developed by the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO). Aligned with the *Codex* standards, the European Union requires companies to use a safety-based, “use by” date label for foods that are considered “highly perishable,” and unsafe to consume after the date. All other foods use a quality-based, “best before” date label, after which food may still be perfectly safe to consume and donate.⁷²

In addition to standardizing date labels, federal action is also needed to preempt state restrictions on the sale or donation of food that is past its quality date. Currently, 20 states restrict the sale or donation of past-date foods, even when the dates on those foods have no bearing on safety, leading to unnecessary waste.⁷³ However, since only past-date foods bearing the “USE by” date label would pose a safety risk, the sale and donation of foods past the “BEST if Used By” date should be permitted.

To support the implementation of this change, Congress should instruct the FDA and the USDA to collaborate to inform consumers about the update, explicitly defining what these two labels mean in an education campaign.⁷⁴ Ensuring that consumers are aware of the new date labels and their meanings will help prevent unnecessary discarding of safe,



Prevention



Recovery



Recycling



Coordination

wholesome food. This could be included in the national food waste education campaign discussed in Section I(B) of this report.

IMPLEMENTATION OPPORTUNITY



The next farm bill should take the easy and cost-effective step to reduce food waste by standardizing and clarifying date labels with a uniform, nationwide policy that applies to all food products. This standardization should take the form of the two labels: “BEST if Used By” to indicate quality, and “USE By” to indicate safety. The initiative should also include a consumer education campaign.

The farm bill has previously addressed food labeling concerns,⁷⁵ and is an appropriate vehicle for standardizing date labels. This scheme should be implemented through a new Food Waste Reduction Title or in the Miscellaneous Title. Language implementing the above recommendations could be taken from the bicameral, bipartisan Food Date Labeling Act of 2021.⁷⁶

Launch a National Food Waste Education and Awareness Campaign ★

Annual potential to divert 1.38 million tons of food waste, reduce 7.41 million metric tons of CO₂e, and save 281 billion gallons of water, with a net financial benefit of \$6.08 billion⁷⁷

ISSUE OVERVIEW

American consumers waste an estimated 30 million tons of food each year—accounting for about 37.2% of the food that goes to waste.⁷⁸ While many consumers understand the importance of food waste reduction, they generally do not recognize their own role in reducing food waste.⁷⁹ American consumers “perceive themselves as wasting little, with nearly three-quarters reporting that they discard less food than the average American.”⁸⁰ Most consumers report that they discard less than

10% of their food and believe that much of their food waste is unavoidable.⁸¹ However, the average household wastes 31.9% of the food it buys.⁸² This mismatch regarding consumers’ individual contribution to food waste and their perception of the quantity of their own waste demonstrates a problematic lack of awareness.

NATIONAL FOOD WASTE EDUCATION CAMPAIGN

Congress can promote national food waste education and awareness through a public awareness campaign. ReFED estimates that a national consumer education campaign is one of the most cost-effective solutions to reduce food waste, with the potential to divert 1.38 million tons of food annually and create \$6.08 billion net economic value.⁸³ Because consumers unknowingly produce a massive amount of food waste, a national food waste awareness campaign should be geared towards increasing consciousness of the issue and changing consumer behavior. This campaign should incorporate elements of behavioral science to illustrate how much food goes to waste in households across the country, highlight methods for preserving and storing foods, provide consumers tips to identify whether food is still safe and edible, and teach consumers how to compost food scraps.⁸⁴

Evidence indicates that a national education campaign has tremendous potential to impact consumer behavior. National education campaigns effectively changed United States consumer behaviors in other areas and consumer food waste practices in other countries. Domestically, the United States Centers for Disease Control and Prevention’s (CDC) nine-week, national anti-smoking education campaign, “Tips from Former Smokers,” motivated almost 2 million Americans to attempt to quit smoking.⁸⁵ In the United Kingdom, the Waste and Resources Action Programme’s (WRAP) “Love Food Hate Waste” nationwide campaign reduced consumer food waste by 21% in five years.⁸⁶ The program cost £26 million (~\$34.43 million USD) over five years to implement but was responsible for £6.5 billion (~\$8.6 billion USD) in savings to households in avoided food costs, as well as £86 million (~\$114 million USD) in savings to U.K. government authorities in avoided waste disposal costs.⁸⁷ Altogether, the initiative reaped a total benefit-cost ratio of 250:1. Between 2015 and 2018, the U.K. avoided 1.6 million tons of greenhouse gases and diverted 480,000 tons of food waste directly attributable to the nationwide campaign.⁸⁸



A national food waste education campaign in the United States could similarly cultivate a cultural movement against food waste. In 2016, the Ad Council and NRDC launched “Save the Food,” a public awareness campaign that encourages Americans to reduce food waste.⁸⁹ “Save the Food” has been featured on television, radio, billboards, and waste trucks in several large cities across the country, including Chicago and New York City.⁹⁰ As of 2019, more than \$111 million of media space was donated, and survey results demonstrated that those aware of “Save the Food” ads were more likely to say that they had reduced the amount of food they had thrown away in the prior 6 months, compared to those not aware of the ads.⁹¹

While the “Save the Food” campaign is a first step, consumer education on food waste is needed on a larger national scale. With many American consumers still unaware of the impacts of food waste as well as their contribution to the issue, a nationwide targeted campaign could unify the messaging regarding consumer food waste and ensure that it reaches all Americans.

A national food waste education campaign will only be effective if it is properly targeted at consumers with well-tested messaging. It is essential that research be conducted to consider consumer insights and develop campaign approaches that resonate with target markets and incorporate elements of behavioral science to optimize campaign effectiveness.⁹² Research should go towards investigating which population segments to target, understanding how to best target them, and determining which strategies are most effective in changing consumer habits, rather than just increasing awareness of the issue.⁹³ The research can also help identify the best messengers, which likely will differ across segments and markets (i.e., using celebrities or television shows that resonate with children to target the youth audience, social media to target young adults, and more traditional advertising streams to target adults), even though the messages themselves will be consistent. Pilot projects with strong assessment tools, including waste audits in communities where the campaigns are piloted, should be used before implementation of a full campaign to maximize effectiveness.

In the UK, WRAP used a consumer insight-driven research program to determine that 18- to 35-year-old people waste more food than any other age group, making them the ideal target, and the best way to interact with this group was through digital

media messaging.⁹⁴ This type of targeting has also been used effectively at a smaller scale in the United States. In the City and County of Denver, the Department of Public Health and Environment has been integrating Community Based Social Marketing (CBSM) strategies targeted specifically at reducing food waste from leftovers.⁹⁵ The United States should learn from the targeting strategies used in these campaigns to optimize the consumer education and awareness campaign.

The Sustainable Management of Food program at the EPA created an implementation guide and toolkit for its food waste education program: *Food: Too Good to Waste*.⁹⁶ The guide is intended for community organizations and local governments interested in reducing food waste from households.⁹⁷ The guide offers advice on how to select a population to target and execute the education campaign. While the EPA has produced these helpful resources, they have not launched a full-scale consumer education campaign that is necessary to effectively reduce food waste nationally. The federal government, led by the USDA working with the EPA, could leverage these existing assets and research related to consumer outreach and behavior change when starting a national food waste education and awareness campaign.

IMPLEMENTATION OPPORTUNITY



The next farm bill should instruct the USDA in collaboration with EPA to launch a national food waste education and awareness campaign. A widespread consumer education campaign should be supported with funds appropriated through a Food Waste Reduction Title or through the Miscellaneous Title. Congress should appropriate \$7 million annually through 2030, with \$3 million for research into effective consumer food waste reduction strategies and \$4 million into consumer behavior change campaigns.

Provide Funding to K-12 Schools to Incorporate Food Waste Prevention Practices in Their Programs

Annual potential to divert 7,060 tons of food waste, reduce 33,600 metric tons of CO₂e, and save 1.69 billion gallons of water, with a net financial benefit of \$13.2 million⁹⁸

ISSUE OVERVIEW

Every year tons of wholesome food are wasted in schools, costing the federal government as much as \$1.7 billion annually.⁹⁹ This waste undermines efforts to address food insecurity, mitigate environmental degradation, and achieve food sustainability.

Schools provide close to 100 million meals to children each day as part of the National School Lunch Program (NSLP).¹⁰⁰ In the spring of 2019, WWF, with support from The Kroger Co. Foundation and the EPA Region 4 (Southeast), analyzed food waste in 46 schools in nine cities across eight states.¹⁰¹ The report found that the schools wasted 39.2 pounds of food per student annually.¹⁰² Based on these numbers, WWF extrapolates that schools participating in federal meal programs could waste 360,000 to 530,000 tons of food each year.¹⁰³

The environmental impact of food waste in schools is significant. Given that over 100,000 schools participate in the NSLP, the food waste translates to 1.9 million metric tons of CO₂e of greenhouse gases and over 20.9 billion gallons of embedded water (the water that went into producing the food that went to waste).¹⁰⁴ Given the scale of waste resulting from school meal programs, schools should be a focal point for food waste education and reduction efforts.

SUPPORTING FOOD WASTE REDUCTION STRATEGIES IN SCHOOLS

Food waste in schools occurs for several reasons, including incorrect portion sizes and situational issues such as unpleasant eating environments and insufficient time periods for students to consume their meals.¹⁰⁵ There are several ways to address these issues; however, schools often struggle with implementation due to costs, a lack of guidance on

how to adopt the changes, or insufficient program funding from the government.

Congress can support schools in conducting food waste audits, student surveys, and other methods to gather data on the types and quantity of food thrown away in school cafeterias. Food waste auditing helps administrators understand the scope of their food waste problem and identify specific areas for improvement.¹⁰⁶ In a 2019 study analyzing food waste at 46 schools in eight states, WWF found that students at each school were producing approximately 40 pounds of food waste per year, which is 9% higher than average Americans waste in homes (normalized by meals).¹⁰⁷ Once informed by their waste baseline, the schools conducted six weeks of food waste audits and recorded a total average waste reduction of 3%, with elementary schools seeing a greater reduction at 14.5%. Of the waste types measured including fruit and vegetable, milk, and other organic wastes, milk waste saw the greatest decrease with an average of 12.4%.¹⁰⁸

Yet, many schools currently lack the funding to take on an auditing project. Even a \$10-20 million grant program would help many schools reduce their food waste and change their cafeteria practices to ensure more food is eaten and not wasted. The program can build on the School Food Waste Reduction Grant Program proposed in the bipartisan School Food Recovery Act of 2021 (SFRA).¹⁰⁹ The SFRA seeks to establish a similar competitive grant program for local educational agencies to achieve food waste reduction goals. Grant programming directed at reducing school food waste will not only provide schools with needed funds to administer specific programs, including audits, but it will also encourage schools to devote more time and attention to food waste, and reward schools for engaging in these beneficial activities.

Once schools conduct audits and better understand the quantity of food waste they produce, they can introduce strategies proven to be effective in reducing food waste including longer lunch periods,¹¹⁰ share tables,¹¹¹ and collaborating with students to improve meals.¹¹²

In addition to support for schools undertaking food waste audits, any funding or incentive for schools to conduct food waste audits, measure their waste, and take actions to reduce it or to redirect or donate surplus food could help move schools towards accounting for and changing their practices to be more sustainable. This is particularly true in schools utilizing additional grant funding for food service or educational programs.



To ensure that state and local health inspectors are aware of food waste policies in schools—specifically food donation and share tables, which may raise initial food safety concerns—Congress should mandate that the USDA educate officials about how these strategies work and that they are permissible.

MANDATING AN OFFER VERSUS SERVE MODEL ACROSS THE SCHOOL SYSTEM

When students are forced to take food they do not plan to eat, food is inevitably wasted. To remedy this problem, the USDA encourages schools to adopt the “Offer Versus Serve” (OVS) model¹¹³ which allows students the opportunity to choose desired components of their NSLP and School Breakfast Program (SBP) meals to reduce food waste.¹¹⁴ For schools to participate in NSLP and SBP, they must abide by federal and state rules on nutrition and food procurement.¹¹⁵ Meals that are eligible for NSLP reimbursement must consist of five components: fruit, vegetable, whole grain, meat/alternative, and milk.¹¹⁶ The OVS policy allows students to decline up to two of these five components if they take either a fruit or vegetable.¹¹⁷ By contrast, students in schools without an OVS policy would be required to accept all five components, regardless of whether they intend to eat all the foods they are given.

Confusion surrounding the OVS policy leads to waste when schools mistakenly believe that students must elect to take a certain component of the meal, for example milk, for the meal to be reimbursable under federal regulations.¹¹⁸ However, while milk must be *offered*, students are *not required* to take that option.¹¹⁹ This confusion contributes to up to 45 million gallons of milk waste in school cafeterias nationwide.¹²⁰

Currently OVS is mandatory for high schools and optional for elementary and middle schools, which may explain the higher rates of food waste in the lower grade levels.¹²¹ Implementing this model across all schools would reduce the immense amount of waste produced in schools. The USDA should provide simple and clear instructions to schools implementing this program to avoid confusion and misunderstanding of the current rules that may lead to food waste. These instructions should be accompanied by an awareness program to increase understanding of the policies targeting both students and school staff (such a program may be as simple as posters explaining the requirements to hang in the lunchroom).

IMPLEMENTATION OPPORTUNITY



In the next farm bill, Congress should lower the financial burden on school food waste reduction efforts by providing dedicated grants to conduct food waste audits and implement waste reduction programming.

The grants should be available to schools on a competitive basis and should be part of the Nutrition Title.

In addition to authorizing a new grant program, Congress should modify existing school grant program selection processes to preference applicants that have food waste reduction programs. The USDA currently administers several grant programs for schools, including the NSLP Equipment Assistance Grants¹²² and the Farm to School Program (F2S).¹²³ Congress should require the USDA to give priority to applications from schools that include a food waste reduction or food donation plan as part of their application. These changes should be made through the Nutrition Title.

Lastly, Congress should mandate OVS across all schools, for both NSLP and SBP, but preserve some flexibility for schools to decline to use OVS for the youngest grade levels if doing so is difficult to implement or if it is deemed inappropriate for the school population. It should further require the USDA to publish additional guidance and implement training for teachers and staff to adequately prepare for the transition. These changes should be made through the Nutrition Title.

Promote Food Education and Food Waste Education in K-12 Programming

Annual potential to divert 14,800 tons of food waste, reduce 70,200 metric tons of CO₂e, and save 3.45 billion gallons of water, with a net financial benefit of \$25.5 million¹²⁴

ISSUE OVERVIEW

There is a gap in school programming for food waste education. While there are programs



Prevention



Recovery



Recycling



Coordination

providing grant funding to schools for food and agriculture related education, including the Food and Agriculture Services Learning Program (FASLP), a program created in the 2014 Farm Bill that provides funding for agriculture and nutrition education in K-12 schools,¹²⁵ there is no required focus on food waste. Additionally, the existing grant programs for food education generally do not have sufficient funding to reach all interested schools and thus are unable to maximize their positive impact.

Educating students on food waste can immediately reduce food waste.¹²⁶ Educating students will also realize long-term benefits because knowledge gained in early education significantly impacts the practices of individuals as they become participants in the marketplace.¹²⁷ Schools can play an integral part in educating future generations of consumers and establishing sustainable food consumption habits.

Congress should support efforts for schools to educate students on food waste reduction strategies. One program for which food waste reduction education should be required is FASLP, which should include a focus on food waste reduction strategies in nutrition education, such as portion size awareness, how to utilize surplus food, composting, and correctly storing perishables.¹²⁸ Modifying the language around the FASLP in the next farm bill to include food waste reduction techniques will motivate schools to expand their offerings, better account for food waste reduction, and educate the next generation of consumers on better food waste reduction practices.

