

To: Wisconsin Department of Natural Resources

From: Christine Wenzel

Subject: Policy Analysis on Strategies to Reduce Food Waste in Wisconsin

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Tweet

Wisconsin needs to take action on food waste! Current policies are not enough- We could have over 1 mil tons of food waste going to landfills each year by 2030! Updating confusing food labels is a viable first step to cutting this waste. #foodwaste #solutions

Abstract

Wisconsin is not on track to achieve its 2030 target to reduce its food waste by 50%. This memo evaluates four policy alternatives to the status quo, using prevention, rescue, and recycling methods to address food waste. The alternatives are evaluated against one another with their projected outcomes, considering their efficacy, cost, implementation time, and political feasibility. Although mandating organic waste collection across the state would be the most effective and provide many co-benefits, the recommended policy for its cost, feasibility, and quick implementation time is to update food label guidelines, intended to reduce label confusion by consumers and save edible foods from being disposed of.

Background

Excessive production, refusal of cosmetically imperfect food, lack of planning, and barriers to recovery have led to Wisconsin generating too much food waste, with approximately 854,000 tons of food waste being sent to landfills in 2020, nearly double the amount in 2009.^{1 2 3} This estimate indicates that Wisconsin is increasing its food waste and falling short of its 2030 Food Loss and Waste Reduction target. If this trend continues, the state's food wasting threatens food security, jeopardizes future natural resources, and contributes to greenhouse gas emissions.⁴

¹ US EPA, ORD. "America's Food Waste Problem." Overviews and Factsheets, April 20, 2016. <https://www.epa.gov/sciencematters/americas-food-waste-problem>.

² SCS Engineers. "2020-2021 Wisconsin Statewide Waste Characterization Study." Wisconsin Department of Natural Resources, June 11, 2021.

³ MSW Consultants. "2009 State-Wide Waste Characterization Study." Wisconsin Department of Natural Resources, June 20, 2010.

⁴ US EPA, OLEM. "Draft National Strategy for Reducing Food Loss and Waste and Recycling Organics." Other Policies and Guidance, November 17, 2023.

www.epa.gov/circulareconomy/draft-national-strategy-reducing-food-loss-and-waste-and-recycling-organics

“Wasted food” describes food that was not used for its intended purpose (e.g. uneaten, spoiled, donated, or converted to animal feed) while “food waste” refers to food that is discarded or composted.⁵ Food waste occurs at all points in the supply chain. At the farm level, overplanting or lack of demand results in unsold food being wasted. At the retail level, overstocking, culling cosmetically imperfect products, and damage in transport or processing create food waste. Finally, at the consumer level, overbuying, overpreparation, confusion over date labeling, and spoilage result in food waste, much of which is sent to landfills.⁶ These factors and others cause an estimated 30-40% of the U.S. food supply to become food waste, costing the nation over \$400 billion annually for farmers, businesses, and



Photo: Dane County Landfill 2020 Waste Characterization Study

consumers.^{7 8} This wasted food also wastes resources, such as the freshwater and cropland needed to grow that food, and contributes to greenhouse gas emissions via methane emissions in landfills.⁹ Several pathways for preventing or managing wasted food outlined by the EPA can be incorporated into policies at all levels of government, with prevention the most preferred solution (see Figure 1).

To reduce the amount of wasted food and mitigate the negative impacts of inedible food that must be disposed of, in 2015, the U.S. Department of Agriculture (USDA) and EPA announced the U.S. 2030 Food Loss and Waste Reduction goal.¹⁰ The Wisconsin Department of Natural Resources (WDNR) incorporated this goal into the Blueprint for Climate Action, aiming to reduce the amount of food in landfills by half of 2020 amounts by 2030.¹¹ The goal is to cut food loss and waste in half by 2030, thereby reducing the economic costs and environmental impacts associated with food loss and waste food security. In response to the state’s goal, this policy analysis directed at food waste sent to Wisconsin’s landfills.

⁵ Environmental Protection Agency. “Sustainable Management of Food Basics”. EPA. 2024.

<https://www.epa.gov/sustainable-management-food/sustainable-management-food-basics>.

⁶ Buzby, Jean C., Hodan Farah-Wells, and Jeffrey Hyman. “The Estimated Amount, Value, and Calories of Postharvest Food Losses at the Retail and Consumer Levels in the United States.” *SSRN Electronic Journal*, 2014. <https://doi.org/10.2139/ssrn.2501659>.

