

Executive Summary

Michigan Food Waste Roadmap: A Plan to Reduce Food Loss and Waste in Michigan by 50 Percent

March 2024

Project Team

Michigan Sustainable Business Forum is a nonprofit organization that promotes business practices that advance climate leadership, social justice and the creation of a circular economy. We are Michigan's leading organization for sustainability practitioners, serving its most recognizable brands, largest employers and most innovative entrepreneurs, advocates, educators, and the public sector. Through our campaigns and advocacy, we serve partners and diverse stakeholders as a boundary organization committed to the development of sustainability practices, policies and partnerships.

Make Food Not Waste is a Detroit-based nonprofit dedicated to eliminating food waste in order to promote climate health. The organization has grown significantly since its founding in 2017 by focusing on developing strong community partnerships and filling critical gaps in the local food system. Its key programs include: the Upcycling Kitchens where chefs process edible, nutritious food that would otherwise be wasted; The PLEDGE on Food Waste™, a training and certification program for foodservice operations; and education and advising for households, government agencies, and food-related businesses.

Center for EcoTechnology is an innovative non-profit organization that offers practical solutions to tackle climate change and build a just and equitable transition to the low-carbon economy. They envision a world that has embraced and advanced just and resilient climate solutions. For nearly 50 years, CET's work has encouraged a better community, economy, and environment by implementing and scaling the environmental solutions that communities need to thrive. CET believes that better managing wasted food is critical in order to address climate change, feed more hungry people, and grow our economy.

Authors

Daniel Schoonmaker, Michigan Sustainable Business Forum

Rose Spickler, Michigan Sustainable Business Forum

Danielle Todd, Make Food Not Waste

Contributing Authors

Steven Bandarra, Center for EcoTechnology

Carissa Patrone Maikuri, CMPM Consulting LLC

Recommended Citation:

Schoonmaker, D., Spickler, R., & Todd, D. (2024). Michigan Food Waste Roadmap. Michigan Sustainable Business Forum. mifoodwasteroadmap.org.

The Michigan Food Waste Reduction Road Map is funded in part by the Michigan Department of Environment, Great Lakes and Energy through the Community Pollution Prevention Fund Grant Program, with additional support from the Natural Resources Defense Council, the RE-AMP Network, and MiSBF members.

Executive Summary

Michigan disposes of 1.5 to 2 million tons of food waste¹ through its municipal and commercial waste stream each year, the single largest source of material disposed of in the state’s landfills and waste-to-energy facilities. Food waste is responsible for an estimated 11.1 million metric tons of carbon dioxide equivalent emissions (MmtCO₂e) and \$11.9 billion in lost revenue in the state.² Nationally, it is estimated that as much as 30 to 40 percent of food purchased is wasted.³ Project Drawdown has highlighted food waste as one of the most impactful solutions to address climate change.⁴

There is enormous economic and environmental value lost to waste within local and regional food systems in Michigan that could be retained with efforts to promote less-wasteful, money-saving practices among farms, manufacturers, retailers, foodservice and other business and institutional stakeholders in the food system, and to retain value through reuse options, donation strategies or secondary markets.

Food loss and food waste present a unique intersectional opportunity to advance climate solutions, improve sustainable materials management, and promote social and environmental justice in Michigan communities. With federal Inflation Reduction Act funding and MI Healthy Climate Plan leadership seeding climate planning and associated actions throughout the state, and the new Part 115 planning process mandating and funding parallel efforts to improve local and regional materials management across Michigan, there is an unprecedented opportunity for communities to advance food waste reduction.