Beyond food waste-specific education, Congress should increase support generally for education on food production and food systems to prevent waste. One way to educate kids on food in schools is through USDA's Farm to School Program (F2S).¹²⁹ F2S combines food education with improved access to local food by connecting schools with local farmers.¹³⁰ By helping students develop a greater appreciation for the origins of their food, this program helps students, and in turn schools, waste less.¹³¹ Data from the 2013-2014 school year program revealed that F2S resulted in a 17% reduction in plate waste.¹³² The USDA currently offers planning, implementation, and training grants ranging from \$20,000 to \$100,000 for F2S programs.¹³³ For the 2015-2016 school year, \$120 million was requested and approximately \$25 million was awarded.¹³⁴ This data demonstrates large demand for F2S programming, indicating that schools are interested in these initiatives but lack sufficient funding for them. By increasing funding for F2S, which

has already been shown to reduce food waste in schools, more schools will be able to participate in the program and thus reduce their food waste.

IMPLEMENTATION OPPORTUNITY



The next farm bill should reauthorize and modify the FASLP program's authorizing language in the Nutrition Title to direct the USDA to award extra points on grant applications to schools that include food waste reduction education as a focus in their program.

The next farm bill should reauthorize and increase funding for the F2S program. This program has been shown to effectively reduce waste in schools. Increasing funding will allow additional schools to participate.¹³⁵ This program was originally a part of the Healthy, Hunger Free Kids Act of 2010,¹³⁶ but could be included in the farm bill going forward under the Nutrition Title.

Utilize Existing Federal Household-level Food Education Programs to Increase Food Waste Awareness

ISSUE OVERVIEW

On average, American households spend \$1,866 per year on food that ends up going to waste.¹³⁷ According to the USDA Economic Research Service (ERS), 10.5% of American households faced food insecurity in 2020.¹³⁸ Many of these families participate in food assistance programs (e.g., Supplemental Nutrition Assistance Program (SNAP), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)), and have limited budgets to spend on food. As discussed above, individuals are often unaware of how much food they waste and how to reduce their own food waste at home.¹³⁹ There are multiple existing USDA programs targeting those 13.8 million households with food and nutrition education, yet currently none of these programs are required to address food waste.

With almost one-third of household food being



wasted, education regarding strategies to reduce food waste would inevitably save all consumers money. Congress should promote national food waste awareness by taking advantage of existing food education programming to provide educational materials to Americans about food waste prevention. The authorizing language for the Expanded Food and Nutrition Education Program (EFNEP) and for SNAP Education (SNAP-Ed) and SNAP-Ed guidance documents should include education related to increasing the efficiency of food usage or reducing food waste.¹⁴⁰ These are existing programs and are therefore easy to leverage, but additional efforts should be made by the federal government to educate all consumers on better food usage and reducing food waste.

EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM OPPORTUNITIES

EFNEP is a federally funded farm bill¹⁴¹ grant program that aims to enable low-income Americans to “engage in nutritionally sound food purchasing and preparation practices,” by providing funding to land grant universities to deliver nutrition and physical education programs in each state.¹⁴² EFNEP is funded annually through appropriations.¹⁴³ It typically receives around \$69 million per year.¹⁴⁴ While the program already provides educational materials with strategies for shopping for healthy food on a budget, the authorizing language should also mention food waste reduction as a strategy to support household food budgets. One of the four stated core areas is increasing the ability of participants to buy, prepare, and store nutritional food.¹⁴⁵ This section of the program could mention food waste reduction. It will be important to make sure the education is culturally appropriate and applicable to the situations of the recipients, especially if many of them are depending on providers like food banks, where recipients do not typically get a choice in the foods they receive. Education about food waste reduction could help to extend the budgets of Americans, while helping to address the nation’s food waste problem.

SNAP-ED OPPORTUNITIES

With over 42 million people receiving SNAP benefits each year, SNAP-Ed represents an enormous opportunity to educate individuals about food waste and food waste prevention.¹⁴⁶ SNAP-Ed is a federally funded grant program that seeks to improve the likelihood that SNAP recipients will

make healthy food choices within a limited budget and engage in physically active lifestyles consistent with the current Dietary Guidelines for Americans and the USDA food guidance.¹⁴⁷ SNAP-Ed was first established in 1981 as “Nutrition Education” through the Food Stamp Program and now receives funding through annual appropriations bills—typically receiving just over \$400 million split between the states.¹⁴⁸ Like EFNEP, SNAP-Ed focuses on “promoting healthy eating and active lifestyles,” while stipulating that program providers “must consider the financial constraints of the SNAP-Ed target population in their efforts.”¹⁴⁹

SNAP-Ed offers an opportunity to educate Americans on how to best prevent food waste while in no way diverting resources or attention away from the primary objectives of the program—improving nutrition outcomes. Some states, including Maine and Connecticut, already include food waste education within their SNAP-Ed programming.¹⁵⁰ These states provide guidance on how to reduce food waste and how to understand date labels.¹⁵¹ However, many states do not address food waste in their programming, which represents a tremendous missed opportunity. Rather than leaving it to states to decide to include guidance on reducing food waste, this instruction should come from Congress through the farm bill. The 2014 Farm Bill amended SNAP-Ed to include education on physical activity, which suggests that additional goals can be included in the 2023 Farm Bill.¹⁵²

SNAP-Ed funding should be used to increase awareness of food waste and share techniques to reduce food waste—such as how to properly store leftovers, how to use some ingredients that people receiving food donations may be unfamiliar with, and how to interpret date labels. Additionally, it should be used to develop tools (for example, a meal planning tool) to help participants prevent food waste. Such a tool could be developed out of existing information and tips on meal planning available through multiple states’ SNAP-Ed programs.¹⁵³ Again, any educational tools should also take into consideration cultural appropriateness, quality of food provided, and food access problems that might also lead to food waste.

By adjusting the goals and priorities for SNAP-Ed and EFNEP, Congress can tackle both food insecurity and food waste, ensuring that more Americans are provided with the necessary tools to get the most out of their food dollars by properly storing perishable items, reusing, and repurposing leftovers, and ultimately reducing food waste.¹⁵⁴

IMPLEMENTATION OPPORTUNITY



The next farm bill should renew support for EFNEP in the Research, Extension, and Related Matters Title of the 2018 Farm Bill and modify the authorizing language to include food waste prevention education.

Including an explicit focus on food waste reduction as a program goal in the authorizing language will ensure EFNEP providers include food waste reduction in their programs.

Similarly, Congress should add language about food waste education in the program goals of SNAP-Ed in the Nutrition Title. The 2023 Farm Bill should include an amendment including food waste education so SNAP-Ed strategies will assess nutrition, physical activity, *and* food waste reduction.

Provide Grant Funding for New Technologies to Reduce Food Spoilage and Food Waste

ISSUE OVERVIEW

Advances in food technology could prevent an enormous amount of food waste, however, insufficient funding has been dedicated to research and development in this space. New technology has the potential to reduce food waste on-farm and post-harvest, during transportation and processing, and on the shelf. There has been some development of such technology, however, many of these products are in the early stages, are too costly to apply at scale, and lack funding, which has held up the opportunity for new solutions, especially as the market for such solutions is uncertain. Federal investment has the potential to fill in the gaps that venture capital and other funding streams are missing, and should prioritize new companies and those without venture backing.

There is significant room for new technology to reduce on-farm food loss as well as help connect surplus food to avenues for its use. According to ReFED, 21% or 17 million tons of food loss occurs on farm.¹⁵⁵ Technology to help prevent this loss or to help redirect edible food may include harvesting technology such as improved picking machinery for high loss crops, tracking technology to monitor

produce and optimize harvest schedules, and blockchain for demand forecasting and decision making across the supply chain. This technology could create more economic value for growers while reducing food loss.

In addition to technology to reduce on-farm food loss, packaging technologies and food treatments that slow spoilage and prolong the shelf life of produce, meat, poultry, fish, and other perishable products could have a tremendous impact on reducing food waste. It is important to note that new packaging prioritized for funding should not increase the use of fossil-fuel-based materials, non-recyclable/non-compostable materials, or single-use plastics. Some examples of innovative packaging technologies that address this issue include: It's Fresh!, which removes ethylene from produce to extend shelf life;¹⁵⁶ BluWrap, which works to reduce and monitor oxygen levels in meat, poultry, and fish packaging;¹⁵⁷ and Apeel, which applies an amphiphilic coating to lock moisture in produce while keeping air out.¹⁵⁸ However, these products remain largely in pilot phases, and food manufacturers may be unwilling to bear the cost of utilizing such packaging if the savings only benefit consumers who will save money by having food with longer shelf lives, rather than producers, who will likely face reduced sales if less food spoils, thus requiring replacement in the form of more sales.¹⁵⁹ According to ReFED, the use of innovative products to slow spoilage has the annual potential to divert 425,000 tons of food waste from the landfill, while creating \$1.74 billion in net financial benefit.¹⁶⁰

Investment is also needed in innovative upcycled food products or other byproduct utilization. Upcycled food is a growing sector of the economy that looks to find new, environmentally beneficial uses for previously discarded food products.¹⁶¹ Upcycling creates new food products out of surplus food, unmarketable food, and even inedible food byproducts. New upcycling processes and products can be supported by funding for research and development. Funding can also support marketing to consumers to describe the benefits of foods that would otherwise have gone to waste. According to ReFED, upcycling food has the annual potential to divert 1.87 million tons of food waste from the landfill, while creating \$2.69 billion in net financial benefit.¹⁶² The USDA should promote research and development of technology to reduce on-farm food loss, slow food spoilage, and create upcycled food products.¹⁶³



One farm bill grant program, the Specialty Crop Research Initiative (SCRI), can provide funding for the research and development of spoilage prevention technology and technology to reduce on-farm food loss. SCRI grants address needs related to “specialty crops”—which includes fruits, vegetables and tree nuts.¹⁶⁴ These grants are available to land grant universities (universities focused on teaching “agriculture and the mechanic arts”),¹⁶⁵ private universities, non-profit organizations, for-profit institutions (including small businesses), and state agricultural experiment stations.¹⁶⁶ There is an estimated total of \$80 million available for funding each year for SCRI.¹⁶⁷ SCRI projects must address at least one of five focus areas, including efforts to improve production efficiency, handling and processing, productivity, and profitability over the long term.¹⁶⁸ The 2018 Farm Bill stated that SCRI should include “efforts to achieve a better understanding of systems to improve and extend the storage life of specialty crops.”¹⁶⁹ By including this language, the 2018 Farm Bill took an important first step toward supporting innovative food spoilage prevention technology.

Even though SCRI *can* fund research on food spoilage technology as of 2018, and on technology to reduce on-farm food loss since the start of the program, none of the twenty grants given in 2021 addressed either issue.¹⁷⁰ In line with the United States national food waste reduction goal, and in order to increase support for innovations to reduce food loss, Congress should direct the USDA to further preference such projects during the selection process.

Beyond SCRI, other support for new packaging technologies is needed. SCRI does not cover research on products other than specialty crops, yet similar research is needed to extend the shelf-life and reduce waste of dairy, meat, poultry, and fish. Since animal products are generally more expensive for consumers and more resource-intensive to produce,¹⁷¹ preventing their waste should be a high priority. Congress should create a program like SCRI that focuses on providing support for new technologies to extend the shelf life of dairy, meat, poultry, and fish.

SCRI also does not explicitly cover the research and development of upcycled food products, though it could arguably be included in its funding. Congress should specify that SCRI could also support research and development into upcycled products or should create a separate funding mechanism focused on research and development

for upcycled food products. This can help drive more development of products using this beneficial practice.

IMPLEMENTATION OPPORTUNITY



In the Research, Extension, and Related Matters Title, Congress should increase funding for SCRI and should direct the USDA to further preference projects that target food waste by either extending the life of specialty crops or reducing on farm food loss during the SCRI selection process. Congress should also specify that funding from SCRI could be used for research and development of new upcycled products using surplus specialty crops.

Additionally, Congress should create a program like SCRI that supports new technologies to extend the shelf life of dairy, meat, poultry, and fish, and the development and manufacturing of upcycled food products using these food products. This program could be in the Research, Extension, and Related Matters Title, or the Miscellaneous Title, or in a new Food Waste Reduction Title.

Implement a Certification Program for Businesses that Demonstrate Food Waste Reduction

ISSUE OVERVIEW

Certification programs have effectively changed corporate and consumer behavior in other sectors and could prove similarly successful in reducing food waste. For example, in 1992, the EPA launched the Energy Star Certification program to formally recognize energy-efficient products.¹⁷² The EPA worked with technical experts from computer and appliance companies to establish criteria that would qualify consumer electronics for Energy Star Certification.¹⁷³ Now, approximately 75,000 product models have earned the Energy Star Certification, and consumers purchase over 300 million Energy Star-Certified items each year.¹⁷⁴ As a result, the EPA estimates that Energy Star Certification has achieved 4 billion metric tons of greenhouse gas

reductions since the start of the program.¹⁷⁵

The private sector already supports the creation of a food waste reduction certification system. In 2012, the U.S. Zero Waste Business Council (USZWBC) created a zero-waste certification program for businesses called TRUE.¹⁷⁶ In 2016, USZWBC merged with Green Business Certification Inc. (GBCI) to expand the certification program to drive sustainability across all sectors.¹⁷⁷ TRUE certification is available to any physical facility and their operations if they meet the seven minimum program requirements, which include achieving an average of 90% or greater overall diversion from landfills, incineration, and the environment for solid, non-hazardous wastes.¹⁷⁸

A certification program similar to TRUE that focuses on food waste would help consumers identify businesses with good food waste reduction practices and could inform their purchasing choices, thereby using consumer preferences in the marketplace to reduce overall food waste. This program should include consumer education that raises awareness about the meaning of the certification and the importance of reducing food waste. Congress could task USDA, EPA, or the two to work together to oversee this program. This could build on the USDA and EPA's U.S. Food Loss and Waste 2030 Champions that identifies businesses and organizations that have made a public commitment to reduce food loss and waste in their own operations in the United States by 50% by the year 2030,¹⁷⁹ or the EPA's Food Recovery Challenge launched in 2011, which had offered technical assistance and acknowledgement to over 800 participants.¹⁸⁰ The agency should work with technical experts to establish criteria that would qualify certain businesses for the food waste reduction certification and should create consumer education materials to maximize the program's impacts.

IMPLEMENTATION OPPORTUNITY



The next farm bill should create a food waste reduction certification program, under the Miscellaneous Title or a new Food Waste Reduction Title, to encourage businesses to prevent or otherwise reduce food waste as consumer-facing businesses contribute 28% of the United States' total food waste.¹⁸¹ The certification program can be administered by the Food Loss

and Waste Reduction Liaison within the USDA, or by EPA, or by the two agencies jointly, building on their joint United States Food Loss and Waste 2030 Champions program.

Provide Financial Incentives to Businesses for the Adoption of Technologies that Reduce Food Waste by at Least 10%

ISSUE OVERVIEW

Roughly 42% of food waste results from inefficiencies in the food supply and food management chain by the manufacturing, retail, and food services sectors.¹⁸² After food leaves the farm, businesses at all levels of food production, distribution, and retail experience inefficiencies—including spoilage, equipment issues, and handling errors—that result in waste.¹⁸³ For example, businesses at the product distribution level that transport food, especially food that is temperature sensitive, may contribute to food waste due to long transportation times or changes in temperature that increase the speed of spoilage.¹⁸⁴ At the retail level, 20% of unsold food is due to handling errors, 14% is due to spoilage, and 12% is due to equipment issues.¹⁸⁵

Businesses along the supply chain can cut food waste by enhancing food product distribution systems. Existing technology can help businesses reduce these inefficiencies and reduce food waste by improving handling, forecasting, inventory management, and temperature monitoring. For example, trucks with advanced cooling technology can help reduce food waste during transportation.¹⁸⁶ Intelligent routing technology can help businesses identify when products have a change in shelf life and route the product to the nearest location.¹⁸⁷ Unfortunately, this technology can be expensive upfront, which creates an uptake barrier to businesses obtaining and implementing these kinds of food waste reduction solutions.