⁷ “Food Waste in America: How You Can Help Rescue Food | Feeding America.” Accessed April 14, 2024. <https://www.feedingamerica.org/our-work/reduce-food-waste>.

⁸ “Food Waste Problem | ReFED.” Accessed April 14, 2024. <https://refed.org/food-waste/the-problem/>.

⁹ “Downstream Management of Organic Waste in the United States: Strategies for Methane Mitigation,” EPA. January 2022.

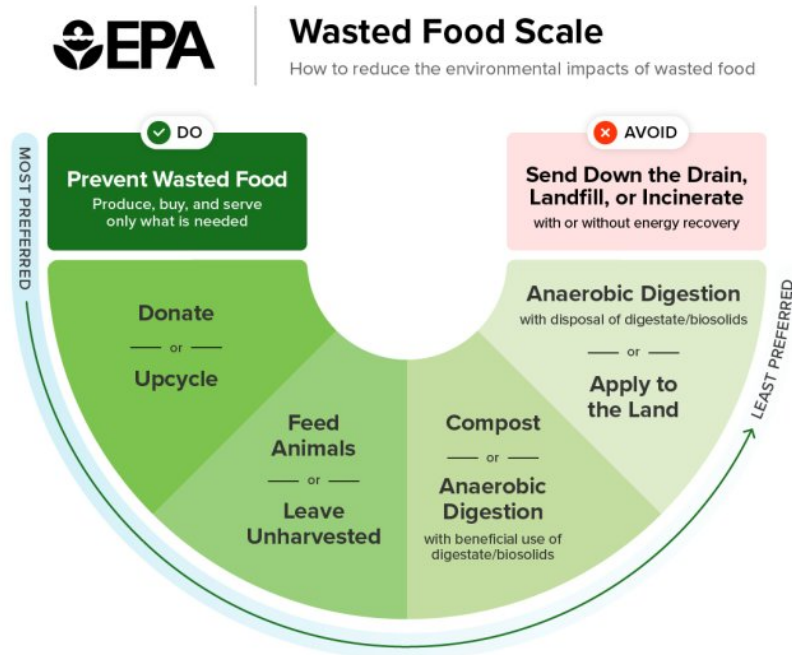
¹⁰ “United States 2030 Food Loss and Waste Reduction Goal.” Overviews and Factsheets, April 14, 2016.

<https://www.epa.gov/sustainable-management-food/united-states-2030-food-loss-and-waste-reduction-goal>.

¹¹ Strom Hiorns, Kate. “Stop Food Waste Day April 27.” Wisconsin DNR. April 27, 2022.

<https://dnr.wisconsin.gov/newsroom/release/56706#:~:text=%E2%80%99The%20DNR%27s%20Blueprint%20for%20Climate,communities%2C%20organizations%20and%20businesses.%E2%80%9D>

Figure 1: EPA Waste Food Scale



Policy Alternatives

1. **Business as Usual:** This alternative maintains the status quo. The only state-wide policy aimed directly at reducing food waste is the publication of the Sharing and No Thank You Table Toolkit, which suggests creating a food safety plan for share tables and requires schools to work with environmental health specialists to ensure food is kept safe.¹² There is no available data on the impact of this policy on reducing food waste in schools since its enactment in 2011.
2. **Organic Waste Collection (OWC):** This policy is a recycling approach to food waste, creating a law to require every jurisdiction to provide OWC services to all residents and businesses. Jurisdictions encompass cities, counties, or special districts that provide solid waste collection services. Organic waste includes food, green material, landscape and pruning waste, organic textiles and carpets, lumber, wood, paper products, printing and writing paper, manure, and bioplastics.
3. **Animal Feed Restrictions Reform:** This policy is also a recycling approach, reforming the ban on feeding swine any waste products containing animal-derived material. The reform would allow

¹² Wisconsin Department of Public Instruction (hereinafter Wisconsin DPI), "Sharing and No Thank You Table Toolkit," November 2019, <https://dpi.wi.gov/sites/default/files/imce/school-nutrition/sharing-no-thank-you-toolkit.docx>. Wisconsin DPI, "Guidance for Donating Food to Eligible Local Food Banks or Charitable Organizations," May 2019, <https://dpi.wi.gov/sites/default/files/imce/school-nutrition/guidance-for-donating-food.docx>

animal products that have undergone heat treatment removing infectious contaminants to be used as animal feed on farms.

