



# **FOOD WASTE PREVENTION RESOURCE GUIDE SERIES: PLATE AND PORTION SIZE**



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Up to **40% of the food supply** is wasted in the United States. Reducing this staggering number and meeting **national goals** to reduce food waste requires consumers to make meaningful changes to how they buy, store, prepare, and consume food. Yet, food waste remains off the radar for many consumers. According to a **2019 study**, one in five people never consider food waste in their decision-making while eating at home or grocery shopping. More than two-thirds of people never consider food waste while eating out. Providing effective education is a proven strategy to help address this lack of awareness. Consumer education **has the potential** to divert an additional 3.22 million tons of wasted food, prevent 18.7 million metric tons of CO<sub>2</sub> emissions, and provide a financial net benefit of \$15.8 billion.

Increased consumer attention to the issue may also push businesses to operate more responsibly. **The Nashville Food Waste Initiative** (NFWI) aims to provide food waste education to everyone in Nashville, from business owners and staff to educators to students. Originally developed in 2015 as a pilot project by NRDC, NFWI is now led by **Urban Green Lab** (UGL) in partnership with the **Environmental Law Institute** (ELI). UGL offers trainings that include information on how to reduce food waste in classrooms, households, and workplaces.

ELI and UGL collaborated to create the Food Waste Prevention Resource Guide Series to help expand food waste content in UGL trainings and provide ready-to-use resources for other sustainability non-profits or similar organizations creating their own trainings or curriculums.

The Resource Guide Series highlights five **proven** food waste prevention strategies: packaging design and use, date labels, meal prepping and kits, storage and freezing, and plate and portion size. Each Resource Guide covers one of the five topics, includes key tips as well as a list of helpful resources, and is organized into three charts tailored to a different audience—classrooms, households, and workplaces. Some resources appear across multiple charts.

Organized by both resource type (columns) and topic (rows), the Resource Guide Series provides a straightforward way for sustainability educators to find vetted content for building effective, fact-based trainings.

Offering flexibility in plate and portion size is the number one solution to reducing greenhouse gas emissions associated with food waste, according to **ReFED**. Adjusting plate and portion sizes and implementing other food-saving measures can help reduce post-service food waste, also referred to as plate waste.

NOTES: The Resource Guides provide targeted resources on specific food waste prevention strategies. More free information on food waste prevention, reduction, and recycling, including general overviews, are widely available such as from **USDA**, **NRDC**, **ReFED**, **WRAP** and **World Wildlife Fund**. Additionally, though the Resource Guides largely compile free resources from governments, NGOs, and academics, note that there are also private and/or paid resources that can provide useful information on food waste prevention (e.g., Dana Gunders' **Waste-Free Kitchen Handbook**, **LeanPath**).



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# PLATE AND PORTION SIZE: CLASSROOMS

Offering flexibility in plate and portion size is the number one solution to reducing greenhouse gas emissions associated with food waste, according to ReFED. Adjusting plate and portion sizes and implementing other food-saving measures can help reduce post-service food waste, also referred to as plate waste.

The table below compiles free resources for teaching classrooms about sustainable choices to reduce plate waste through plate and portion size adjustments.



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# KEY TAKEAWAYS FOR PLATE AND PORTION SIZE IN CLASSROOMS

**When teaching about plate and portion size, educators should be able to:**

- ▶ Explain that food waste contributes to climate change through unnecessary use of energy and resources, as well as emissions generated during landfill decay.
- ▶ Define plate waste (i.e., post-service food waste) and share how plate and portion size adjustments can prevent and reduce plate waste.
- ▶ Explain how status quo plate and portion size practices can lead to food waste.
- ▶ Contextualize how school cafeterias contribute to plate waste and explore solutions, such as adjusting plate and portion size, removing trays, providing multiple portion sizes, and adopting an “Offer Versus Serve” approach that allows students to decline a certain number of food items and select preferred foods during meal service.
- ▶ Help students understand how behavior and visual factors lead to plate waste and provide steps to combat food-wasting behaviors (e.g., reducing snacking throughout the day to increase hunger at meal times).
- ▶ Explain the importance of being sensitive to issues such as food shaming (i.e., making negative or judgmental remarks about what or how much an individual is eating) and food insecurity in addressing food waste reduction through portion size flexibility.
- ▶ Educate students about how they can engage with elected officials and other community members to encourage sustainable practices such as reducing food waste.
- ▶ Help students understand the impacts of their own actions and how they can discuss and help implement sustainable practices at home.