With intentional investments in waste prevention strategies, the rescue and recovery of surplus food, and organics recycling, Michigan will take substantial steps toward its climate and circular economy goals, reducing total emissions by upwards of 5 million metric tons of CO₂e (MmtCO₂e) each year and increasing the recycling rate, while creating an additional 4 billion meals.⁵

The Michigan Wasted Food Reduction Goal is a combination of prevention, rescue and recycling:



Project Purpose

The Michigan Food System Waste Reduction Roadmap Initiative was a stakeholder-driven process to create a strategy for the state to reduce waste and loss in the Michigan food system. A partnership between Michigan Sustainable Business Forum, Make Food Not Waste, Michigan Department of Environment, Great Lakes and Energy (EGLE), and other state and national organizations, the initiative set out to create a plan for the state to reduce food loss and waste by half by 2030, the goal recommended in the MI Healthy Climate Plan.

The Roadmap identifies barriers to the implementation of the 50 percent reduction goal and highlights potential solutions and opportunities. This document outlines a pollution prevention strategy to complement the end-of-life investments the state is making through the Renew Michigan Fund and its sustainable materials management programs. Recommendations will guide state and local policy makers on potential incentives, funding mechanisms, technical assistance, outreach, policy changes and other programs that could be developed to reduce food waste among businesses and institutions in the farming, food manufacturing, foodservice and grocery retail sectors. Further, it attempts to create a shared language for Michigan businesses, institutions and other stakeholders working to reduce food waste and loss in the state.

Although end-of-life strategies and organics recycling is briefly discussed, the Roadmap is heavily weighted on pollution prevention, highlighting approaches for waste prevention and the rescue or recovery of surplus food, commonly referred to as food loss and waste reduction.

The full report can be accessed at mifoodwasteroadmap.org.

Summary of Work

Michigan Sustainable Business Forum was the lead applicant to a Community Pollution Prevention Grant request for proposals issued by EGLE in 2022, alongside Make Food Not Waste, Center for EcoTechnology and other funders. The original RFP requested an analysis of waste reduction opportunities for farmers, food manufacturers and grocery retailers in Michigan, as those were the sectors deemed the best opportunities for support from existing or hypothetical programs available through the Sustainability Section of the EGLE Materials Management Division, which was championing the issue.

The Roadmap expanded this scope to include foodservice and a limited review of residential and consumer food waste, better aligning our efforts with that of the global and national programs that had inspired EGLE's interest. The project team began its work in late 2022 with the following objectives:

- Create a baseline document of farmers, food manufacturers, grocery retailers and foodservice in Michigan, identifying organizations that have implemented food waste reduction strategies, and evaluating those strategies.
- Identify barriers and analyze the effectiveness of current policies, programs, and outreach, targeting food farmers, manufacturers, grocery retailers and foodservice to adopt food waste reduction strategies.
- Document findings and write a Roadmap for supporting proposed food waste reduction outreach and incentive programs for farmers, food manufacturers and grocery retailers.
- Analyze and make recommendations on potential collaboration among and between federal, state, and local agencies to increase adoption of food waste reduction strategies.
- Host multiple stakeholder engagements to identify barriers to adoption and solicit feedback for recommendations.
- Hold discussions with relevant stakeholders and incorporate comments into the Roadmap.
- Inform constituents and discuss next steps.

In 2023, the project team and a coalition of public and private sector stakeholders met a total of 12 times to develop a work plan and review recommendations and other work products to meet the above objectives, this included:

- A series of brainstorming sessions with the advisory council.
- Recruited stakeholder representatives to participate in the project through interviews, meetings, reviews and contribution of data and resources.
- Primary research in the form of stakeholder interviews and focus groups with more than 100 business and community leaders representing diverse industries, roles and disciplines in the Michigan and Great Lakes food system, as well as national experts.
- Secondary research to inventory current state of the art for food waste and loss reduction in the target industries, and the key programs working to address issues.
- Review of current policies and programs relevant to food waste and loss reduction in Michigan.
- Review of current policies and programs from neighboring states in the Great Lakes and elsewhere in the country to establish benchmarks for best practices, common barriers and case studies for the target industries.
- Hosted a series of meetings with stakeholders to develop recommendations and hear testimony from expert witnesses.
- Drafted interim recommendations to inform fiscal year 2024 P2 grant RFP.
- Drafted this Roadmap report for stakeholder review and publication.