4. **Donation Tax Credit for Farmers:** This policy is a rescue approach to food waste, introducing a tax credit to farmers for food donations amounting to 50% of the wholesale value of their donated food products (75% for organic food), up to \$5,000 per farm and capped at \$1,000,000 total. This tax credit incentivizes farmers to donate their unsold, but still edible products instead of disposing of them, which is often the more cost-effective option for farmers.
5. **Food Label Guidelines Updates:** This policy uses a preventative approach to food waste, aligning updates to date labeling policy with federal guidance and establishing clear guidelines expressly allowing the donation or the freezing of food after a quality-based date. People often misunderstand the food labels (e.g. “best by”, “sell by”, or “use by”) and out of caution, dispose of edible food. Updating these guidelines may reduce the amount of food disposed of at the business and consumer levels as consumers may better identify if a food is edible or spoiled.

Criteria

Each policy alternative will be evaluated based on a point system (1-5) through the following four criteria:

1. **Annual Food Waste by 2030 (40%):** This criterion will measure each policy alternative based on minimizing the annual food waste tons in landfills, keeping the amount below 427,000 tons of food waste and scraps (50% the estimated total food waste in 2020) to meet the 2030 Food Loss and Waste Reduction target.
2. **Cost (30%):** This criterion estimates the total amount of USD spent to implement and sustain through 2030, based on minimizing this total cost.
3. **Implementation Time (20%):** This criterion will evaluate each policy alternative in minimizing the time it takes to implement.
4. **Political Feasibility (10%):** This criterion will measure the predicted support by state congressional policymakers and the likelihood of enacting the policy based on optimizing political feasibility.

Outcome Projections

Projected outcomes of alternatives are provided for each criterion using the available resources. Results are compiled into a criteria-alternative matrix and given total weighted scores for comparison (see Figure 2).

1. Business as Usual

Annual Food Waste by 2030: Wisconsin's food waste nearly doubled between 2009 and 2020.¹³ The reason for this shift is unclear, as food waste in landfills marginally changed between 2002 and 2009, however, Casey Lamensky, the solid food waste coordinator at WDNR, attributed this shift to a general change in individual practices.^{14 15 16} If this change was due to social changes unique to the 2010s, then annual food waste may continue to be about 854,000 tons a year. If these trends continue, using the rate of change between 2009 and 2020, annual food waste could be as high as 1,216,000 tons by the end of the decade if no action is taken. Under the status quo, the predicted the 2030 annual food waste to be 854,000-1,216,000 tons.

Cost: Currently, Wisconsin local governments spend about \$450 million a year on trash and recycling.¹⁷ No additional costs are projected from this scenario.

Implementation Time: Continuing under the current system requires no action.

Political Feasibility: Continuing under the current system is favorable to policymakers as no new legislation is required.

2. Organic Waste Collection

Annual Food Waste by 2030: There is no publicly available research or outcome evaluation that provides estimations on the amount or percentage of food waste diverted from landfills when OWC is implemented in municipal waste management systems. For instance, California, the only state to require jurisdictions to offer OWC under SB 1383, does not have publicly available reports on their food waste diversion estimates from their OWC requirement.¹⁸ The projected outcome is calculated based on a Vermont survey of residents and businesses. In

¹³ SCS Engineers. "2020-2021 Wisconsin Statewide Waste Characterization Study." Wisconsin Department of Natural Resources, June 11, 2021.

¹⁴ MSW Consultants. "2009 State-Wide Waste Characterization Study." Wisconsin Department of Natural Resources, June 20, 2010.

¹⁵ Cascadia Consulting Group. "2002 Wisconsin Statewide Waste Characterization Study." Wisconsin Department of Natural Resources, May 2003.

¹⁶ Burakoff, Maddie. "More Food Waste and Recyclables Are Filling Wisconsin's Landfills," September 21, 2021. <https://spectrumnews1.com/wi/milwaukee/news/2021/09/20/more-food-waste-and-recyclables-are-filling-up-wisconsin-s-landfills--according-to-dnr-report>.

¹⁷ "Talking Trash." *Wisconsin Policy Forum*. June 2023.. <https://wispolicyforum.org/research/talking-trash/>

¹⁸ CalRecycle. "California's Climate Progress on SB 1383." CalRecycle Home Page. Accessed May 1, 2024. <https://calrecycle.ca.gov/organics/slcp/progress/>.