Providing incentives for businesses to adopt these technologies can not only scale deployment, but it can also create a more robust market for innovative, novel technologies. Congress should provide a financial incentive for businesses to employ



technologies that demonstrate an ability to prevent food waste by at least 10%.

The financial incentive should be structured in the form of a tax credit, much like the Federal Solar Investment Tax Credit (the ITC).¹⁸⁸ The ITC provides a 26% tax credit on installation costs for business that install, develop, and/or finance solar energy systems.¹⁸⁹ A similar tax credit model could be applied to food waste reduction technologies. Congress should direct agencies to establish a list of the technologies that have evidence to show that they reduce food waste by 10% and maintain a list of the technologies that are eligible for such a tax credit.

IMPLEMENTATION OPPORTUNITY



Congress should create a federal tax incentive for the commercial adoption of post-harvest food waste reduction technologies under a Trade and Tax Title or under the Miscellaneous Title or a new Food Waste Reduction Title. In order to qualify for this credit, Congress should direct agencies to maintain a list of eligible technologies that demonstrate a 10% reduction in food waste. Agencies should develop the approval program for the tax credit.



SURPLUS FOOD RECOVERY

Strengthen and Clarify The Bill Emerson Good Samaritan Food Donation Act ★

Annual potential to divert 57,000 tons of food waste, recover 95 million meals, and produce a net financial benefit of \$159 million¹⁹⁰

ISSUE OVERVIEW

While over 10.5% of Americans struggle to satisfy their food needs, up to 35% of food produced in the United States goes to waste.¹⁹¹ Much of this food is safe, edible, and fit for consumption, but barriers stand in the way of donation. One of these barriers is that businesses are reluctant to donate food because of misperceptions regarding liability

concerns associated with donation, such as a food recipient getting sick.¹⁹² Congress responded to these concerns in 1996 by passing The Bill Emerson Good Samaritan Food Donation Act (Emerson Act).¹⁹³ The Emerson Act encourages food donation by providing comprehensive civil and criminal liability protection to food donors, gleaners, and non-profit organizations that distribute donations to those experiencing food insecurity.¹⁹⁴

While the Emerson Act provides significant protections, a 2016 survey conducted by the Food Waste Reduction Alliance found that 50% of food manufacturers and 25% of retailers and wholesalers still cite liability concerns as a main obstacle to food donation.¹⁹⁵ And, according to ReFED, educating potential food donors on liability laws has the potential to divert 57,000 tons of safe, surplus food from landfills annually.¹⁹⁶ This means that liability concerns remain a significant barrier with room for improvement through the Emerson Act.

There are several shortcomings of the Emerson



Prevention



Recovery



Recycling



Coordination

Act that Congress should address to facilitate food donation. Specifically, Congress should help ensure there is federal agency capacity to interpret and provide guidance on the provisions of the Act and update several areas of the Act to provide additional flexibility for food donations.

PROVIDE THE USDA WITH AUTHORITY TO INTERPRET AND ISSUE GUIDANCE ON THE EMERSON ACT

Many provisions and terms in the Emerson Act are ambiguous and no federal agency has provided an authoritative interpretation of the Act's provisions. For example, donors must donate in "good faith" but have no guidance as to what activities meet that bar, and they cannot act with "gross negligence" but do not have any guardrails to know what food donations would be considered gross negligence. Also, donors may be concerned about facing liability if they donate a food that is past the date or mislabeled in some way.¹⁹⁷ Further, the lack of case law interpreting the Emerson Act makes it difficult for donors to know how the provisions would be interpreted by a court.¹⁹⁸ This may deter potential food donors who want to be sure they will receive liability protection before they donate. Guidance can clarify the meaning and interpretation of the Emerson Act's provisions.

In the 2018 Farm Bill, Congress took a step toward increasing the USDA's responsibility for the Emerson Act by mandating that the USDA create a Food Loss and Waste Liaison position to coordinate food waste efforts. The responsibilities of the Liaison include to "raise awareness of the liability protections afforded under the Bill Emerson Good Samaritan Food Donation Act."¹⁹⁹ While recent efforts have been made by the USDA to clarify donation liability laws as requested by Congress in the 2018 Farm Bill,²⁰⁰ the lack of Congressional delegation limits the agency's authority. Congress should delegate authority to the USDA to interpret the Emerson Act and should require the USDA to write regulations interpreting and clarifying the terms of the Emerson Act.

THE EMERSON ACT SHOULD COVER DIRECT DONATIONS

The Emerson Act currently covers food donated to non-profit organizations, but it does not cover food donated directly to individuals.²⁰¹ This means

that food producers and licensed food service establishments that give food directly to people experiencing food insecurity are not covered under the Emerson Act's protections. Extending protections to direct donations will increase efficiency, reduce costs, and enable timely use of perishable food. Individuals experiencing food insecurity would also be able to pick up food from accessible locations, such as local restaurants and grocery stores. In order to ensure direct donations will be made safely, the provisions should be limited to establishments that already comply with food safety requirements—such as food service establishments, institutions, and retail stores—or to farmers, as fresh produce poses fewer safety risks. Currently, several states provide enhanced liability protection for donors who donate directly to the end recipient, however, to maximize impact, the protection needs to be expanded by the federal government.²⁰²

The 2018 Farm Bill amended the Emerson Act to define a new term, "qualified direct donor" and instructed the USDA to issue guidance on the protections available to those direct donors.²⁰³ However, since the farm bill did not update the Emerson Act itself, it did not actually offer protection to qualified direct donors. Offering protections for direct donors would be in line with the growing support to offer protection to donations directly to food-insecure individuals rather than only those made through intermediary non-profits.²⁰⁴

THE EMERSON ACT SHOULD COVER NON-PROFIT ORGANIZATIONS CHARGING A SMALL FEE

The Emerson Act only provides liability protections to donors and non-profit food recovery organizations when the individual receiving the food "is not required to give anything of monetary value."²⁰⁵ This means that the Emerson Act does not extend liability protection when the ultimate recipient pays, even at a reduced rate, for food. As a result, innovative food recovery and repurposing models are excluded from coverage. These models, such as social supermarkets that sell surplus food at a low cost,²⁰⁶ can fill a need for individuals experiencing food insecurity in addition to food assistance programs or pantries.

Several social supermarkets in the United States have shown potential for success.²⁰⁷ Innovative retail models are particularly effective in geographical



Increase Funding Support for Food Recovery Infrastructure and for Post-Harvest Food Recovery

Improving donation transportation and storage infrastructure has the annual potential to divert 908,000 tons of food waste, reduce 1.316 million metric tons of CO₂e, and save 127.6 billion gallons of water, with a net financial benefit of \$3.287 billion²¹⁶

ISSUE OVERVIEW

The costs and logistical challenges of preparing, processing, and transporting food for donation make it financially difficult for many food producers and vendors to donate surplus food.²¹⁷ Many food donors are not willing or able to spend additional money in order to donate food that they would otherwise send to disposal. Thus, food recovery organizations generally need to bear these costs in order to make donation cost-effective for donors. However, since the funds of food recovery organizations are limited, requiring these organizations to bear the costs of food recovery may prevent them from accepting all food donations or expanding operations to new donors or areas.

In addition to transportation costs, when food recovery organizations do receive donated food, capacity limitations at food recovery organizations can be a bottleneck leading to waste.²¹⁸ Canning, freezing, or processing food allows organizations to handle large volumes of perishable produce. However, processing requires access to sufficient facilities, appropriate equipment, and trained staff; these efforts thus are limited by an organization's resources.

The federal government can support food recovery infrastructure through grants to food recovery organizations. Further, the government can utilize the Local Agricultural Market Program (LAMP) to support farmers in developing supply relationships to provide surplus food to food recovery organizations that can help surplus food get to food-insecure individuals. Investing in food recovery infrastructure can create new and more sustainable methods for food recovery while supporting both producers and food recovery organizations.

areas with limited access to affordable and nutritious food. The USDA estimates that up to 17.4% of the population lives in such locations.²⁰⁸ In Massachusetts, The Daily Table is a social supermarket with three locations that works with local food producers to recover healthy food that they later offer at reduced prices.²⁰⁹ The Daily Table provides 1 million nutritional servings every month, with an average savings of 30% compared to other grocery stores.²¹⁰ It also employs over 65 individuals, many of whom are local community members.²¹¹ In 2016, ReFED estimated that innovative retail models and secondary resellers have the potential to divert 167,000 tons of safe, surplus food from landfills per year and to provide \$37 million per year in economic value.²¹²

Currently, the Emerson Act's "no-charge" provision deters donations to innovative non-profit organizations and discourages traditional food recovery organizations from testing out new models due to fear of losing liability coverage. While providing food free of charge to individuals in emergency situations can be necessary, making space for other food recovery models such as social supermarkets enables food recovery organizations to reach a broader range of individuals experiencing food insecurity and food access challenges. Requiring that the recipient organization be a non-profit, as the Emerson Act does, ensures that any profits will be used for the organization to further serve its charitable purpose.²¹³ Some states already provide liability protection to non-profit organizations that sell food at a low cost and to the donors that donate to them.²¹⁴ Congress should institute this across all states by amending the Emerson Act to provide liability protection even if food is sold to the end recipient at a low price that reflect the cost of handling, transporting, or storing the food.

IMPLEMENTATION OPPORTUNITY



Liability protection is a low-cost policy change that can unlock more food donation. Congress should improve the Emerson Act's protections and clarity through the 2023 Farm Bill in the ways outlined

above. Congress can make these changes in a new Food Waste Reduction Title or through the Miscellaneous Title. The bipartisan, bicameral Food Donation Improvement Act of 2021 offers model language that could be used to implement these changes.²¹⁵



Prevention



Recovery



Recycling



Coordination

INVESTING IN FOOD RECOVERY INFRASTRUCTURE

Investing in food recovery infrastructure, like transportation and storage, can support economic development while strengthening emergency food assistance. Scaling up food recovery operations contributes to local economies by generating new jobs in logistics and transportation, while also increasing access to food and reducing the amount of food going to waste.²¹⁹ ReFED estimates that an annual investment of \$442 million, with \$69.3 million from government sources, in transportation for food recovery would have a potential net benefit of \$2.46 billion.²²⁰

In June 2021, as a one-time COVID-19 response initiative, the USDA announced funding of up to \$100 million in food recovery infrastructure grants for food assistance organizations, particularly those that reach underserved areas.²²¹ The grants can be used for efforts such as developing storage and refrigeration capacity, which help these organizations to rescue more food by increasing their capacity.²²²

Given the vast potential benefit of investments in food recovery infrastructure, Congress should ensure that these grants are integrated into regular USDA's operations instead of being a one-time initiative. Alternatively, Congress should expand its investment beyond this COVID-19 response program.

While existing grants are focused on infrastructure, another avenue with the potential to make a significant impact is technological solutions supporting food recovery. Congress should authorize funding for grants to food recovery organizations and other nonprofit and community based organizations developing donation matching infrastructure, such as a website or application, that would provide real-time updates to connect organizations with surplus food with those able to distribute it. Such technology exists,²²³ but current coverage is spotty and limited to only certain parts of the country. These grants could help support new solutions or the expansion of existing technology to additional areas.

One model to support this ongoing need is for Congress to create a new block grant program for the USDA to award annual grants to states to carry out projects that develop and support food recovery infrastructure and innovative food distribution models. States would be able to distribute their

block grant funds to applicable food recovery organizations and local governments that apply for funding to fill a gap in needed food recovery infrastructure. This grant format would enable state governments to take a holistic approach to food recovery within their state and use grant funding to support geographic regions that would most benefit from new or improved food recovery and distribution infrastructure. This program should be modeled off the Specialty Crop Block Grant Program, which offers annual grants to state agriculture departments to implement projects that increase specialty crop competitiveness.²²⁴

ENHANCE GRANT PROGRAMS INCLUDING COMMUNITY FOOD PROJECT (CFP) AND LOCAL AGRICULTURAL MARKET PROGRAM (LAMP) TO SUPPORT POST-HARVEST RECOVERY

The USDA already has a variety of grant programs that could help support infrastructure for food recovery, such as CFP grants and funding under LAMP. Amending and enhancing these grants can support long-term food recovery efforts and innovative food recovery models.

CFP grants support community-based projects that can become self-sufficient after a one-time infusion of federal funds and provide communities with access to healthy, local foods.²²⁵ The program is particularly well-suited to promote innovation, reflected by its goal to “support the development of entrepreneurial projects”²²⁶ and its prioritization of organizations with innovative models for reducing food insecurity.²²⁷

CFP already includes gleaners among its eligible recipients and should continue to promote its relevance for both gleaners and other food recovery organizations.²²⁸ The 2018 Farm Bill provided \$5 million annually in mandatory funding for CFP,²²⁹ less than the \$9 million provided annually in the 2014 Farm Bill.²³⁰ This makes an already competitive CFP grant even more difficult to receive, with only 18% of applications receiving funding.²³¹ Congress should increase funding for CFP and earmark some portion of this funding for community projects that focus on food recovery.

LAMP is an umbrella program created by the 2018 Farm Bill that includes the Value-Added Producer Grant (VAPG), the Farmers Market and Local Food Promotion Program (FMLFPP), and the Regional Food System Partnership (RFSP).²³² The 2018



Farm Bill allocated \$50 million annually to support grants of up to \$500,000 under these programs.²³³ This allocation includes funding for “new business opportunities and marketing strategies to reduce on-farm food waste,” which is responsible for 21% of the United States’ total food waste.²³⁴ However, despite the fact that the LAMP statutory authority allows the USDA to fund projects that reduce on-farm food waste and support regional and local food recovery infrastructure, in 2021, only 1 out of 88 Farmers Market Promotion Program projects²³⁵ and 3 out of 84 Local Food Promotion Program projects worked with food banks.²³⁶

Congress could make the program more accessible and more impactful by increasing funding, removing the matching funds requirement, and earmarking some portion of funding for food recovery projects. In May 2021, the USDA expanded LAMP funding due to the COVID-19 pandemic, offering \$92.2 million in grants under LAMP.²³⁷ Making this increased funding permanent or further increasing funding in the 2023 Farm Bill could allow more organizations to receive grants under LAMP, which would help fund more innovation. In addition, Congress could remove matching funds mandates that require grant recipients to contribute either 25% (FMLFPP and RSFP) or 100% (VAPG) of the grant’s value.²³⁸ This would eliminate barriers for potential grantees, such as startup organizations that may not have sufficient funds to match grants at the start of their operations. Setting aside dedicated funding within LAMP for food recovery could boost the program’s impact in the space as well. Congress should also extend VAPG funding to non-profits; at present, this funding cannot be used by food recovery organizations as most of these organizations are structured as non-profits, partially to take advantage of benefits available for food donation to non-profit organizations.

IMPLEMENTATION OPPORTUNITY



Congress should increase funding for food recovery infrastructure, either through new 2023 Farm Bill investments or by making COVID-specific investments permanent.

Congress should establish a new block grant program that funds food recovery and distribution infrastructure at the state level. This program could be established in the Nutrition Title of the farm bill. Congress should also support post-harvest food recovery by increasing funding for the CFP grant program through the Nutrition Title

of the farm bill and earmarking a portion for food recovery projects. Within the Horticulture Title of the farm bill, Congress should increase funding for LAMP, remove or reduce the matching requirements, extend VAPG funding to non-profits, and earmark a portion for food waste reduction and food recovery.