“Training educators to bring a sustainable lens to the classroom is crucial for culture change in a community. If we want to push the dial for sustainability in a meaningful way, we need to ensure educators have the confidence and tools to deepen the standards they are already teaching while connecting to the real world outside of the classroom.”

- CHRISTINA LANGONE, DIRECTOR OF EDUCATION, URBAN GREEN LAB



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## Key Resources on Food Waste

### Lesson Plans & Classroom Activities

WWF, [\*Be a Food Waste Warrior\*](#) (n.d.): K-12 lessons, activities, and resources that educators can use to teach about the environmental impacts of food waste—organized by age group.

### Toolkits & Similar Resources

U.S. EPA, [\*Too Good to Waste Implementation Guide and Toolkit\*](#) (n.d.): Comprehensive toolkit that provides strategies and resources for consumers and educators to engage in food waste reduction activities.

ReFED, [\*Resources & Guides\*](#) (n.d.): Compilation of online food waste tools that includes a food waste monitor, solutions database, impact calculator, and policy finder.

### Reports & Articles

NRDC, [\*Wasted: How America Is Losing Up to 40 Percent of Its Food from Farm to Fork to Landfill\*](#) (2017): Seminal report on food waste that includes a thorough description of the problem, recent progress, and emerging solutions.

Rubicon, [\*Food Waste in America: Facts and Statistics\*](#) (2023): Primer on food waste in America that includes statistics and recommendations.

Bloomberg, [\*The US Has a Food Waste Problem and It's Getting Worse\*](#) (2023): Article that provides an overview of food waste trends and key numbers.

### Creative Media

Our Changing Climate, [\*Food Waste Causes Climate Change. Here's How We Stop it.\*](#) (2020): Video that provides key food waste statistics and possible avenues for change.

## Background Information For Educators

### Toolkits & Similar Resources

USDA, [\*Offer Versus Serve \(OVS\), Tip Sheet for School Food Service Managers\*](#) (2020): Tip sheet that covers Offer Versus Serve for the National School Lunch Program.

Guardians of Grub, [\*Rise Up Against Food Waste\*](#) (n.d.): Calculator that measures avoided costs and emissions from reduced plate waste.

I Value Food, [\*Eating Out Without Waste\*](#) (n.d.): Infographics that provide strategies for reducing plate waste when dining out.

NRDC, [\*Wasting Less Food in K-12 Settings: Best Practices for Success\*](#) (2018): Brief that details best practices for reducing plate waste in K-12 settings.

### Reports & Articles

Jimmy Nguyen, National Academy of Medicine, [\*The Power of Postconsumer School Food Waste Audits\*](#) (2016): Article that describes best practices for postconsumer plate waste audits in K-12 schools.

Shaheen Hosany, The Conversation, [\*How Children are Helping to Make Their Families More Eco-Friendly – New Research\*](#) (2022): Article that explains how sustainability education at school leads children to develop and implement sustainable practices at home.

### Creative Media

David Just, Healthy Food Choices in School, [\*Right Sizing: Creating Appealing & Satisfying Portions in School Meals\*](#) (2017): Video that demonstrates the behavioral and visual factors influencing students' level of satisfaction with portion size.



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## Lesson Plans & Classroom Activities

The City of Calgary, [\*Food Waste Reduction Plan\*](#) (n.d.): Lesson plan that provides conversation starters and tips on preventing plate waste.

USDA, [\*My Plate\*](#) (n.d.): Interactive webpage that offers guidance on the relative portion sizes of different food groups.

WWF, [\*The No Food Waste Game\*](#) (2020): Educational game for students that challenges players to think of different ways to prevent food waste generally.

## Reports & Articles

Green Schools National Network, [\*K-12 Cafeterias are Spaces of Civic Engagement for Kids and Cooks\*](#) (2019): Article that explains how by leading plate waste audits, students are able to design solutions to reduce plate waste.