2020, Vermont implemented the Universal Recycling Law (Act 148), which banned food waste and other materials from Vermonsters' trash bins. According to a survey of Vermont residents, participants reported increasing the proportion of food that they separate from their trash from 48% before the ban to 71% after the ban, and 85% of Vermont's residents reported composting. Additionally, 88% of food retail and food service professionals somewhat or strongly supported the ban, and 95-97% of businesses report donating, composting, or sending their food waste to processing facilities.¹⁹ Using this survey and estimating that 85% of households or businesses will divert 48-71% of their food waste to OWC, the predicted annual food waste in 2030 sent to landfills is 338,611-719,872 tons.

Cost: It will be up to the respective jurisdictions to decide the treatment and disposal of organic waste (e.g. anaerobic digester facilities to generate biogas or composting facilities to produce soil amendments), which have varying costs. Based on the California CB 1383 Cost Update Document Table 2, the projected net cost of the \$4.9-12.8 billion, from 2019-2030.²⁰ Adjusting for the population size of Wisconsin and the years between 2025-2030, the net cost is predicted to be \$948 million-\$3 billion.

Implementation Time: California's SB 1383 was passed in 2016 and the requirement for OWC was fully implemented in 2022.²¹ Jurisdictions should be given 4 years to implement their respective OWC plans.

Political Feasibility: The most related bills, AB 987, which would have provided grants for collecting and recycling rechargeable batteries, and SB 987, which would have funding for education on solid waste reduction, recovery, and recycling, did not pass.^{22 23} The anticipated political feasibility is low, as there is little precedent for similar policies in the U.S. and Wisconsin's scant legislative history on food waste or recycling solutions indicates a lack of political will.

¹⁹ Belarmino, Emily H, Claire Ryan, Qingbin Wang, Meredith T Niles, and Margaret Torness. "Impact of Vermont's Food Waste Ban on Residents and Food Businesses," 2023.

²⁰ CalRecycle. "SB 1383 Appendix A Cost Update," October 2, 2019.

²¹ California, State of. "California's Short-Lived Climate Pollutant Reduction Strategy." CalRecycle Home Page. Accessed April 13, 2024. <https://calrecycle.ca.gov/organics/slcp/collection/>.

²² "2023 Assembly Bill 987" 2023-2024 Wisconsin Legislature. Accessed May 3, 2024.

<https://docs.legis.wisconsin.gov/2023/related/proposals/ab987>

²³ "2023 Senate Bill 876." 2023-2024 Wisconsin Legislature. Accessed May 3, 2024.

<https://docs.legis.wisconsin.gov/2023/related/proposals/sb876>

3. Animal Feed Restrictions Reform

Annual Food Waste by 2030: Approximately 10% of surplus food, coming from manufacturing, grocery, and farm sources, is sent to animal feed.²⁴ ²⁵ If 10% of the estimated 382,680 tons of animal products sent to landfills in Wisconsin in 2022 is diverted to animal feed, the projected annual food waste sent to landfills by 2030 would be 815,740-1,216,000 tons.²⁶

Cost: No cost to the state government as private entities will manage collection, processing, and sale of animal feed. The FDA regulates the animal feed processing and sale in the U.S.²⁷

Implementation Time: The animal feed reforms can be implemented immediately.

Political Feasibility: A livestock bill, SB 892, would bar local governments from enacting regulations for farms or commercial operations, indicating a desire to lift restrictions on the state's agricultural industry, but the bill did not pass.²⁸ The anticipated political feasibility is moderate because of an apparent political will to deregulate agriculture, but unclear if a policy that has been in place for several decades is likely to be lifted.

4. Donation Tax Credit for Farmers

Annual Food Waste by 2030: Food waste from farms is typically not sent to landfills, so this policy alternative would reduce food waste across the state but not reduce food sent to landfills. This solution may also increase the amount of food waste in landfills as products are delivered to food banks or individuals that will dispose of inedible foods to landfills.²⁹ Estimating the average cost of produce waste per ton in Wisconsin in 2022 as \$638.89 per ton, approximately 3,130 tons of produce could be donated.³⁰ Then, using the estimate of 6.1% of

²⁴ McBride, Monica. "No Food Left Behind Benefits & Trade-offs of Food Waste-to-Feed Pathways". *World Wildlife Fund*. July 12, 2021.

²⁵ "Leftovers for Livestock: A Legal Guide for Using Food Scraps as Animal Feed" *Center for Health Law and Policy Innovation, Harvard Law School*. August 2016.