Offer Grant Resources and Procurement Programs to Increase Food Recovery from Farms

Interventions aimed at optimizing on-farm harvests could produce a combined net financial benefit of over \$8 billion²³⁹

ISSUE OVERVIEW

As the USDA has noted, food waste from farms is a significant problem.²⁴⁰ This is especially true for produce, which is more perishable than grain crops or other commodity crops.²⁴¹ In 2019, farms wasted 16.7 million tons of produce.²⁴² Not only is this a staggering amount of safe food that could otherwise have been donated to people experiencing food insecurity, but produce is a highly nutritious product and may not otherwise be readily available to those facing food insecurity. USDA programs that connect food-insecure Americans with surplus food from farms fill an important gap.

ADJUST AND INCREASE FUNDING OF THE TEFAP FARM TO FOOD BANK PROGRAM

In order to start addressing the financial hurdles to harvesting surplus crops for donation, the 2018 Farm Bill created a new program within The Emergency Food Assistance Program (TEFAP), called the TEFAP Farm to Food Bank Project Grants. This grant program aims to reduce food waste, provide food to individuals, and develop relationships between food providers and food recovery organizations.²⁴³ The TEFAP Farm to Food Bank Project has a budget of \$4 million annually to fund projects that involve “harvesting, processing, packaging, or transportation” of food products donated by farmers, processors, or distributors to emergency feeding organizations.²⁴⁴ The grant covers costs including those associated with



Prevention



Recovery



Recycling



Coordination

harvesting food, transportation from farms to food recovery organizations, and stipends or salaries for volunteers/staff members working on a TEFAP Farm to Food Bank Project, but the grant cannot be used for purchasing the food itself.²⁴⁵ The USDA provides states with funding under the TEFAP Farm to Food Bank Project, and states have discretion in choosing how to allocate the funds.²⁴⁶ Twenty-nine states are participating in the project in FY2022, including 7 states that have not previously participated.²⁴⁷

Several food recovery organizations (“Emergency Feeding Organizations,” or EFOs, under the statute²⁴⁸) that were funded through the TEFAP Farm to Food Bank Project report great success.²⁴⁹ One EFO reported that the funding helped them recover over 100,000 pounds of produce that would otherwise have gone to waste in 2020.²⁵⁰ This funding can be crucial to the functioning of EFOs, as supply chain issues, labor shortages, and the rising cost of pallets have created challenges in food recovery.

While the grant program has been highly successful, there are some opportunities for improvement. First, the farm bill should remove or reduce the requirement of a 50% match by states or EFOs.²⁵¹ EFOs struggle to meet this matching requirement, creating unnecessary barriers to access. Second, increasing the funding of the TEFAP Farm to Food Bank Project could encourage increased and more consistent state participation. The USDA releases potential allocation amounts for each state if every state participated.²⁵² However, the low allocating funding amounts—less than \$30,000 for more than 10 states²⁵³—may contribute to the low participation rate among states (ranging from 19 states in 2020 to 29 states in 2022), as the limited award may disincentivize states from spending resources to update their state plan. However, states that do participate are provided additional funds from the non-participating states, which may encourage their continuous participation.²⁵⁴ The 2023 Farm Bill should dedicate additional funding to the grant program to incentivize increased state participation and ensure that states receive adequate funding.

ESTABLISH FUNDING TO HARVEST AND DONATE SURPLUS FOOD FROM FARMS

As another avenue to support food recovery from farms, Congress should establish permanent funding for the purchase and donation of surplus food from farms.

During the COVID-19 pandemic, the Farmers to Families Food Box Program provided over 173 million boxes of food to food-insecure Americans.²⁵⁵ After the program ended, the USDA utilized some of its ongoing funding for initiatives like TEFAP fresh produce boxes for food banks and the Dairy Donation Program as well as funding for local food distribution infrastructure—mentioned in greater detail in the next section—and for cooperative purchasing agreements with states.²⁵⁶

The Farmers to Families Food Box Program helped mitigate distributor job loss, created contracting opportunities for small- and mid-sized farms (in early rounds of the program), and helped deliver food to food-insecure individuals in many parts of the country. However, the program could have better supported BIPOC-owned, women-owned, and local farms, ensured equitable distribution of food assistance to food-insecure populations around the country, and focused some attention on guaranteeing the program did not have the adverse effect of contributing to food waste.²⁵⁷

Congress should designate funding for a revamped program to purchase and distribute surplus food that utilizes the Farmers to Families Food Box Program as a model, but which addresses some of its primary issues and critiques. Any such program funded by Congress should focus on ensuring that the food procured and donated under the program is truly food that would otherwise have gone to waste—for example, produce that is off-grade and not fit for consumer markets, or produce that is clearly identified as surplus—thereby ensuring the program helps to reduce the amount of food going to waste and does not cannibalize market opportunities for food. Congress should ensure such a program has several key features, such as: ensuring that end recipients have the dignity of choice to choose produce that is culturally-appropriate, healthy, and desirable to them (rather than being given a standard, one-size-fits all assortment); ensuring that food is high quality and not at risk of spoilage; reporting the program’s recovery of food that would otherwise be wasted; ensuring compensation for transportation costs incurred by local nonprofits associated with last mile delivery; requiring program participants (including growers, distributors, and food recovery organizations) to measure and report their own food waste levels of food procured under the program; and measuring the program’s procurement from woman-owned farms, BIPOC-owned farms, and other socially disadvantaged farmers and ranchers.



The proposed Fresh Produce Procurement Reform Act of 2021 provides a model that incorporates some of these suggestions.²⁵⁸ This Act would create a USDA program to contract with farmers and other food providers, procuring fresh produce for food recovery organizations to provide to food-insecure individuals. This Act would prioritize socially disadvantaged farmers and encourage sourcing from small- and mid-sized growers, furthering equity goals and addressing related critiques of the Farmers to Families Food Box Program.²⁵⁹

IMPLEMENTATION OPPORTUNITY



Additionally, Congress should expand the TEFAP Farm to Food Bank Project in the Nutrition Title of the 2023 Farm Bill and reduce or remove the state match requirement. Congress should designate funding

for a tailored surplus food purchase and donation program, modeled from the Farmers to Families Food Box Program but with upgrades to address equity and ensure the program is reducing rather than furthering food waste.

Encourage USDA Grant and Loan Recipients to Donate Surplus Food by Incentivizing Food Donation

ISSUE OVERVIEW

As discussed in the previous section, the USDA supports regional and local food system development through grant programs like LAMP and CFP.²⁶⁰ These grants have generated new income sources for small, beginning, veteran, and socially disadvantaged farmers and created new market opportunities for value-added and niche products.²⁶¹ The grant recipients often are non-profit and farm-serving organizations that have helped strengthen and stabilize participating farmers markets by creating marketing space; offering training programs; developing peer-to-peer learning networks; strengthening regional and local food system infrastructure and increasing vendor sales and on-farm revenue; and developing food hubs and shared use kitchens to increase regional capacity for

processing, distribution, and storage.²⁶² Given the nature of the work funded by these grants, which aims to support food system development and opportunities for food producers, the USDA should also leverage these grant programs to incentivize food donation and food waste reduction.

GRANT SELECTION PREFERENCES

Congress should demonstrate its commitment to food waste reduction by encouraging all programs or organizations applying for USDA grant funding to donate surplus food and prevent food from being wasted in the first place. The USDA has already required program participants to donate food in certain contexts, like the USDA Farmers Market program,²⁶³ which shows the feasibility of the USDA taking such action. Specifically, the USDA Farmers Market program “requires farmers and vendors to donate surplus food and food products at the end of each market day to a local non-profit organization identified by the USDA.”²⁶⁴ Expanding this premise to other USDA grant programs could have a significant impact on food waste reduction.

This could be done by modifying grant selection processes to preference applicants with surplus food donation contracts with a food recovery organization. This measure would encourage applicants to take the first step in donating edible food that would otherwise be wasted. As a model, California has regulations to require food donation contracts as part of their effort to reduce short-lived climate pollutants.²⁶⁵ Starting in 2022, food generators like supermarkets and distributors are obligated to recover as much food as possible that would otherwise be wasted.²⁶⁶ To prove they have a plan to do this, food generators must have a contract or written agreement with a food recovery organization or service.²⁶⁷ This requirement ensures that when food providers have surplus food, donating the food will not impose an additional burden of finding a food recovery organization to accept that food.

Congress should enact these priorities and requirements for any grant programs where grant money is used for food procurement or for developing markets for food. LAMP programs, which received an infusion of \$92.2 million in May 2021, are a prime example.²⁶⁸ \$76.9 million of this funding will go to FMLFPP, supporting “direct-to-consumer markets like farmers markets” and “indirect-to-consumer markets like food hubs and value-added product incubators.”²⁶⁹ Since the USDA is providing



Prevention



Recovery



Recycling



Coordination

funds to support facilities or markets where food will be developed or sold (and often where food may be wasted), it is a great opportunity to incentivize grantees to donate food. While the goals of these grant programs should be the priority, Congress can instruct the USDA to incorporate a food donation contract incentive or requirement into all relevant grant programs.

IMPLEMENTATION OPPORTUNITY



In the next farm bill, Congress should direct the USDA to prioritize grant applicants that have a food donation contract in place with a food recovery organization. This should be implemented across a range of farm

bill grant programs, with a focus on grant programs in which grantees procure or develop markets for food (throughout various titles such as through LAMP in the Horticulture Title and CFP in the Nutrition Title).

Expand Federal Tax Incentives for Food Donation ★

ISSUE OVERVIEW

Food donation can be an expensive and time-consuming process. Donors sometimes allocate substantial time and money to harvest, package, transport, and deliver food products to donees.²⁷⁰ Farmers and food businesses may often find it less expensive or onerous to till under or send surplus food to landfills instead of donating it.

Tax incentives can offset some donation costs and make donation more financially feasible. Under federal law, two tax incentives are available for food donation: the general deduction and the enhanced deduction. The general deduction allows taxpayers to claim a deduction in the amount of the basis value of the donation (the cost to acquire the product) and is available for all in-kind donations.²⁷¹ The enhanced deduction is specific to food products and enables a donor of food to deduct the lesser of (a) twice the basis value or (b) the basis value of the food plus 50% of the expected profit margin of the product (fair market value minus basis value).²⁷² Through the enhanced deduction for food

donations, a donor may be able to deduct up to twice as much as the general deduction.²⁷³

Tax benefits are a cost-effective strategy to promote food donation, as donors only receive the incentive if they indeed make a donation. Further, they have been successful in reducing food waste by lowering the cost barrier to donation. For instance, in 2005, Congress expanded the coverage of the enhanced deduction to include all business entities with the aim of encouraging more food donation.²⁷⁴ This led to an increase of 137% in donations over the next year.²⁷⁵ Recognizing the program's success, Congress made the change permanent by expanding enhanced deduction coverage to all businesses in the Protecting Americans from Tax Hikes Act of 2015 (PATH Act).²⁷⁶ This is a welcome development and allows more companies to utilize the enhanced deduction.

CREATE AN ALTERNATE TAX CREDIT FOR FOOD DONATION

Congress should further develop effective tax incentives to maximize food recovery and donation. With the PATH Act, enhanced donations are now technically available to all businesses; however, tax deductions are generally not equally beneficial to all companies. A tax deduction lowers a donor's taxable income (which determines the amount of taxes owed).²⁷⁷ For smaller companies, such as small- and mid-sized farmers and independent food businesses that operate on a low-profit margin, a deduction is not an effective incentive because taxable income may already be quite low. Farmers also may not claim an enhanced tax deduction because it requires too much record-keeping (to determine the value of the deduction as laid out above). By contrast, a tax credit directly applies to and reduces the amount of taxes owed,²⁷⁸ and is often more beneficial to lower-margin businesses. Congress should create an alternative tax credit and give farmers the choice between this tax credit and the enhanced tax deduction. Offering a tax credit could make food donation more financially feasible for farmers and make it easier to donate surplus foods. Several states have already created a tax credit applicable to farmers, in recognition of the fact that this additional benefit is needed to support donation from farms.²⁷⁹

TAX BENEFITS SHOULD ACCOUNT FOR UNDERLYING COSTS IN DONATIONS

An effective food donation tax incentive also should



account for the underlying costs donors incur while donating food, such as transportation, food storage, and labor needed to prepare and transport donated food. Improving donation transportation and storage infrastructure has the annual potential to divert 908,000 tons of food waste, reduce 1.307 million metric tons of CO₂e, and save 127.6 billion gallons of water, producing a net financial benefit of \$2.873 billion²⁸⁰ These costs can add up quickly, deterring donation efforts in favor of cheaper options like sending food to the landfill.

To solve this problem, Congress should amend the enhanced tax deduction for food donation to include an additional tax deduction to offset the costs of transportation, labor, or storage of food for donation. For example, the incentive could offer a benefit to logistics and transportation companies that ship donated products, storage providers who store surplus inventory until donation, or retailers/producers that either directly deliver or pay for the shipment of their donation. California has implemented such a strategy at the state level, offering a 50% tax credit for transporting donated food.²⁸¹ Implementing a similar incentive at the federal level would help offset donation costs. Focusing on transportation and storage would address a significant cost barrier for donors and help get more food to those who need it most.

CONGRESS SHOULD AMEND RESTRICTIONS ON THE ENHANCED DEDUCTION TO PROMOTE INNOVATION

Congress should amend the restrictions imposed by the federal enhanced tax deduction to promote innovation and streamline the donation process. Like the Emerson Act described above,²⁸² the enhanced tax deduction is only available to donors who make donations to non-profit organizations that do not charge the end-users for the food.²⁸³ Because of this “no-charge” requirement, donors cannot claim the enhanced deduction for donations made to a food recovery organization that charges even a low price to the end recipient. This disincentivizes donating to innovative food recovery and donations groups. Congress should allow the enhanced tax deduction to be claimed when donations are made to a non-profit organization that either distributes the food for free or at a low cost to cover the expenses associated with handling the food.

IMPLEMENTATION OPPORTUNITY



In the 2023 Farm Bill, Congress should create an alternative food donation tax credit that farmers can opt to claim instead of the enhanced tax deduction. It should also amend the current enhanced deduction to offset the underlying costs donors incur while donating food, such as transportation and storage. In addition, Congress should incentivize innovative food recovery models by removing the requirement that non-profit organizations provide donated food for free. Language implementing the above recommendations could be taken from the bipartisan Further Incentivizing Nutritious Donations of Food Act or FIND Food Act of 2022 (H.R. 7317, 117th Cong. (2d Sess., 2022)).

The 2008 Farm Bill had a title dedicated to tax issues: the Trade and Tax Provisions in the Farm Bill.²⁸⁴ The next farm bill can revive the tax title from 2008 or create a new Food Waste Reduction Title and include these provisions there. Alternatively, the tax incentives can be placed in another existing title such as the Horticulture Title or the Miscellaneous Title.

Instruct the USDA Risk Management Agency and Approved Crop Insurance Providers to Better Support Gleaning

Gleaning has the annual potential to divert 78,500 tons of food waste and save 2.14 billion gallons of water, with a net financial benefit of \$152 million²⁸⁵

ISSUE OVERVIEW

The USDA Risk Management Agency (RMA) permits and encourages farmers to donate damaged crops for gleaning purposes while still allowing farmers to receive insurance compensation for their lost crops.²⁸⁶ Despite policies that allow for gleaning, few farmers take advantage of these policies



Prevention



Recovery



Recycling



Coordination

due to a deficit in knowledge around gleaning opportunities—whether the RMA allows gleaning of crops after an insurance claim has been made, when/how gleaning is permitted, and what legal risks exist for farmers. The RMA has created one document—a one-page gleaning crop fact sheet published in 2017—to educate farmers and crop insurance agencies on gleaning policies,²⁸⁷ but this document has proven insufficient as miscommunication and confusion still exists around gleaning.²⁸⁸

One major source of confusion surrounds whether farmers can allow gleaning of crops covered under federal crop insurance. The government's two primary programs for crop insurance, the Federal Crop Insurance Program (FCIP) and the Noninsured Crop Disaster Assistance Program (NAP), permit farmers to allow gleaning on their farms.²⁸⁹ However, the requirements under these programs can be ambiguous, leaving farmers unsure whether they will receive the insurance payments they rely on if they allow gleaning on their farms.²⁹⁰ This confusion increases the likelihood that farmers will let their produce go to waste rather than allowing gleaning to take place.