Summary of Findings

Michigan must act with a sense of urgency to leverage opportunities created by federal funding to address climate change and the state's new materials management planning mandates. Decisions are being made at this time which could impact its ability to fully invest in food loss and waste reduction, which is paramount to a robust emissions reduction strategy.

With federal Inflation Reduction Act funding and MI Healthy Climate Plan leadership seeding climate planning and associated actions throughout the state, and the new Part 115 planning process mandating and funding parallel efforts to improve local and regional materials management across the state, there is an unprecedented opportunity for communities to advance food loss and waste reduction.

Opportunities created by IRA funding will occur during the next 12 to 24 months. Decisions related to climate action grants are happening now. Michigan food businesses are also investing heavily in sustainability initiatives in response to investor pressure and consumer demand, especially climate solutions and circularity. Michigan should be prepared to support those efforts.

Further, Michigan has an opportunity to take a leadership role in food loss and waste reduction among Great Lakes states.

Food waste will not be addressed strictly through environmental regulation or sustainable business practices, but a broad coalition of interests, disciplines, scales, and public and private-sector partners.

Although this report is prepared for EGLE and its sister agencies in state and federal government, it is a call to action for all of Michigan's local governments, businesses and their non-profit partners. The food system is diverse and complicated, and addressing its inefficiencies and opportunities will require participation

and leadership at all levels of government, and across many different industries, including consumers themselves. As the co-benefits of food loss and waste reduction include improved business performance, lower costs of living, improved food security, and community empowerment, in addition to conspicuous environmental benefits, there is ample incentive for such a coalition to emerge if adequately resourced and incentivized.

This is already occurring at a limited scale, with food businesses and non-profit organizations already making investments to improve their practices with the resources available.

There is a strong business case for food waste prevention, and the private sector will invest in recommended solutions if given adequate technical support, resources, an encouraging and supportive regulatory environment, and as necessary, capital for investment.

There are competing drivers in the food system, with market expectations and consumer preferences encouraging decisions that create surplus and waste. Food loss is also insidious; businesses do not generally know how much value they are losing to inefficient practices, nor are low-margin operations prepared to make extraordinary investments to divert surplus product to the charitable food system.

However, food waste prevention, or food loss and waste reduction (FLWR), has been proven to lower costs and increase profitability in most sectors, with prominent examples of Michigan companies earning substantial savings through relatively accessible strategies.

If environmental sustainability and food security are not adequate motivation in the face of contradictory influences, a return on investment can be demonstrated through incentives that lower upfront costs or remove practical barriers.

Reducing food loss is an economic opportunity for Michigan's farms and food manufacturers.

Approximately a billion dollars of economic value is lost each year to Michigan's farms and food

manufacturers as unharvested food, shrinkage, or other inefficiencies in the supply chain. Farms are burdened with unpredictable market conditions, increasingly common extreme weather events, demanding quality expectations, and shortages in processing capacity, storage, or labor. Food processors and manufacturers are missing opportunities to optimize production or create new revenue streams.

Michigan can make farms more productive and profitable by investing in food loss and waste reduction, protecting its agricultural heritage while improving environmental outcomes: Development of imperfect and surplus produce channels, optimized market data and technology, and infrastructure for processing and storage.

Through its food manufacturers, Michigan could further position itself as a national leader on climate by championing food loss and waste prevention through industry innovation. Its long history of manufacturing excellence, research ecosystem, and industry clusters can support advancements in process efficiency, byproduct utilization (upcycling), packaging design and acceleration of entrepreneurial ideas.

Education, engagement and tools that promote behavior change will benefit food waste prevention across the supply chain, but especially for consumer-facing businesses.