²⁶ "Food Waste Monitor." *ReRED*. Accessed May 1, 2024.

https://insights-engine.refed.org/food-waste-monitor?break_by=destination&indicator=tons-waste§or=farm&state=WI&view=detail&year=2022.

²⁷ "Animal Food & Feeds." U.S. Food and Drug Administration. FDA. Accessed May 2.

<https://www.fda.gov/animal-veterinary/products/animal-food-feeds>.

²⁸ <https://docs.legis.wisconsin.gov/2023/proposals/sb892>

²⁹ Gunders, Dana. "Wasted: How America Is Losing Up to 40 Percent of Its Food from Farm to Fork to Landfill," *Natural Resources Defense Council*. August 16, 2017.

³⁰ "Food Waste Monitor." *ReRED*. Accessed May 1, 2024.

https://insights-engine.refed.org/food-waste-monitor?break_by=destination&indicator=tons-waste§or=farm&state=WI&view=detail&year=2022.

food being wasted by food banks from the 2019 Wasted Food Report, the annual food waste in 2030 sent to landfills could be 854,190-1,216,190 tons.³¹

Cost: Expecting that the tax credit will be maximized, up to 200 farms will receive a credit between 2025-2030, about 0.03% of Wisconsin's 64,100 farms.³² This would total \$6,000,000.

Implementation Time: The tax credit can be available in 2025, essentially implementing the policy immediately.

Political Feasibility: The most related bills, SB 721, a similar proposal focused on grant pilot projects to reduce food waste and redirect surplus food to hunger relief organizations, and SB 712, which would have provided farm-to-school grants, did not pass.^{33 34} The anticipated political feasibility is low, based on the low political will to implement food waste recovery programs that support food security organizations.

5. Food Label Guidelines Updates

Annual Food Waste by 2030: Studies estimate that 7-17% of household and business food waste is caused by label confusion.^{35 36 37} If the updated guidelines reduce food waste by 7-20% by 2030, the projected food waste sent to landfills would be 683,200-1,130,880.

Cost: Changing the guidelines for food labels would incur no costs to the government as producers would manage the expenses, if any, of updating their food label practices.

Implementation Time: Producers can be given 1 year to update their labels in line with new guidance.

Political Feasibility: The most recent bills regulating food labels, SB 466, SB 463, and SB 464, related to milk, dairy, and meat labeling respectively, were not passed through the

³¹ "2019 Wasted Food Report: Estimates of generation and management of wasted food in the United States in 2019". Environmental Protection Agency. April 2023.

³² USDA Upper Midwest Office. "Wisconsin Ag News – Farms and Land in Farms." *USDA*. February 18, 2022 https://www.nass.usda.gov/Statistics_by_State/Wisconsin/Publications/Miscellaneous/2022/WI-Farms-02-22.pdf

³³ "2023 Senate Bill 721." *2023-2024 Wisconsin Legislature*. Accessed May 3, 2024. <https://docs.legis.wisconsin.gov/2023/proposals/reg/sen/bill/sb721>.

³⁴ "2023 Senate Bill 712." *2023-2024 Wisconsin Legislature*. Accessed May 3, 2024. <https://docs.legis.wisconsin.gov/2023/proposals/reg/sen/bill/sb721>.

³⁵ Johnson, Renée. "Uniform Date Labeling of Food May Address Food Waste," *Congressional Research Service*. November 2, 2016.

³⁶ Van Garde, Shirley J., and Margy J. Woodburn. "Food discard practices of householders." *Journal of the American Dietetic Association* 87, no. 3 (1987): 322-329.

³⁷ "Survey: Misunderstanding Food Date Labels Linked With Higher Food Discards | Johns Hopkins | Bloomberg School of Public Health," February 19, 2019.

<https://publichealth.jhu.edu/2019/survey-misunderstanding-food-date-labels-linked-with-higher-food-discards>.

legislature.^{38 39 40} However, these bills were primarily focused on distinguishing animal products from plant-based alternatives, targeting animal industry protections as opposed to food waste prevention. The anticipated political feasibility is medium based on the low political will for food waste solutions, but possible support from policymakers concerned with consumer protection.