FCIP and NAP guidelines both limit many aspects of the gleaning process. First, FCIP and NAP only allow gleaning when it is done by a 501(c)(3) non-profit and the insured producer has not received any compensation in exchange for the crops.²⁹¹ If the farmer receives any compensation in exchange for the crops, the harvesting will not be considered gleaning, and the producer will be unable to collect crop insurance on the produce.²⁹² However, farmers are still able to receive their insurance payments if they receive compensation for non-crop expenses, such as labor for harvesting or the transportation of gleaned crops.²⁹³ Additionally, FCIP and NAP limit how gleaning can be done.²⁹⁴ Before allowing gleaning, a producer must first have the fields inspected by a qualified Commodity Credit Corporation loss adjuster who will approve the insurance claim, and the producer must keep a record of the quantity of the crop gleaned.²⁹⁵ When the adjuster visits the fields, they provide the farmer with a certificate for destruction that must be completed by the farmer. Some farmers believe that this certificate requires the leftover crops to be destroyed in front of the insurance provider; however, that is only the case for tobacco plants, a crop that would not be gleaned.²⁹⁶ For other crops, the farmer can allow for gleaning of the crops after receiving the certificate rather than destroying the

remaining crops, as long as no compensation is collected for the crops.²⁹⁷

Another area of confusion is whether farmers may collect crop insurance if they also file for the enhanced tax deduction for donated food. Farmers are concerned tax deductions may fall under the aforementioned prohibition on compensation for the gleaned crops—but this is a misunderstanding. The RMA guidance states that “situations not to be considered compensation for the crop include state tax credits and other state and federal tax advantages for donating gleaned commodities.”²⁹⁸ However, many farmers still mistakenly believe that they cannot benefit from the enhanced deduction for food donations if they have filed a crop insurance claim for the crops.

Another barrier to gleaning is fear regarding potential liability if a volunteer gleaner were to be injured on a farmer's land. However, this concern is misplaced as farmers are protected by federal law under the Emerson Act.²⁹⁹ Section D of the Emerson Act provides that a person who allows the gleaning of donations will not be subject to civil or criminal liability that arises due to the injury or death of the gleaner.³⁰⁰ Despite this existing liability protection, many farmers remain unwilling to allow gleaners onto their land because they believe there is still a liability risk.³⁰¹

OPPORTUNITY FOR CLARIFYING RMA GUIDANCE

There is a general lack of awareness regarding gleaning as an option for farmers, particularly regarding crops for which a farmer has filed a crop insurance claim. RMA guidance is very limited, and crop insurance agents are not encouraged to promote gleaning to farmers and may also themselves misunderstand the gleaning policies. Thus, the burden of educating farmers on gleaning falls upon gleaning organizations which lack the capacity and funding to promote awareness.³⁰²

Congress should require the USDA to develop and disseminate semi-annual information sheets or reminder notices to farmers, crop insurance agents, RMA agents, and gleaning organizations. This will ensure that all parties involved can promote gleaning and effectively address any concerns or apprehensions farmers may have. This guidance should, (1) promote gleaning and increase awareness of gleaning as an option for farmers who may be entirely unaware of gleaning practices; (2) clarify how crop insurance allows for gleaning (to



this, it should explain that crop insurance can still be collected if farmers allow for gleaning),³⁰³ clarify that farmers can still claim tax incentives for donated food in addition to crop insurance, and clarify that farmers can receive payment for non-crop expenses associated with gleaning (i.e., transportation, labor);³⁰⁴ (3) provide contact information for local gleaning organizations for each farmer to the extent possible; and (4) ensure that farmers are aware that they are protected from liability claims regarding both the safety of the food gleaned and for any injuries sustained by volunteers on their land under the Emerson Act.³⁰⁵ The USDA could utilize the USDA Cooperative Extension service, which already has established connections to producers across the United States, to disseminate gleaning guidance to farmers.

IMPLEMENTATION OPPORTUNITY



Congress should use the 2023 Farm Bill to instruct the RMA to institute an expanded education and awareness program by developing more guidance materials and utilizing semi-annual reminders. This instruction can be included within the Crop Insurance Title, which addresses FCIP, or the Commodities Title, which addresses NAP.³⁰⁶ This change would encourage more farmers to allow for gleaning of their lands, thus reducing the number of crops that go to waste and allowing for the healthiest foods—fruits and vegetables—to be made available to people experiencing food insecurity.



FOOD WASTE RECYCLING

Provide Grants to Support Proven State and Local Policies that Reduce Food Waste Disposed in Landfills or Incinerators ★

ISSUE OVERVIEW

The ongoing reliance on landfills to manage organic waste is problematic for several reasons. Landfills continue to be overburdened by organic waste (which makes up around 24.1% of municipal solid waste in landfills by weight),³⁰⁷ and states and cities are running out of space to store their waste.³⁰⁸ Moreover, as food items decompose in landfills, they release harmful greenhouse gases at alarming rates. Municipal waste landfills are the third-largest source of human-created methane emissions, accounting

for 15.1% of methane created by humans in the United States in 2019³⁰⁹ and 8-10% of all global anthropogenic greenhouse gas emissions from 2010 to 2016.³¹⁰ Eighty times more potent than CO₂ in the short term, and 25 times more potent than CO₂ overall³¹¹ methane traps heat in the atmosphere and disrupts geologic processes such as air and water temperatures, weather, and the carbon cycle.³¹² These disruptions expose human health, agriculture, and other natural ecosystems and resources to potential harms.³¹³

ORGANIC WASTE BANS

Organic waste bans, mandatory recycling laws, waste diversion requirements, food donation requirements, landfill taxes, and similar policies to reduce food in landfills are proven policies to reduce food waste and are growing in popularity. These policies take various actions to limit the amount of food that goes to landfills or incinerators or to make it more costly to send food to landfills or



Prevention



Recovery



Recycling



Coordination

incinerators. For example, organic waste bans are policies that prevent entities that produce a certain threshold of food waste (e.g., grocery stores and hospitals) from transporting that waste to landfills or incinerators, subject to certain exceptions. Where these bans are implemented, waste generators can no longer rely on waste disposal and must utilize other strategies to reduce their footprint. Waste generators might reduce food waste by offering smaller portions, donating surplus food, recycling food scraps, or repurposing their leftovers. In addition to organic waste bans, other effective policy options include mandated food scrap recycling,³¹⁴ Pay-As-You-Throw policies that charge a higher fee for sending organic waste to landfills,³¹⁵ and an increased landfill tax charged per unit of trash in addition to landfill tipping fees.³¹⁶

These types of policies have been shown to successfully reduce food waste. In Massachusetts, after one year with an organic waste ban, businesses diverted food waste from landfills at a rate five-times higher than before the organic was ban was adopted.³¹⁷ Massachusetts saw more than a 25,000-ton increase in food donation.³¹⁸ Vermont also saw a 60% increase in food donation following implementation of the state's organic waste ban.³¹⁹

Organic waste bans are gaining popularity as a food waste reduction model, as evidenced by a recent uptake of several states and localities. Connecticut,³²⁰ Massachusetts,³²¹ New York,³²² Rhode Island,³²³ New Jersey,³²⁴ Maryland,³²⁵ and Vermont,³²⁶ have all adopted state organic waste bans, and California enacted a waste recycling law that requires commercial waste generators to compost or anaerobically digest their organic waste.³²⁷ California also enacted a law requiring businesses in the state to donate at least 20% of edible food that is currently wasted.³²⁸ Austin (TX), Boulder (CO), Hennepin County (MN), Portland (OR), New York City (NY), San Francisco (CA), and Seattle (WA), enacted local organic waste bans,³²⁹ and Washington, D.C., recently enacted a mandatory waste recycling law.³³⁰

Another opportunity to improve food waste diversion is to improve food waste measurement strategies. There is no national requirement for businesses or waste facilities to measure food waste, and state- or city-level studies are conducted only periodically or inconsistently. A lack of transparency around food waste makes it difficult for state and local governments to monitor organic waste

generation and limits the government's ability to implement tailored and innovative waste reduction strategies.

Because waste is managed on the state and local level, state and local actors are more familiar with regional and local food waste issues than are federal leaders; they are the actors best situated to identify and implement most organic waste reduction initiatives. However, studying, planning, implementing, and enforcing such initiatives is costly. The federal government can support these promising policies by providing funding to states and localities to adopt proven policies to reduce food waste. The funding could be used to plan, implement, or enforce these policies. Funding could also be used to support the creation of a state or local government staff position specifically committed to food waste reduction coordination, which would then oversee the jurisdiction's new food waste reduction policies. By providing funding for states or localities to plan or implement these policies, Congress can incentivize the uptake of such projects and help actualize the environmental and societal benefits associated with food waste reduction projects.

One model to support these state and local policies is articulated in the proposed Zero Food Waste Act of 2021.³³¹ This Act would create a grant program for state, tribal, and local governments to reduce the amount of food waste by 50% by 2030.³³² Under this Act, grants may be awarded to an eligible entity that is a nonprofit organization to study the generation of food waste in the state or area in which the entity is located, identify policies and programs that significantly reduce the amount of food waste, and develop a plan under which the organization will carry out at least one food waste reduction activity.³³³ Alternatively, a grant may be awarded to collect and publish data on the amount of food waste generated in a state or area in which the origination is located or for an organization that carries out or otherwise supports a food waste reduction activity.³³⁴

IMPLEMENTATION OPPORTUNITY



The next farm bill should provide grants to state and local governments, and to public-private partnerships, to encourage them to implement proven or promising food waste reduction



policies, such as organic waste bans, mandatory recycling laws, landfill taxes, Pay-As-You-Throw laws, and other policy measures to make it comparatively costlier or more difficult to send food to landfills or incinerators.

To accelerate the adoption of these strategies, the farm bill should provide \$650 million per year for ten years for state, local, and tribal governments, independently or as part of a public-private partnership to plan or implement an organic waste ban or other proven food waste reduction policy.³³⁵ As part of this program, Congress should require the USDA (in collaboration with the EPA) to maintain a database of the state and local food waste reduction policies that have proven successful and data on their impacts.

This program should be established within the Miscellaneous Title or a dedicated Food Waste Reduction Title.

Provide Grants and Loans for the Development of Organic Waste Processing Infrastructure ★

Investing in centralized anaerobic and composting infrastructure has the annual potential to divert 17.64 million tons of food waste and reduce 5.852 million metric tons of CO₂e, with a net financial benefit of \$220.4 million³³⁶

ISSUE OVERVIEW

In addition to implementing waste bans, zero waste goals, and waste prevention plans, states and local communities must also develop their organic waste processing capabilities to manage the organic waste diverted from landfills and to realize the benefits of these strategies.

Both compost and anaerobic digestion infrastructure have the potential to convert food waste into productive soil amendments. Adding compost to soil improves soil structure, increases water and nutrient retention capacity, and

contributes nutrients and carbon to often-depleted soil.³³⁷ In fact, initial findings from University of California-Berkeley's Silver Lab show that food-waste derived compost poses better climate change mitigation potential than manure or plant waste compost.³³⁸ Recent studies examining industrial composting processes continue to improve the greenhouse gas capture potential of such facilities.³³⁹ Anaerobic digestion infrastructure simultaneously captures biogas, a type of energy that can fuel vehicles and generate electricity. The EPA, in February 2022, recognized the importance of scaling anaerobic digestion capacity across the country and delegated \$2 million to 11 organizations for anaerobic digestion projects.³⁴⁰

Alternative to compost and anaerobic digestion, animal feed facilities take animal and/or vegetable food scraps, heat treat them, and re-sell them as animal feed for swine and cattle.³⁴¹ Not only is food-scrap-derived animal feed cheaper than traditional feed,³⁴² but it is more sustainable as well. One organization, Do Good Food, has recognized the potential to sell animals raised on food scraps animal feed to consumers, capitalizing on its status as a more environmentally friendly product than traditionally raised animals.³⁴³

Composting, anaerobic digestion, and animal feed processing infrastructure is costly. An anaerobic digestion facility that processes around 50,000 tons of waste per year costs over \$20 million to construct.³⁴⁴ Meanwhile, it costs \$5-9 million to build and \$17-28 per ton to operate a large composting facility.³⁴⁵ One full-service composting facility can process between 5,000 and 100,000 tons of organic waste every year.³⁴⁶ For reference, the City of Madison, Wisconsin (a city of nearly 270,000) estimates they produce at minimum 10,000 tons of potentially compostable food scraps annually.³⁴⁷

Sometimes, local governments (e.g., Madison, WI) limit the amount of local organic waste they collect for compost because they do not have the infrastructure necessary to process it.³⁴⁸ Building composting facilities and infrastructure is critical to ensure organic waste does not end up in landfills.

COMMUNITY COMPOST AND FOOD WASTE REDUCTION PROJECT

In the 2018 Farm Bill, Congress authorized the creation of the Community Compost and Food Waste Reduction Project (CCFWR) within the



Prevention



Recovery



Recycling



Coordination

USDA Office of Urban Agriculture and Innovative Production (UAIP) to provide pilot funding for local governments in at least ten states to study and pilot local compost and food waste reduction plans.³⁴⁹ A total of \$25 million was authorized to be appropriated to CCFWR, UAIP, and urban agricultural grants.³⁵⁰ While the specific amount allocated to CCFWR projects per year may vary within that total, in FY2020, \$900,000 was available for CCFWR projects, and each applicant could request a maximum of \$90,000 for a two-year grant.³⁵¹ In FY2021, total CCFWR funding was \$2 million, but the maximum request amount remained at \$90,000 per project.³⁵²

CCFWR funding enables localities to enhance their waste reduction capacities and has already fostered a positive impact within communities.³⁵³ Entities eligible to apply for the grant include city or township governments, county governments, state-designated or federally recognized Indian Tribes, and special district governments.³⁵⁴ The CCFWR pilot projects may focus on several different areas, including: waste management and permaculture business development, local food waste, and diversion (including transportation) of food waste from landfills.³⁵⁵ Examples of 2021 projects include creating a network of food scrap drop-off stations, developing and promoting community gardens, building small-scale composting sites, testing innovative models around household compost pick-up, building composting infrastructure or funding the full-operative of composting infrastructure, and educating the public.³⁵⁶

The first two years of CCFWR have proven its grant model a success,³⁵⁷ however, there is room to improve the CCFWR grant model and scale its benefits.³⁵⁸ First, grant recipients reported that the \$90,000 funding cap is too low to fund large projects in highly populated cities because the grant does not provide enough money to scale a project across the whole city.³⁵⁹ As a result, CCFWR projects in large cities only benefit a limited number of people. CCFWR grants are also too small to fund the development of new facilities or composting systems or to develop long-term projects.³⁶⁰ This means that localities that do not already have anaerobic digestion and composting infrastructure gain limited benefit from CCFWR grants.

Second, the CCFWR grant only goes to local governments, which limits the opportunity for government officials at the regional or state level to

use the funds for organic waste reduction projects. This removes the possibility of scaling across a region, which would increase the efficiency of some projects. Congress should expand the program to authorize private partnerships (i.e. with non-governmental organizations) to incentivize CCFWR projects across regions and within communities with resource-constrained local governments. Addressing these problems within the CCFWR program would help localities to scale and improve upon the benefits that drive them to apply for the grant funding in the first place.

Third, CCFWR recipients need to match at least 25% of the federal grant through direct funding and/or in-kind contributions.³⁶¹ Although a few cities reported that the matching requirement was not a burden given the in-kind contribution allowance, at least one city had to divert direct funding to the project.³⁶² Eliminating the matching requirement would allow the grantees to receive the full grant in direct funding.