A majority of food loss and waste happens in homes and consumer-facing businesses such as grocery stores, restaurants, and other businesses that sell and serve food. These operations need tools to improve their understanding of food waste causes and create more efficient processes. Management, workers, and especially consumers will benefit from education and engagement that is clear, consistent and accessible, in addition to improved food waste measurement.

Food rescue is one of Michigan's most successful strategies for addressing food loss and waste, despite considerable operational barriers, an environmental success story that benefits efforts to address hunger and

promote justice. To keep pace with the 50% reduction goal, the amount of donated food in the charitable food system must double, while not distracting from efforts to address root causes of food insecurity.

The charitable food system, also known as the “emergency food” or hunger-relief sector, serves an important role. The food banks and agencies that ensure Michigan residents have access to essential nutrition need food sources, and rescue of surplus food (or upcycling of food byproducts) is a meaningful supply source.

It is arguably Michigan's most successful means of preventing food loss and waste, with a long history of diversion. In fact, substantially more surplus food is managed through Michigan charities than through its commercial compost facilities.⁷

Arithmetic suggests that the 4.38 billion meals that ReFED estimates are wasted in Michigan each year would be enough to feed the 1.3 million people that face food insecurity in the state, according to the Michigan Food Security Council. With recent increases in grocery prices, the charitable food system has an increased demand for donated surplus food.

If Michigan were to divert just five percent of its food waste to the 4,653 hunger-relief agencies and programs served by its food banks, it would overwhelm its current distribution network, more than doubling the amount of food by pound that was distributed during the most recent year for which data is available. For rescue strategies to have a meaningful impact, capacity to receive and distribute donated food must double or triple over the next decade.

Michigan must continue to invest in development of end-of-life strategies for organics material, especially food waste.

Current efforts to increase the processing of food waste are insufficient to meet the food waste reduction goal outlined in this report, as the infrastructure does not currently exist to divert this material from landfill.

Food Loss – 32%

In the U.S., around 32 percent of food loss and waste occurs toward the beginning of the supply chain from farms and manufacturing.⁸ Food is lost during agricultural processes and harvest, packaging, storage, and transit. Many stakeholders in the food system have identified limitations in storage and infrastructure as major barriers to saving food. A lack of marketing and connectedness to key partners can also contribute to food loss.



harvest left in the field
(imperfect foods)



or



processing or
packaging issues



extreme weather events and
climate impacts



or



lack of proper storage can
lead to spoilage



or



(market costs of labor
or to harvest produce)



or



transportation, and in
particular imported fruits
and vegetables



supply chain considerations



or



lack of marketing and key
connections across the food
system can also contribute
to food loss

Food Waste – 68%

The majority of food loss and waste happens in homes and consumer-facing businesses such as grocery stores, restaurants, and other businesses that sell and serve food. According to ReFED, 68 percent of food loss and waste occurs toward the end of the supply chain from consumer-facing businesses (including retail, restaurants, and foodservice) and homes.



Grocery stores and retailers



or



measurement tools and lack of
data and projection tools (retail)



unused animal parts/ lack of
market for specific animal
products (bones, feet, tongue,
etc.) (processing)



or



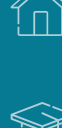
restaurants contribute to a large
percentage of food waste



or



changing consumer
tastes and trends
(households, grocery
stores, and restaurants)



or



households contribute the most out
of any sector to food waste

lack of education on where food waste
can go instead of being landfilled



Summary of Recommendations

To achieve the level of investment necessary to reach the Michigan Wasted Food Goal, supportive state policies are critical. The Roadmap team reviewed recommendations through a series of stakeholder meetings during the summer and fall of 2023.