Figure 2: Criteria-Alternative Matrix

		Criteria				
		Annual Food Waste	Cost	Implementation Time	Political Feasibility	Total
Weight		40%	30%	20%	10%	100%
Alternatives	Business as Usual	854,000-1,216,000 tons 1	\$0 5	Immediate 5	High 5	3.4
	Organic Waste Collection (OWC)	338,611-719,872 tons 5	\$948 mil- \$3 bil 2	4 years 2	Low 1	3.1
	Lift Animal Feed Restrictions	815,740-1,216,000 tons 2	\$0 5	Immediate 5	Medium 3	3.6
	Donation Tax Credits for Farmers	854,190-1,216,190 tons 1	\$6 mil 4	Immediate 5	Low 1	2.7
	Clarify Food Labels	683,200-1,130,880 tons 3	\$0 5	1 year 4	Medium 3	3.8

Trade-Off Considerations

While the tax credit for farmers donating food that would have gone unharvested would benefit farmers and food-insecure Wisconsinites, the policy could negatively contribute to the central issue of reducing food waste from landfills. This policy alternative also received the lowest score, and for these reasons, it should be excluded from further consideration. Additionally, Wisconsin's current policies are considered weak by environmental policy advocacy groups in addressing food waste.^{41 42} Though there are no additional predicted direct costs to uphold the current system, there are significant resource and

³⁸ "2023 Senate Bill 466." *2023-2024 Wisconsin Legislature*. Accessed May 3, 2024. <https://docs.legis.wisconsin.gov/2023/proposals/reg/sen/bill/sb466>.

³⁹ "2019 Senate Bill 463." *2023-2024 Wisconsin Legislature*. Accessed May 3, 2024. <https://docs.legis.wisconsin.gov/2019/proposals/sb463>.

⁴⁰ "2023 Senate Bill 464." *2023-2024 Wisconsin Legislature*. Accessed May 3, 2024. <https://docs.legis.wisconsin.gov/2023/proposals/reg/sen/bill/sb464>.

⁴¹ Center for Ecotechnology. "Wisconsin Food Waste Policy Gap Analysis and Inventory". Natural Resources Defense Council. October 2021. <https://www.nrdc.org/sites/default/files/wi-food-waste-policy-gap-report.pdf>

⁴² "Wisconsin Food Waste Policy." ReFED. 2024.. <https://policyfinder.refed.org/wisconsin/>.

ecological costs associated with the levels of food waste in the state, and therefore the “business as usual” scenario should be avoided as well.

Though the most expensive option, OWC is the most effective policy and has many co-benefits. This system diverts other materials from landfills, including yard waste and paper, which will slow the fill rate of landfills. A majority of landfills in the state are expected to be full by 2035, but that dilemma can be delayed by increasing recycling practices.⁴³ Additionally, OWC can create compost that can be used to enrich soil and provide a cost-effective alternative to artificial alternatives for farmers. Setting up OWC systems can also encourage businesses to adopt compostable packaging products knowing that their packaging can be recycled instead of being sent to the landfill.

Clarifying food labels and reforming animal feed are also promising solutions for reducing food waste. These alternatives have similar political feasibility, as well as a quick implementation time and no cost to the state. However, updating food label guidelines is predicted to reduce food waste in landfills by tens or hundreds of tons more than the feed reform alternative. Additionally, it is a preventative solution, rather than a recycling solution, and therefore a more favorable pathway.

Recommendations

The recommended policy action is to update the food label guidelines. This policy offers a significant reduction in food waste at the consumer level at the lowest cost, possibly saving Wisconsin households tens or hundreds of dollars a year and increasing citizens’ awareness of their food waste practices.

More research should be done to assess the cause of the sharp increase in food waste being sent to landfills between 2009 and 2020 and Wisconsin residents’ and businesses’ behaviors and attitudes around food waste in general. Identifying the contributing factors to Wisconsin residents’ food-wasting habits can better inform WDNRs and policymakers’ strategies for achieving the 2030 Food Loss and Waste Reduction goal. Additionally, increasing the monitoring of food waste sent to landfills will be imperative for assessing the success of any policy enacted to combat this issue and correcting the course of action in response to any implementation failures. Ultimately, this policy analysis indicates that no single policy will achieve the targeted 50% reduction in food waste by 2030 and an array of policies that utilize prevention, rescue, and recycling across sectors and stages of food production will be necessary. Engaging policymakers to update food label guidelines is a promising first step in creating a more comprehensive food waste strategy.

⁴³ “2020 Wisconsin Municipal and Industrial Waste Landfill Tonnages.” *Wisconsin Department of Natural Resources*. Last revised November 2021.