Finally, previous CCFWR projects primarily focus on composting. Future iterations of the CCFWR program should also prioritize food waste prevention and food recovery. Emphasizing food waste prevention and recovery keeps food higher in the Food Recovery Hierarchy. Congress should instruct the USDA to provide better guidance to communities seeking funding for food waste reduction methods outside of composting.

OTHER FARM BILL PROGRAMS

Other federal programs help build anaerobic digestion and composting capacity in rural areas including the Solid Waste Management Grant (SWMG) program³⁶³ and the Water and Waste Disposal Loan and Grant program.³⁶⁴

In the 2018 Farm Bill, Congress reauthorized the SWMG program under the Rural Development Title.³⁶⁵ Congress authorized up to \$10 million in annual appropriations to provide technical assistance for solid waste management practices.³⁶⁶ However, the Rural Utilities Service has consistently allocated only about \$4 million per year to SWMGs since 2018.³⁶⁷ The Rural Utilities Service intends for these grants to fund technical assistance and training on improving planning and management at solid waste sites.³⁶⁸ Although these grants need not incorporate organic waste reduction strategies,



some projects include organic waste reduction plans.³⁶⁹ The 2017 SWMG program awarded extra points to applications that involved composting projects that reduced organic waste in landfills.³⁷⁰

In addition to SWMGs, states and localities can also utilize the Water and Waste Disposal Loan and Grant program, which primarily funds wastewater systems, including those that derive energy from food waste.³⁷¹ The program received a \$1.45 billion funding package for FY2021,³⁷² and offers applicants low fixed-rate loans with payback periods of up to 40 years.³⁷³

The CCFWR, SWMGs, and the Water and Waste Disposal Loans and Grant program all provide tailored funding opportunities to improve local food waste reduction plans. However, there is still a lack of sufficient funding for the growing needs of food waste diversion infrastructure. Building anaerobic digestion and composting capabilities is a costly process, but once constructed, these facilities keep food waste from landfills and generate profound long-term advantages for society.

According to ReFED, \$14 billion in annual investment is needed to revamp how the federal food system prevents food from going to waste, recovers surplus food, and recycles food scraps. ReFED projects that around \$1.2 billion of this needed investment should come from government grants and project financing in food waste recycling.³⁷⁴ The federal government is far away from meeting this need in food waste recycling funding.

Several pending federal bills offer models for increased investment. The COMPOST Act of 2021³⁷⁵ would authorize a USDA grant and loan program to fund composting infrastructure projects in states and local governments.³⁷⁶ This Act would authorize \$200 million per year for ten years for composting infrastructure projects, with each project able to obtain a grant or loan for up to \$5 million.³⁷⁷

The Zero Food Waste Act of 2021, mentioned above, provides grant funding for “food waste reduction projects,” which could include composting infrastructure and anaerobic digestion projects within the \$650 million funding allocation.³⁷⁸ Those anaerobic digestion projects would be restricted to ones in which the grantee guarantees that the anaerobic digestion food waste by-product is used as soil amendment that does not create an

environmental hazard, that the project will limit the amount of animal waste used as anaerobic digestion input, and that the project will use source-separated organics.³⁷⁹

IMPLEMENTATION OPPORTUNITY



The next farm bill should build on existing grant programs and adopt new strategies to develop composting and anaerobic digestion infrastructure. Congress should amend the CCFWR program to increase the total and per project funding available, reduce or eliminate the matching requirement, and expand the list of eligible entities who may apply for grant funding to also include state governments, as well as non-governmental organizations and community groups that work with partners in rural locations or across regions. For local projects, Congress should increase the per project cap from \$90,000 to \$300,000 to ensure all cities regardless of size can scale their food waste reduction projects. For regional or state projects, Congress should implement a project cap of \$500,000.

In addition, Congress should increase funding for the SWMGs and the Water and Waste Disposal Loans and Grant program and should continue to prioritize projects in which the implementing agencies prioritize food waste reduction. Congress should consider extending the SWMG program to two years for more robust projects.

Congress also should create funding streams along the lines envisioned in the COMPOST Act of 2021 and Zero Food Waste Act of 2021 to support new compost and anaerobic digestion infrastructure. Beyond funding the construction of this infrastructure, Congress should also consider expanding the COMPOST Act of 2021 and Zero Food Waste Act of 2021 to include funding to develop and maintain large-scale transportation infrastructure necessary to haul compost from these communities to the compost and anaerobic digestion sites.

The next farm bill should enact these measures under the Miscellaneous Title or a new Food Waste Reduction Title.



Prevention



Recovery



Recycling



Coordination

Require Federal Food Procurement Contractors to Measure, Recover, Recycle, and Prevent Food Waste in Federal Contracts ★

ISSUE OVERVIEW

The federal government can serve as a role model for positive environmental practices. Every year, the federal government purchases billions of dollars' worth of food for school food programs, military service members, veteran hospitals, incarcerated persons, and other federal feeding programs.³⁸⁰ Yet, the federal government does not necessarily have plans in place to address food waste generated by federal procurement policies and contracts.

The federal government should use its contract power to require government entities and their contractors to measure and report food waste. The Federal Food Donation Act of 2008 (Food Donation Act of 2008) was passed to take a first step towards reducing food waste among agencies. The Food Donation Act of 2008 requires federal procurement contracts of over \$25,000 to include specific language that *encourages* federal agencies and contractors to donate safe, excess food to food recovery organizations.³⁸¹ However, outside of merely including the required language in contracts, federal agencies and contractors are neither required to donate excess wholesome food, nor are they required to measure and report food waste, or to ensure food that cannot be recovered is recycled instead of thrown in the trash to be landfilled or incinerated. The Council on Environmental Quality (CEQ) already tracks and publishes several energy efficiency and sustainability data points reported to the CEQ Office of the Federal Chief Sustainability Officer by each federal agency's sustainability lead.³⁸² The CEQ could use this existing dashboard to track and publish food waste and recovery data generated by federal agencies.

Further, the Food Donation Act of 2008 does not require any reporting on how much food is wasted or donated, so there is little information about how much food is wasted by federal agencies and their contractors, or whether any agencies or their contractors are making efforts to donate

surplus food. Congress should require agencies to receive and compile reports from their contractors regarding food excess and waste that results from the food procurement agreement.

IMPLEMENTATION OPPORTUNITY



Congress should modify the Federal Food Donation Act of 2008 to require all federal agencies that enter food procurement contracts to include contract language requiring their contractors to donate any surplus food and to compost any inedible food scraps. They should also require their contractors to measure and report food donation and food waste that results from the contract. Additionally, Congress should designate responsibility to track and publicly report federal food donation and waste to either CEQ, another government agency (i.e., the USDA or the EPA), or to the Federal Interagency Food Loss and Waste Collaboration. Congress should implement these changes as part of the Miscellaneous Title or a dedicated Food Waste Reduction Title.

Support Compost End Markets Through Crop Insurance Benefits and Increased Federal Procurement of Compost Products

ISSUE OVERVIEW

Growing the compost market benefits entities all along the food chain. In particular, creating end markets for compost products will support increased composting, and by giving compost facilities a market to sell compost, the facilities may be able to reduce their tipping fees and draw more food waste generators to compost rather than landfill their waste. In turn, this will make composting a more viable and less expensive option than throwing organic waste materials in a landfill. Farmers can also benefit from compost end markets as they can use the soil amendment products derived from composting or anaerobic digestion (compost products) to improve the quality of their



soil.³⁸³ The environmental benefits of compost stem not only from diverting food waste from landfills, but also from treating fields with compost, which reduces or eliminates the need to use chemical fertilizers, leads to higher agricultural yields, increases soil water retention, and increases carbon sequestration.³⁸⁴

States and localities are investing in compost and anaerobic digestion infrastructure to process food waste.³⁸⁵ These cities are also scaling their compost and food waste collection efforts, which will inevitably increase the total amount of compost products created by compost and anaerobic digestion processing facilities. Creating more end markets for composting will also encourage the development of more compost facilities. In order to bolster these state and local efforts to realize the social and environmental benefits of composting, the federal government should support the development of compost end markets.

Likely recognizing the benefits of supporting compost end markets, President Biden's Executive Order 14057, published in December 2021, calls on all federal agencies to support markets for recycled products.³⁸⁶ The USDA is also increasingly recognizing the importance of developing and incentivizing climate-smart farming practices. In February 2022, the USDA announced the new Partnerships for Climate-Smart Commodities, which will provide funding for specified entities to develop pilot projects likely to generate greenhouse gas benefits and increase soil carbon sequestration.³⁸⁷ The program announcement specifically lists adding soil amendments (which includes compost) as a qualifying practice.³⁸⁸ The federal government can use both its purchasing power and other means to develop the private compost market. Most notably, the federal government should incentivize farmers to use compost products in their fields. This will encourage farmers to reap the environmental benefits associated with composting and will increase the financial viability of the burgeoning composting industry.

THE MODEL: PANDEMIC COVER CROP PROGRAM

During COVID-19, the federal government initiated an incentive program that paid farmers a \$5 per acre premium under crop insurance for the planting of cover crops.³⁸⁹ This program, known as the Pandemic Cover Crop Program (PCCP), ran for the

2021 planting year and helped producers realize more profits from their land.³⁹⁰ The PCCP allows farmers to realize the considerable environmental benefits associated with cover crops. These benefits include: decreasing the breakdown of soil,³⁹¹ which increases soil organic matter and helps plant growth;³⁹² storing nutrients from manure and other on-farm inputs until the following years' crop can utilize them; reducing nitrogen losses to the environment; and reducing the use of purchased nitrogen fertilizer that is produced using fossil fuels and lower costs of production.³⁹³

Compost use has similar plant health and environmental benefits. It can be used on annual crops, perennials, orchards, vineyards, and grasslands to improve soil properties, provide nutrients in a stable organic form, and increase plant growth and health.³⁹⁴ Further, compost increases water retention capability and improves drought resilience.³⁹⁵ Compost can also be used to increase carbon sequestration (i.e., long-term storage of carbon in soils and vegetation).³⁹⁶ In fact, studies and literature reviews by the Marin Carbon Project and its partners found that a one-time application of a quarter inch of compost can double the soil's carbon sequestration potential (approximately one ton of carbon per hectare).³⁹⁷ Finally, given rising fertilizer costs,³⁹⁸ compost may be a cost-effective alternative to fertilizer.

The federal government should use PCCP as a model for an incentive program that encourages farmers to apply compost products to their fields.

FEDERAL ACQUISITION REGULATION

Congress should require federal agencies to purchase compost made from recycled organic waste materials for any of their landscaping services. Following a number of executive orders aimed at supporting sustainable products and services, including President Clinton's Executive Order 12873 in 1993³⁹⁹ and President Bush's Executive Order 13423 in 2007,⁴⁰⁰ the Office of Management and Budget modified the Federal Acquisition Regulation (FAR) to be more environmentally friendly. The FAR requires federal agencies to ensure that 95% of all products and services purchased are energy and water efficient, bio-based, environmentally preferable, non-ozone depleting, or made with recovered materials.⁴⁰¹ However, the FAR does not specifically mention

Encourage Diversion of Food Waste into Animal Feed Where Appropriate ★

ISSUE OVERVIEW

Food scrap feeding refers to feeding livestock animals food scraps or food residuals, which can include edible by-products of food production. Food scraps are most often sourced from restaurants, retail, and institutions such as schools.⁴⁰⁵

Food scrap feeding is regulated under federal law and requires animal-derived food scraps to be heat-treated (but not necessarily vegetable-derived food scraps) in addition to a number of storage and transport requirements.⁴⁰⁶ Food scrap feeding is also regulated at the state level, often with stricter requirements such as outright bans of feeding of animal-derived and/or vegetable waste to certain animals, or requirements that one or both types of waste be heat-treated.⁴⁰⁷ When done in accordance with the federal laws, food scrap feeding is safe for animals, and it realizes all the same environmental benefits associated with diverting food waste from landfills. Numerous studies demonstrate that properly heat-treated food scraps are safe for animals that consume feed derived from those scraps, and for consumers who eat those animals.⁴⁰⁸ Food scrap-derived animal feed is a more environmentally friendly option than conventional feed when comparing a range of environmental factors, including climate change potential, emissions of carcinogens and toxins, and particulate matter emissions.⁴⁰⁹

Private companies are increasingly recognizing their ability to divert food to animal food scraps. For example, the company Do Good Foods partners with grocery stores to recover food first for donation to food banks, and any left-over food is processed into animal feed for chickens.⁴¹⁰ Another company in this space, FeedBack Earth, collects postconsumer food scraps from entities such as restaurants and cafeterias and converts them into animal feed for livestock.⁴¹¹

To build on the increased interest in diversion of food scraps to animal feed, Congress should require the USDA to write guidance encouraging states

or suggest purchasing compost made from recycled organic waste materials. Instead, it has selection criteria including selecting products that lower environmental impacts and reduce waste management costs, among other things.⁴⁰² Given the aforementioned environmental benefits and waste management cost reductions associated with composting, Congress or the Administration should direct the FAR Council to revise the FAR to require federal purchasers to procure compost made from recycled organic waste materials when procuring landscaping services.

Congress has used the federal government's purchasing power to set standards around environmental issues in other areas. For example, the Department of Defense is legally required to give preference to electric and hybrid vehicles when purchasing or leasing vehicles.⁴⁰³ The Energy Policy Act requires new federal fleets to meet certain alternative fuel vehicle and electric vehicle requirements.⁴⁰⁴ Using federal government purchasing power to stimulate demand and to encourage private market uptake of sustainable technology is a demonstrated, successful model of setting environmental policy. Congress should implement this model, using the federal government's purchasing power to develop private markets to stimulate composting product markets.

IMPLEMENTATION OPPORTUNITY



To increase viability for compost products, Congress should create a crop insurance premium incentive program that pays farmers a per acre bonus for applying compost products to their fields before planting.

Congress also should increase federal procurement of compost products containing recycled organic waste materials, by requiring federal agencies to prioritize purchasing of compost made from recycled organic waste materials when purchasing landscaping services. Congress should establish this program in the Farm Bill's Crop Insurance Title.



to update their laws around animal scrap feeding to the federal laws outlined below. Furthermore, Congress should create a tax incentive for private businesses to divert food waste to animal feed to make that pathway more economically viable than sending the scraps to the landfill. It is essential that Congress makes this tax incentive smaller than the enhanced tax deduction for businesses to donate surplus food for human consumption, to best align with the highest use on the Food Recovery Hierarchy.

SWINE HEALTH PROTECTION ACT AND OTHER RELEVANT LAWS

The Swine Health Protection Act (SHPA), the federal legislation governing food scrap feeding to swine, sets a food scrap feeding regulation floor that can stand on its own or can be exceeded by more stringent state-level regulations.⁴¹² SHPA and its implementing regulations, overseen by the USDA Animal and Plant Health Inspection Service, demand food scrap treatment facilities to comply with a number of storage, transport, licensing, recordkeeping, and treatment requirements.⁴¹³

SHPA essentially gives states the option of whether to allow food scrap feeding and gives states the option to seek primary enforcement responsibility under the Act⁴¹⁴ or to work with the Secretary of Agriculture to oversee regulations such as permitting within the state.⁴¹⁵ However, despite the demonstrated environmental benefits and food safety assurances, two states forbid any food scrap feeding and fifteen states forbid animal-derived food scrap feeding.⁴¹⁶ It is also important to note that a few state laws exist that govern the feeding of food scraps to other animals such as poultry and cattle.⁴¹⁷ Congress can take a more active role in encouraging and incentivizing innovative food waste recycling strategies including the diversion of food scraps to animal feed.