Priority Recommended Actions: Grants, Technical Assistance and Programs

- Grant support to develop capacity for community and industry engagement, and to conduct educational campaigns on the prevalence of food waste in Michigan and opportunities to reduce emissions, lower household or business expenses, save money, address food insecurity and other outcomes through adoption of prevention strategies or donation of surplus food, including but not limited to date label interpretation and donation liability protections.
- Grant support for temperature-controlled food distribution and storage infrastructure, food storage equipment and transportation to facilitate donation, and pilot projects for rescue, upcycling, clarification of date labels, and/or access to new secondary markets.
- Grant support and technical assistance to develop a consistent and regular data collection and characterization process for surplus food supplies and food scraps within industry sectors and local communities, and/or promotion of standardized metrics for food waste, in order to measure and manage food loss and waste hot spots.
- Grant support and/or technical assistance to develop local or regional action plans that incorporate food loss waste reduction into climate action plans, or to develop pilot projects to advance existing FLWR goals in local climate action plans.
- Underwrite cost of wasted food technology solutions and associated tools for small to medium-sized food businesses in Michigan.
- Designate the Community Pollution Prevention Fund Grant for food loss and waste reduction exclusively, and increase the grant allocation and size of grants.

- Expand the Michigan Materials Marketplace to include surplus food solutions and technical support to food businesses seeking solutions.
- Support the continuation of the Michigan Food Waste Roadmap initiative through sponsorship of a Michigan Wasted Food Network.
- Create an EGLE or State of Michigan staff position to support food loss and waste prevention.

Priority Recommended Actions: Agency Leadership and Collaboration

- Create a multi-agency task force or council within the State of Michigan to support industry improvements and ensure funding opportunities are leveraged for improvements in wasted food prevention.
- Publish and regularly update an inventory of grant programs that could be leveraged for food loss and waste infrastructure investments across state and federal agencies, including the expansion of processing capacity, temperature-controlled storage, or site-specific equipment and technology upgrades.
- Through executive order, affirm support for the 50% food reduction goal.
- Execute an aggressive, multi-agency effort to educate businesses and the general public on liability protections and food safety for food donations and share tables: Require training for health inspectors on liability protection. Require county health departments to include information on food donation on their web sites and as leave-behind materials during inspections and educational events. Require local health departments to publish clear guidance on share tables.

Priority Recommended Actions: Legislation

- Create a funding mechanism for infrastructure investments that advance wasted food prevention.
- Establish guidelines explicitly allowing the donation or freezing of food after a quality-based date. Amend Michigan law and/or its interpretation to differentiate between quality and safety labels, and provide further clarity and standardization on required labels.
- Amend law to explicitly provide permission to donate after the quality-based date, and potentially, provide reasonable liability protections for doing so. Clarify law (e.g.: Food Safety Modernization Act) to indicate what foods can and can not be donated, and to execute recommendations in the section above that are not permissible by current law.
- Establish a Michigan tax credit for donation of surplus food and associated costs. Ensure that this is structured as a tax credit (versus a deduction) with no more than a reasonable limit, and that it is based on fair market value. Offer additional tax credits for transportation and processing costs.
- Evaluate potential for a ban on the disposal of surplus food and food scraps in municipal and industrial solid waste through a phased approach, preceded by several years of investments in education and infrastructure, as is now underway in other states.