In addition to SHPA, the FDA's "Current Good Manufacturing Practice, Hazard Analysis, and Risk-Based Preventive Controls for Food for Animals"

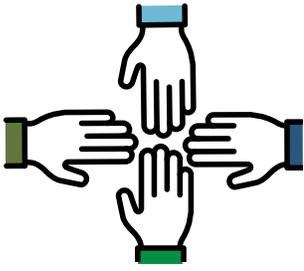
regulation, authorized under the Food Safety Modernization Act,⁴¹⁸ regulates facilities that use animal byproducts as animal feed and includes a requirement to develop a plan that identifies potential hazards and implements controls around those hazards.⁴¹⁹ The FDA also works with the Association of American Feed Control Officials (AAFCO) to standardize animal feed ingredients and labeling requirements.⁴²⁰

The FDA also prohibits the use of mammalian protein (i.e., animal tissue) in feeds for ruminant animals under its Bovine Spongiform Encephalopathy (BSE)/Ruminant Feed Ban Rule.⁴²¹ This ban covers all "ruminants," meaning animals that have a stomach with four chambers through which feed passes during digestion, such as cattle, sheep, goats, deer, elk, and antelopes, among others (swine and fowl are not ruminants).⁴²² The regulations apply to any "protein derived from mammalian tissue."⁴²³ The ban specifically lays out the types of products that can and cannot be fed to particular types of ruminants.⁴²⁴

IMPLEMENTATION OPPORTUNITY



To maximize the potential for food scraps diversion to animal feed, Congress should require the USDA to write guidance encouraging states to update their laws around food scrap feeding to animals. This guidance should provide clear recommendations on ways to streamline state-level laws and explain why states should remove any unnecessary restrictions that do not exist within the federal-level animal feed laws. Congress should also create a tax incentive for private businesses to divert food waste to animal feed that is lesser than the enhanced tax deduction for businesses to donate surplus food to food-insecure individuals in order to ensure food goes to its most beneficial use. Congress should implement these changes as part of the Miscellaneous Title or a dedicated Food Waste Reduction Title.



FOOD WASTE REDUCTION COORDINATION

Increase Funding for the USDA Food Loss and Waste Reduction Liaison and Create a Broader Research Mandate

ISSUE OVERVIEW

In the 2018 Farm Bill, Congress formally established a Food Loss and Waste Reduction Liaison (the Liaison) within the USDA.⁴²⁵ The creation of the Liaison is a welcome step towards addressing food loss and waste at the federal level. Establishing a central coordinating position brings harmony to food loss prevention efforts, provides technical assistance across different agencies, and designates an office tasked with leading essential research.

The Liaison coordinates food loss and waste measurement and reduction efforts across all levels of government and with private businesses and nongovernmental organizations.⁴²⁶ The Liaison's duties include: coordinating food waste reduction efforts between the USDA, the EPA, and the FDA; reinforcing and promoting federal programs to measure and reduce food waste; supporting and providing information to organizations engaged in food loss prevention and recovery; raising awareness on the liability protections available to food donors; and recommending innovative ways to recover food and reduce food waste.⁴²⁷

The Liaison's broad research mandate under the 2018 Farm Bill authorizes the Liaison to conduct comprehensive national research that identifies and quantifies sources of food waste.⁴²⁸ The 2018 Farm Bill calls for the Liaison to evaluate and determine different aspects of food waste, such as how waste is measured, what factors contribute to waste, and

what the current cost and volume of food loss is.⁴²⁹ To carry out these duties, the Liaison is authorized to enter into agreements with universities and non-governmental organizations (NGOs).⁴³⁰ Following a study on food waste,⁴³¹ the Liaison is required to produce a report detailing the findings and analyzing the impact of food waste reduction efforts conducted by the USDA.⁴³²

LIMITED RESOURCES

Even though the Liaison was authorized to perform a number of duties in the food loss and waste space, the position lacks adequate funding to carry out those duties. The position was authorized in the 2018 Farm Bill, and received \$400,000 in funding the following year.⁴³³ The Liaison most recently received \$500,000 in appropriations for FY2021,⁴³⁴ however, this funding is insufficient to support more than one full-time position and to engage in the range of tasks Congress envisioned for the Liaison.

Given the scale of the challenge of United States food waste and the range of opportunities, a Food Loss and Waste Office with multiple staff members would be better equipped to address the challenges. This would mean increased funding for additional staff and for internal and external research and pilot projects. This increased funding will enable the Liaison or Office to coordinate initiatives more effectively within government offices and between all levels of government and private institutions.

Increased funding could also be used to create a network for the Liaison to coordinate with regional hubs, as the types of food waste and the barriers to food recovery vary across regions. Congress could model this new regional research component on the National Food Waste Reduction Act of 2021.⁴³⁵ This Act would create a Food Waste Research Program within the Liaison office that establishes a partnership with 5 regional partner institutions.⁴³⁶ In



partnership with the Liaison, these regional partner institutions will plan, conduct, and arrange for public research, data, education, and recommendations pertaining to food waste reduction and food recovery issues, locally, regionally, and nationwide.⁴³⁷

INSUFFICIENT RESEARCH

In addition to its critical role in acting as a point of contact across agencies and between government and private actors, the Liaison could play an important part in increasing federally funded food loss and waste research. Data and research on food waste are critical because they can inform how federal grants should be awarded and provide insight on areas that future policymaking should prioritize. Currently, research focused on supply chain food loss and waste is lacking. Two areas where more research is needed are on farm food loss and waste (estimated 17 million tons of waste per year) and household food loss and waste (estimated 30 million tons of waste per year).⁴³⁸

The USDA Economic Research Service (ERS) has sporadically researched supply chain food loss but does not update this research consistently. In 1997, the ERS conducted a preliminary food loss study and estimated loss at every stage of the supply chain based on available data and expert input from the 1970s.⁴³⁹ Likely due to the fact 2018 Farm Bill does not specify food waste as an ERS research priority and the ERS' prioritization of other research topics, the ERS has not conducted comprehensive follow-up studies or published new reports.⁴⁴⁰

Federally-funded research fails to address several key issues. For example, existing research does not adequately quantify on-farm food waste. Farmers and other food producers often do not measure unsaleable produce since they are not required to publicly report on these losses. Moreover, since it is expensive to visit farms and track the data regularly, studies on food waste either do not engage on-farm food waste or refer to older data. By researching methods to measure farm losses, the federal government could provide the data necessary to identify tailored solutions to on-farm food waste. Further, no government entity consistently researches and reports on supply-chain food loss.

The upcoming farm bill should provide explicit funding for comprehensive food waste research. This funding could be directed toward the Food

Loss and Waste Liaison or Food Loss and Waste Office, potentially in conjunction with ERS. The funding should support comprehensive research on the amount of food wasted with a focus on on-farm food waste and supply chain inefficiencies accounting for the most loss and waste.

IMPLEMENTATION OPPORTUNITY



Congress should increase the funding and authorize a Food Loss and Waste Office. Congress also should dedicate funding for comprehensive national and farm-level food waste research. Congress should implement these changes under the Miscellaneous Title or within a dedicated Food Waste Reduction Title.

Provide Funding for the Federal Interagency Food Loss and Waste Collaboration ★

ISSUE OVERVIEW

Acknowledging the role that the federal government should play in reducing food loss and waste, in 2018 the FDA, the USDA, and the EPA launched an interagency task force now known as the Federal Interagency Food Loss and Waste Collaboration (the Collaboration).⁴⁴¹ The Collaboration committed to working towards the goal of reducing food loss and waste by 50% by 2030.⁴⁴² In support of this goal, in 2019, the Collaboration published a national food waste reduction strategy.⁴⁴³ The strategy identifies six priority areas: enhancing interagency coordination; increasing consumer education; improving guidance on food loss and waste measurement; improving guidance on food safety, date labels, and food donations; collaborating with private industry; and encouraging intra-government food waste reduction.⁴⁴⁴

The Collaboration periodically reports through its website on various projects the Collaboration conducts to reduce food waste.⁴⁴⁵ For example, in line with the first objective to increase interagency coordination, the Collaboration created the Interagency Working Group.⁴⁴⁶ In pursuit of the second objective to increase consumer education,



Prevention



Recovery



Recycling



Coordination

the agencies increased their social media presence, developed informational websites, hosted webinars, and developed other educational materials related to food waste.⁴⁴⁷ In pursuit of the fifth objective to collaborate with private industry, the task force solicited assistance from industry leaders and other stakeholders to combat food waste across the supply chain.⁴⁴⁸

While it has taken successful steps and is a positive development, the Collaboration should be given funding and a mandate to expand its membership and continue to scale its work. Congress should also require the Collaboration to create a national plan to meet the national goal to halve food waste by 2030. As part of this plan, the Collaboration should establish food waste reduction timelines, metrics, and benchmarks to track the government's progress in reaching the national goal. This can also help food businesses chart progress and develop their own plans to support achievement of the national goal.

In addition to enshrining the Collaboration in law, Congress should require a broader set of federal agencies to engage in the Collaboration, as many other agencies play a role in the food system through food safety enforcement, food procurement, and food distribution, and could improve their impact on food waste reduction and food recovery. This could include agencies such as the Department of Defense, the Department of Transportation, the Department of Homeland Security, the Department of Education, and the General Services Administration, among others.

Congress can further require the Collaboration to create an external advisory committee to provide needed input on programming and policy issues. By establishing an advisory committee, the Collaboration will be in a better position to understand existing and future challenges facing food waste, to acquire the latest data regarding food loss and waste, and to stay on top of innovative solutions from leading experts. Participating stakeholders should represent a diverse array of perspectives, from the private sector to farmers to non-profit organizations, including businesses and food recovery organizations of varying sizes.

IMPLEMENTATION OPPORTUNITY



Congress should authorize the existence of the Collaboration by creating an explicit mandate for the Collaboration in the 2023 Farm Bill. In addition, Congress should authorize \$2 million in annual funding for the Collaboration to better position it to meet the United States' 2030 food waste reduction goal.⁴⁴⁹ To ensure this investment is well-spent, Congress should require the Collaboration to deliver regular reports to Congress on its progress towards achieving the national food waste reduction goal. These provisions can be included in the Miscellaneous Title or in a new Food Waste Reduction Title.

Establish New Positions for Regional Supply Chain Coordinators at the USDA ★

Real-time donation coordination has the annual potential to divert 144,000 tons of food waste, recover 239 million meals, reduce 552,000 metric tons of CO₂e, and save 30.8 billion gallons of water, producing a net financial benefit of \$595 million⁴⁵⁰

ISSUE OVERVIEW

The food supply chain in America is extremely vulnerable to shocks. As the COVID-19 pandemic demonstrated, small disruptions in manufacturing can quickly lead to empty shelves and high food prices.⁴⁵¹ These disruptions disproportionately harm low-income individuals who have little room for flexibility in their food budgets.⁴⁵² COVID-19 highlighted the already-present need for changes that make the food supply chain more resilient.

Numerous factors during transit, such as breaks in refrigeration, vibrations from the road, and shipping delays, affect the freshness of food.⁴⁵³ When these supply chain factors change a food product's shelf life, manufacturers and other entities transporting



food between two locations might find that the most affordable and reasonable option for their food product is to donate it. However, a lack of real-time food supply data makes it difficult for manufacturers and drivers to connect their would-be food donations with food recovery organizations.

This logistical gap in the food donation supply chain calls for regional point persons who can connect entities that sporadically have food to donate with food recovery organizations within the given region. In addition to facilitating food donation within regions, regional supply chain coordinators could facilitate more systemic research and planning around addressing recurring regional supply chain problems. The coordinators could connect with stakeholders including producers, distributors, manufacturers, local and state officials, and other agency leaders to address supply chain barriers to food waste reduction. Further, the coordinators could work with food recovery organizations to identify willing recipients for rescued food and connect them with donors. When implementing

their mandate, the coordinators could collaborate with the Rural Development state and regional offices. Having regional coordinators could help with planning during normal times to ensure more resilience and coordination during local, regional, or national disasters.

IMPLEMENTATION OPPORTUNITY



The next farm bill should establish regional supply chain coordinators within the USDA that partner with food producers, distributors, and food recovery organizations and act as regional points of contact to facilitate real-time food recovery as well as understand and develop the capacity needed for ongoing food recovery. Authority and funding for these regional supply chain coordinators should be established within the Miscellaneous Title, or a new Food Waste Reduction Title.



Prevention



Recovery



Recycling



Coordination

APPENDIX A

U.S. FOOD LOSS & WASTE POLICY ACTION PLAN RECOMMENDATIONS AND ADDITIONAL REPORT RECOMMENDATIONS

The U.S. Food Loss & Waste Policy Action Plan for Congress & the Administration, discussed on page 3 of this report, was published in 2021 by the Harvard Law School Food Law & Policy Clinic (FLPC), NRDC (Natural Resources Defense Council), ReFED, World Wildlife Fund (WWF), along with many additional supporters. The Action Plan calls upon Congress and the Biden administration to take ambitious action to achieve the goal of cutting United States food loss and waste in half by 2030. It recommends five key policy recommendations ranging from investing in infrastructure and programs that measure and prevent food waste to requiring a national date labeling standard. This report pulls in several key recommendations from the Action Plan that fall within the legislative purview of the farm bill, and includes additional recommendations that are specific to the farm bill. The recommendations in this report that are also included in the Action Plan are listed below, followed by the additional recommendations outlined in the report.

Policy Recommendations Included in the U.S. Food Loss & Waste Policy Action Plan

1. Standardize and clarify date labels
2. Launch a national food waste education and awareness campaign
3. Strengthen and clarify the Bill Emerson Good Samaritan Food Donation Act
4. Expand federal tax incentives for food donations
5. Provide grants to support proven state and local policies that reduce food waste disposed in landfills or incinerators
6. Provide grants and loans for the development of organic waste processing infrastructure
7. Require federal food procurement contractors to measure, recover, recycle, and prevent organic waste in federal contracts
8. Encourage diversion of food waste into animal feed where appropriate
9. Provide funding for the Federal Interagency Food Loss and Waste Collaboration
10. Establish new positions for regional supply chain coordinators at the USDA

Additional Report Recommendations

1. Provide funding to K-12 schools to incorporate food waste prevention practices in their programs
2. Promote food education and food waste education in K-12 programming
3. Utilize existing federal household-level food education programs to increase food waste awareness
4. Provide grant funding for new technologies to reduce food spoilage and food waste
5. Implement a certification program for businesses that demonstrate food waste reduction
6. Provide financial incentives to businesses for the adoption of technologies that reduce food waste by at least 10%
7. Increase funding support for food recovery infrastructure and for post-harvest food recovery
8. Offer grant resources and procurement programs to increase food recovery from farms
9. Encourage USDA grant and loan recipients to donate surplus food by incentivizing food donation
10. Instruct the USDA Risk Management Agency and approved crop insurance providers to better support gleaning
11. Support compost end markets through crop insurance benefits and increased federal procurement of compost products
12. Increase funding for the USDA Food Loss and Waste Reduction Liaison and create a broader research mandate



APPENDIX B

TABLE OF RECOMMENDATIONS AND IMPLEMENTATION OPPORTUNITIES BY TITLE

Commodity Programs Title	<p>Instruct the USDA RMA to initiate an expanded education and awareness program by developing more guidance materials and utilizing semi-annual reminders for NAP</p>
<p>Nutrition Title</p>	<p>Provide dedicated grants for schools to conduct food waste audits and implement waste reduction programming</p> <p>Mandate Offer-Versus-Serve (OVS) policies to be implemented across all schools for both NSLP and SBP</p> <p>Modify existing school grant program selection processes to preference applicants that have a food waste reduction or food donation program</p> <p>Reauthorize and modify the FASLP program’s authorizing language to direct USDA to award extra points on grant applications to schools that include food waste reduction education as a focus in their program</p> <p>Reauthorize and increase funding for the Farm to School grant program</p> <p>Add language about food waste education in the program goals of the SNAP Education (SNAP-Ed) program</p> <p>Establish a new block grant to states that funds food recovery and distribution infrastructure</p> <p>Support post-harvest food recovery by increasing funding for the Community Food Projects (CFP) grant program and earmarking a portion of funding for food recovery projects</p> <p>Reauthorize and expand the TEFAP Farm to Food Bank Project and reduce or remove the state match requirement</p> <p>Designate funding for a tailored surplus food purchase and donation program modeled from the Farmers to Families Food Box Program with upgrades to address equity and ensure the program is reducing rather than furthering food waste</p> <p>Direct the USDA to prioritize, across a range of grant programs, applicants that have a food donation contract in place with a food recovery organization</p>
<p>Research, Extension and Related Matters Title</p>	<p>Renew support for the Expanded Food and Nutrition Education Program (EFNEP) and modify the authorizing language to include food waste prevention education</p> <p>Increase funding for the Specialty Crop Research Initiative (SCRI) and direct USDA to preference projects that target food waste reduction</p> <p>Create a new program (similar to SCRI) that supports new technologies to extend the shelf life of dairy, meat, poultry, and fish and the development and manufacturing of upcycled food products</p>
<p>Horticulture Title</p>	<p>Increase funding for the Local Agricultural Marketing Program (LAMP) and remove or reduce the matching requirement</p> <p>Extend Value-Added Producer Grant (VAPG) funding to non-profits, and earmark a portion of funding for food waste reduction and food recovery</p> <p>Direct the USDA to prioritize grant applicants that have a food donation contract with a food recovery organization across a range of farm bill grant programs such as LAMP</p>



Prevention



Recovery



Recycling



Coordination

<p>Crop Insurance Title</p>	<p>Instruct the USDA RMA to initiate an education and awareness program on the benefits and protections for gleanings, by developing more guidance materials and utilizing semi-annual reminders for FCIP</p> <p>Create a crop insurance premium incentive program that offers farmers a per acre bonus for applying compost products to their fields before planting</p> <p>Increase federal procurement of compost products containing recycled organic waste materials by requiring federal agencies to prioritize purchasing of compost made from recycled organic waste materials when purchasing landscaping services</p>
<p>Miscellaneous Title/Food Waste Reduction Title</p>	<p>Launch a national food waste education and awareness campaign</p> <p>Implement a food waste reduction certification program to encourage businesses to prevent or otherwise reduce food waste</p> <p>Strengthen and clarify the Bill Emerson Good Samaritan Food Donation Act and require USDA to publish regulations better explaining its provisions</p> <p>Provide grants to state and local governments to encourage the implementation of proven or promising food waste reduction policies such as organic waste bans, mandatory recycling laws, landfill taxes, PAYT laws, and other policy measures</p> <p>Reauthorize and amend the Community Compost and Food Waste Reduction (CCFWR) program to increase the total and per-project funding available, reduce or eliminate the matching requirement, and expand the list of eligible entities who may apply for grant funding to also include state governments and non-governmental organizations and community groups that work with partners in rural locations across regions</p> <p>Increase funding for the Solid Waste Management Grant (SWMG) and the Water and Waste Disposal Loans and Grant program and continue to prioritize projects in which the implementing agencies prioritize food waste reduction</p> <p>Authorize funding to support new compost and anaerobic digestion infrastructure, and support large-scale transportation needs for compost and anaerobic digestion</p> <p>Modify the Federal Food Donation Act of 2008 to require all federal agencies that enter food procurement contracts to require their contractors to donate any surplus food and to compost any inedible food scraps, and require such contractors to measure and report food donation and food waste that result from the contract, and require agencies to report this data to a central federal government authority</p> <p>Require the USDA to write guidance encouraging states to update their laws around food scrap feeding to animals</p> <p>Increase funding for the Food Loss and Waste Liaison and authorize creation of a Food Loss and Waste Office</p> <p>Provide funding for comprehensive national and farm-level food waste research</p> <p>Provide a mandate for the Federal Food Loss and Waste Collaboration and authorize \$2 million in annual funding for the Collaboration to better position it to meet the United States' 2030 food waste reduction goal</p> <p>Establish regional supply chain coordinators within the USDA that partner with food producers, distributors, and food recovery organizations and act as regional points of contact to facilitate real-time food recovery as well as understand and develop the capacity needed for ongoing food recovery</p>
<p>Tax and Trade Provisions Title (If reestablished from the 2008 Farm Bill)</p>	<p>Create a federal tax incentive for the commercial adoption of post-harvest food waste reduction technologies that reduce food waste by at least 10%</p> <p>Create an alternative food donation tax credit that farmers can opt to claim instead of the enhanced tax deduction for food donation</p> <p>Amend the enhanced tax deduction for food donation to offset the costs of transportation and storage</p> <p>Amend the enhanced tax deduction for food donation to incentivize innovative food recovery models by removing the requirement that non-profit organizations provide donated food for free</p> <p>Create a tax incentive for private businesses to divert food waste to animal feed that is lesser than the enhanced tax deduction for businesses to donate surplus food to food insecure individuals</p>



APPENDIX C

TABLE OF PENDING FEDERAL LEGISLATION

Report Section	Report Recommendation	Bill Name	Bill Number	Date Introduced	Cosponsors	Summary
Food Waste Prevention	Standardize and Clarify Date Labels	Food Date Labeling Act of 2021	H.R. 6167, S.3324 117 th Congress	12/7/2021	House: Rep. Pingree, Rep. Newhouse, Rep. Blumenauer, Rep. Lieu, Rep. Kuster, Rep. McGovern Senate: Sen. Blumenthal	To establish requirements for quality and discard dates that are, at the option of food labelers, included in food packaging, and for other purposes.
	Provide Funding to K-12 Schools to Incorporate Food Waste Prevention Practices in Their Programs	School Food Recovery Act of 2021	H.R. 5459, 117 th Congress	9/30/2021	Rep. Pingree, Rep. Newhouse, Rep. Bonamici, Rep. Hayes, Rep. McGovern, Rep. Case, Rep. Schrier, Rep. Bishop, Rep. Carbajal, Rep. Ruiz	To amend the Richard B. Russell National School Lunch Act to require the Secretary of Agriculture to carry out a grant program to make grants to eligible local educational agencies to carry out food waste reduction programs, and for other purposes.
Surplus Food Recovery	Expand Federal Tax Incentives	Further Incentivizing Nutritious Donations of Food Act or FIND Food Act of 2022	H.R. 7317, 117 th Congress	3/31/2022	Rep. Brown, Rep. Pingree, Rep. Keller, Rep. Balderson	To amend the Internal Revenue Code of 1986 to incentivize food donation through tax credits and deductions, and for other purposes.
	Strengthen and Clarify the Bill Emerson Good Samaritan Food Donation Act	Food Donation Improvement Act of 2021	H.R. 6251, S.3281, 117 th Congress	12/13/2021, 11/30/2021	House: Rep. McGovern, Rep. Newhouse, Rep. Pingree, Rep. Walorski, Rep. Keller, Rep. Reschenthaler, Rep. Wild, Rep. Brown, Rep. Hayes Senate: Sen. Blumenthal, Sen. Toomey, Sen. Braun	To amend the Bill Emerson Good Samaritan Food Donation Act to clarify and expand food donation, and for other purposes.
	Offer Grant Resources and Procurement Programs to Increase Food Recovery from Farms	Fresh Produce Procurement Reform Act of 2021	H.R. 5309, 117 th Congress	9/21/2021	Rep. DeLauro, Rep. McGovern, Rep. Bishop, Rep. Valadao, Rep. Adams, Rep. Evans	To direct the Secretary of Agriculture to enter into contracts to provide individuals dealing with food and nutrition insecurity family-friendly fresh produce, and for other purposes.



Prevention



Recovery



Recycling



Coordination

Food Waste Recycling	Provide Grants and Loans for the Development of Organic Waste Processing Infrastructure	Cultivating Organic Matter through the Promotion of Sustainable Techniques or COMPOST Act of 2021	H.R. 4443, S.2388, 117 th Congress	7/16/2021, 7/20/2021	<p>House: Rep. Brownley, Rep. Pingree, Rep. Kuster, Del. Norton, Rep. Cicilline, Rep. Bonamici, Rep. Cleaver, Rep. Levin, Rep. Blumenauer, Rep. Hayes, Rep. Raskin, Rep. Spanberger, Rep. Krishnamoorthi, Rep. Newman, Rep. Neguse, Rep. Houlihan, Rep. Courtney, Rep. Jayapal, Rep. Payne</p> <p>Senate: Sen. Booker, Sen. Smith</p>	To require the designation of composting as a conservation practice and activity, and to provide grants and loan guarantees for composting facilities and programs, and for other purposes.
	Provide Grants to Support Proven State and Local Policies that Reduce Food Waste Disposed in Landfills or Incinerators	Zero Food Waste Act of 2021	H.R. 4444, S.2389, 117 th Congress	7/16/2021, 7/20/2021	<p>House: Rep. Brownley, Rep. Pingree, Rep. Kuster, Del. Norton, Rep. Cleaver, Rep. Levin, Rep. Pocan, Rep. Blumenauer, Rep. Hayes, Rep. Raskin, Rep. Payne</p> <p>Senate: Sen. Booker, Sen. Smith</p>	To provide grants to reduce the amount of food waste, and for other purposes.
Food Waste Reduction Coordination	Increase Funding for the USDA Food Loss and Waste Reduction Liaison and Create a Broader Research Mandate	National Food Waste Reduction Act of 2021	H.R. 3652, 117 th Congress	6/1/2021	Rep. Axne, Rep. Pingree	To direct the Secretary of Agriculture to establish a food waste research and technical assistance program and grant program, and for other purposes.



ENDNOTES

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- 4 *New Data from ReFED Reveals Amount of Food Waste Has Leveled Off after Increasing 11.9% Since 2010*, ReFED (Feb. 2, 2021), <https://ReFED.com/articles/new-data-from-ReFED-reveals-amount-of-food-waste-has-leveled-off-after-increasing-11-9-since-2010/> [<https://perma.cc/42Y9-NAMJ>].
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Prevention



Recovery



Recycling



Coordination

DQF3].

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112 Schools can work with students to improve school meals. Students complain that school meals are unpalatable, and while there are limitations on what changes can be made to the offered school meals, receiving input from students may help providers better cater to students’ preferences. This can help provide schools with lunches that will get eaten rather than go to waste. One way to do this is through School Lunch Advisory Councils (SLACs). A few schools, including Park High School in Livingston, MT, and public schools in Brockton, MA, already implemented SLACs and may serve as models. Initiatives by the SLAC at Park High School led to a 35% decrease in overall lunch waste. See Stacy Blondin et al., *‘It’s just so much waste.’ A Qualitative Investigation of Food Waste in a Universal Free School Breakfast Program*, 18(9) PUB. HEALTH NUTRITION 1565 (2014); Alicia White, *Students Get Involved in School Lunch through School Lunch Advisory Councils*, USDA (Feb. 21, 2017), <https://www.usda.gov/media/blog/2016/09/22/students-get-involved-school-lunch-through-school-lunch-advisory-councils> [<https://perma.cc/M3EX-QFDD>]; *Youth Advisory Committees*, BROCKTON PUB. SCH., <https://www.bpsma.org/schools/school-lunch-program/youth-advisory-committees> (last visited Oct. 12, 2021) [<https://perma.cc/9DM7-GA7B>].

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Prevention



Recovery



Recycling



Coordination

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Prevention



Recovery



Recycling



Coordination

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300 *Id.*

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Prevention



Recovery



Recycling



Coordination

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CTR., <https://www.fedcenter.gov/members/workgroups/sustainableacquisition/priorityproducts/> (last visited Jan. 18, 2022) [https://perma.cc/EM3W-LZ38]. Under the EPA's Comprehensive Procurement Guideline (CPG) Program—this is part of its Sustainable Materials Management initiative that promotes a system approach to reducing materials use, associated greenhouse gas emissions that contribute to climate change, and the other environmental impacts over the materials' entire lifecycle—the EPA designates products that are or can be made with recovered materials, and recommends practices for buying these products. *See Sustainable Materials Management: Comprehensive Procurement Guideline (CPG) Program*, EPA <https://www.epa.gov/smm/>



Prevention



Recovery



Recycling



Coordination

comprehensive-procurement-guideline-cpg-program (last visited Mar. 15, 2022) [<https://perma.cc/5MQA-7PF9>]. One such product under this program includes Compost Made From Recovered Organic Materials, which include but are not limited to yard waste, food waste, manure, and biosolids. *Id.*; see also *Sustainable Materials Management: Comprehensive Procurement Guidelines for Landscaping Products - Compost Made From Recovered Organic Materials*, EPA, <https://www.epa.gov/smm/comprehensive-procurement-guidelines-landscaping-products#compost> [<https://perma.cc/D4P3-AMG5>]. Under this program, procuring agencies of Compost Made From Recovered Organic Materials are required to purchase it with the highest recovered material content level practicable. *Sustainable Materials Management: Comprehensive Procurement Guidelines for Landscaping Products - Compost Made From Recovered Organic Materials*, EPA, <https://www.epa.gov/smm/comprehensive-procurement-guidelines-landscaping-products#compost> [<https://perma.cc/D4P3-AMG5>].

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411 *Feedback Earth: Transforming discarded food into high-quality animal feed.*, FEEDBACK EARTH, <https://www.feedback.earth/> (last visited Mar. 11, 2022) [<https://perma.cc/U6GB-FRGZ>]; see Lisa Redmond, *Feedback Earth seeks to expand tonnage of food waste turned into animal feed*, GRAFTON NEWS (May 23, 2021), <https://www.thegrafftonnews.com/story/news/local/2021/05/23/feedback-earth-animal-feed-human-food-waste-creeper-hill-road/5232449001/> [<https://perma.cc/Z6W7-T7E9>].

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418 21 U.S.C. § 2201 et seq.

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423 21 C.F.R. § 589.2000 (2016).

424 21 C.F.R. § 589.2000 (2016).

425 Agriculture Improvement Act, *supra* note 26 at § 6924.

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432 *Id.* at § 6924(e).

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- ⁴⁴¹ *Formal Agreement Among EPA, FDA, and USDA, supra note 30.*
- ⁴⁴² *Winning on Reducing Food Waste, supra note 30.*
- ⁴⁴³ *Id.*
- ⁴⁴⁴ *Id.*
- ⁴⁴⁵ *Federal Interagency Food Loss and Waste Collaboration, supra note 41.*
- ⁴⁴⁶ *Id.*
- ⁴⁴⁷ *Id.*
- ⁴⁴⁸ See, e.g., EPA ET AL., *Memorandum of Understanding Among The United States Environmental Protection Agency and The United States Food and Drug Administration and the United States Department of Agriculture and The Founding Partners of the Food Waste Reduction Alliance Relative to a Federal Government and Nongovernmental Organization Formal Collaboration on Industry Education and Engagement with Respect to the Importance of Food Waste Reduction* (Oct. 25, 2019), https://www.epa.gov/sites/production/files/2019-10/documents/signed_food_waste_mou.pdf [<https://perma.cc/VA4S-PZGP>].
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- ⁴⁵⁰ *ReFED Insights Engine Solutions Database: Donation Coordination & Matching*, REFED, <https://insights-engine.refed.org/solution-database/donation-coordination-matching> (last visited Feb. 23, 2022) [<https://perma.cc/6BDP-RMGH>].
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Prevention



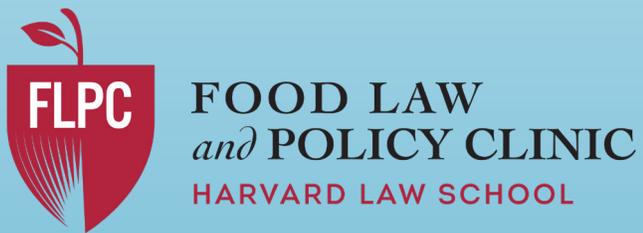
Recovery



Recycling



Coordination



ReFED