Aggregated Recommended Actions

Community Engagement and Collaboration

- Provide grant support to develop capacity for community and industry engagement, and to conduct educational campaigns on the prevalence of food waste in Michigan and opportunities to reduce emissions, lower household or business expenses, save money, address food insecurity and other outcomes through adoption of prevention strategies or donation of surplus food, including but not limited to date label interpretation and donation liability protections.
- Designate the Community Pollution Prevention Fund Grant for Food Loss and Waste Reduction exclusively, and increase the grant allocation and size of grants.
- Provide grant support and/or technical assistance to develop local or regional action plans that incorporate food loss waste reduction into climate action plans or to develop pilot projects to advance existing FLWR goals in local climate action plans.
- Technical support and administrative guidance for the inclusion of FLWR in CPRG grants and in Part 115 sustainable materials management plans.
- Deploy existing EGLE educational and outreach campaigns in support of FLWR.
- Support the continuation of the Michigan Food Waste Roadmap initiative through sponsorship of a Michigan Wasted Food Network.
- Create an EGLE or SOM staff position to support food loss and waste prevention.
- Ensure clear and consistent information is available for all stakeholders.
- Host a statewide or Great Lakes regional summit on food waste in 2024.
- Elevate and celebrate success stories.
- Fund U.S. Food Waste Compact pilot projects for Michigan businesses.
- Educate legislators on the need to invest in food loss and waste reduction.
- Create a multi-agency task force or council within the State of Michigan to support industry improvements and ensure funding opportunities are leveraged for improvements in food waste diversion.
- Coordinate efforts with federal and local agencies to ensure flow of knowledge and data, access to funding, collaboration for shared capacity initiatives, and to support champions in local government and partner agencies. Provide support for agencies to collaborate with county health departments, action agencies, food policy councils, colleges and universities, and municipalities on educational programs.
- Through executive order, affirm support for the 50% food waste reduction goal.
- Charter a “Michigan Food Waste Council” with representative appointments.
- Appoint food waste champions to relevant Michigan councils and commissions.
- Update the Michigan Green Communities Challenge to include FLWR.
- Require all State of Michigan sustainable business programs to cross-promote FLWR.
- Through grants and/or technical assistance, promote “zero-waste cafeterias” in K-12 schools.

Prevention: Technology and Infrastructure

- Create a grant program to underwrite the cost of wasted food technology applications and associated appliances for food businesses in Michigan.
- Commission an assessment of regional and/or industry capacity gaps for climate or temperature-controlled storage, and pending analysis, dedicate a grant program to fund initiatives that explicitly focus on temperature-controlled food distribution and storage infrastructure.
- Clarify to planning agencies whether FLWR qualifies for Part 115 sustainable materials management grants.

- Provide financial support for infrastructure investments for food storage equipment and transportation, and pilot projects. Provide seed funding for national programs.
- Execute an educational and engagement campaign to make food businesses aware of the potential for technology applications and infrastructure improvements to reduce loss and waste, and to maximize profits.
- Increase participation of food loss and waste projects in NextCycle Michigan.
- Publish and regularly update an inventory of grant programs that could be leveraged for food loss and waste infrastructure investments across state and federal agencies, including the expansion of processing capacity, temperature-controlled storage, or site-specific equipment and technology upgrades.
- Create development or business retention positions within MDARD and MEDC respectively to seek opportunities for investment among food businesses, deploying available job creation incentives to spur FLWR investment.
- Increase Value-Added & Regional Food Systems Grant and decrease match requirements.
- Provide grants and technical support to improve housing and transportation for H2A migrant farmworkers.
- Support efforts to improve the marketing of Michigan agricultural products and to improve reliability and utility of commodity data.
- Create a funding mechanism for infrastructure investments that advance wasted food prevention.
- Allow undocumented migrants and immigrants to obtain driver's licenses.

Prevention: Technical Assistance, Practice Improvements and Employee Training

- Grant support and technical assistance for data collection and characterization of surplus food supplies and food scraps within industry sectors and local communities, and/or promotion of standardized metrics for food waste.
- Develop a voluntary incentive for food businesses to measure wasted food.
- Grants to provide technical assistance and develop resources for food businesses and local communities to advance food waste prevention initiatives and improve access to secondary markets and donation channels for surplus food.
- Leverage investments in existing technical support programs, coupling objectives with other programs currently or potentially facing food businesses.
- Couple grant offerings with on-site technical assistance programs.
- Require applicants to MDARD Food Safety Training and Education Grants to include consideration for food donation or share tables in their proposals.
- Encourage or require certification, credential and license programs facing food businesses to provide applicable information on food loss and waste prevention.

Prevention: Date Labeling and Packaging

- Launch education campaigns and guidance documents that promote consumer awareness and education on the meaning of date labels, and provide support for food businesses to improve standardization of date labels.
- Provide grants for pilot projects to manufacturers, retailers, and producers to implement new packaging, labeling standards and processes.
- Fund industry and/or university efforts to make Michigan a center of excellence for food production standards, including the development of packaging to extend the life of food.
- Establish guidelines explicitly allowing the donation or freezing of food after a quality-based date.
- Amend Michigan law and/or its interpretation to differentiate between quality and safety labels, and provide further clarity and standardization on required labels.

Prevention: Promote Secondary Markets

- Provide technical assistance, grant support and shared resources to manufacturers for research and development of upcycled product lines, or to support participation in upcycling by food businesses lacking storage space, expertise, or other resources.
- Provide grants to non-profit organizations and schools to develop upcycling demonstration projects and pilot programs.
- Expand the Michigan Materials Marketplace program to include surplus food from farms, manufacturers, restaurants, retail, and other food businesses, and provide support to solution providers, animal farms, food banks, rescues and other agencies seeking new supply sources.
- Identify opportunities for surplus food and byproducts through MDARD's International Marketing Program, expanding the value of Michigan's exported food and agriculture products.
- Continue funding Michigan Agricultural Surplus System (MASS) at \$20 million or above, while maintaining focus on "seconds" that could not be marketed through normal channels.

Rescue: Increasing Donations

- Provide financial support for educational campaigns on donation liability, infrastructure investments for food storage equipment and refrigeration capacity, transportation and vehicles, and pilot projects.
- Conduct further research on the potential for charitable food organizations to positively impact food loss and waste reduction.
- Leveraging infrastructure created by Sacred Spaces Clean Energy Grant program, mobilize food pantries housed in congregations to improve efficiencies and invest in storage and refrigeration capacity through targeted grants.
- Execute an aggressive, multi-agency effort to educate businesses and the general public on liability protections and food safety for food donations and share tables: Require training for health inspectors on liability protection. Require county health departments to include information on food donation on their web sites and as leave-behind materials during inspections and educational events. Require local health departments to publish clear guidance on share tables.
- Amend law to explicitly provide permission to donate after the quality-based date, and potentially, provide reasonable liability protections for doing so. Clarify law (e.g.: Food Safety Modernization Act) to indicate what foods can and can not be donated, and to execute recommendations in the section above that are not permissible by current law.
- To supplement federal food donation tax incentive, establish a Michigan tax credit for donation of surplus food and associated costs. Ensure that this is structured as a tax credit (versus a deduction) with no more than a reasonable limit, and that it is based on fair market value. Offer additional tax credits for transportation and processing costs.

A 50% reduction is:⁹

1.2 Million

Tons of wasted food per year

5.55 Million

Metric tons of CO₂e released per year

\$6 Billion

Value of surplus food per year

313 Billion

Gallons of water wasted per year

\$500 million

Value of food lost by farms and manufacturers per year

2.19 Billion

Equivalent unsold or uneaten meals per year

Endnotes

1 Schoonmaker, D., Cruz C., Lowen A., Veldman C. (2024). Economic and Environmental Impact Potential and Characterization of Municipal Solid Waste in Michigan. Michigan Sustainable Business Forum. Retrieved from misbf.org/msw.

2 ReFED (2023). ReFED Insights Engine. Retrieved from <https://insights.refed.org/>

3 FDA (2023). Food Loss and Waste. U.S. Food & Drug Administration. Retrieved from <https://www.fda.gov/food/consumers/food-loss-and-waste>

4 Project Drawdown (2023). Reduced Food Waste. Retrieved from <https://drawdown.org/solutions/reduced-food-waste>

5 ReFED (2023) Ibid -2

6 ReFED (2023) Ibid -2

7 NextCycle Gap Analysis 2023.

8 ReFED (2023) Ibid -2

9 ReFED (2023). Ibid -2