The Scholarship System, [\*5 Ways Students Can Get Involved in Politics \(And Why They Should\)\*](#) (2023): Blog that explores ways students can be politically active and engage with elected officials and community members.

## Elementary School

### Lesson Plans & Classroom Activities

Florida Health Department, [\*Be Wise About Your Portion Size\*](#) (n.d.): Guide that helps children ages 3 to 5 select and measure healthy portion sizes.

Food and Agriculture Organization of the United Nations and International Food Waste Coalition, Do Good: Save Food! (2018): Two educational packages, one for [\*ages 5 to 7\*](#) and one for [\*ages 8 to 9\*](#), that offers lessons, presentations, and activities on plate waste solutions.

### Reports & Articles

Let's Eat Healthy, [\*Serving Sizes: Introduction\*](#) (2020): Video that introduces students to serving sizes and measuring food.

PBS, [\*Kids Go Green: Reducing Food Waste\*](#) (n.d.): Video that offers solutions to plate waste.

World Wildlife Fund, [\*Food Waste Warrior Posters\*](#) (n.d.): Poster that encourages students to eat what they take.



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## Middle School

### Lesson Plans & Classroom Activities

Food and Agriculture Organization of the United Nations and International Food Waste Coalition, [\*Do Good: Save Food!\*](#) (2018): Educational package for ages 10 to 13 that offers lessons, presentations, and activities on plate waste solutions.

World Wildlife Fund, [\*What is Food Waste? Grades 6-12\*](#) (n.d.): Slides that include presenter notes for teaching middle and high school students about the environmental impacts of food waste and how to reduce food waste at home and school.

### Reports & Articles

Mary Institute and Saint Louis Country Day School, [\*Middle Schoolers Learn about Food Waste\*](#) (2019): Article that highlights an example of middle schoolers working to reduce plate waste at their school by measuring food waste and educating their peers.

### Creative Media

Food Insight, [\*Servings Sizes and Portion Sizes: Making Smaller Sizes the New Normal Again\*](#) (2020): Video that explains the difference between serving size and portion size and their relationship to plate waste.

## High School

### Lesson Plans & Classroom Activities

Food and Agriculture Organization of the United Nations and International Food Waste Coalition, [\*Do Good: Save Food!\*](#) (2018): Educational package for ages 14 years and up that includes lessons, presentations, and activities on plate waste solutions.

World Wildlife Fund, [\*What is Food Waste? Grades 6-12\*](#) (n.d.): Slides that include presenter notes for teaching middle and high school students about the environmental impacts of food waste and how to reduce food waste at home and school.

Foodspan & John Hopkins Center for a Livable Future, [\*Our Wasted Food\*](#) (2023): 50-minute lesson plan that teaches students about food waste and possible solutions, with extension projects that will further empower students to take action.

### Reports & Articles

Amber Werkman, Jenny van Doorn & Koert van Ittersum, [\*Are You Being Served? Managing Waist and Waste via Serving Size, Unit Size, and Self-serving\*](#) (2022): Study that explains the “serving-size effect” and finds that self-serving diminishes plate waste.

### Creative Media

Peter Lehner, TEDxManhattan, [\*A Recipe for Cutting Food Waste\*](#) (2013): Talk that explains how increasing portion and plate sizes have contributed to plate waste (10:20 to 11:30).

For more information: Linda Breggin, ELI Senior Attorney ([breggin@eli.org](mailto:breggin@eli.org)) and Todd Lawrence, UGL Executive Director ([todd@urbangreenlab.org](mailto:todd@urbangreenlab.org)).



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# PLATE AND PORTION SIZE: HOUSEHOLDS

Offering flexibility in plate and portion size is the number one solution to reducing greenhouse gas emissions associated with food waste, according to ReFED. Adjusting plate and portion sizes and implementing other food-saving measures can help reduce post-service food waste, also referred to as plate waste.

The table below compiles free resources for teaching households about sustainable choices to reduce plate waste through plate and portion size adjustments.



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# KEY TAKEAWAYS FOR PLATE AND PORTION SIZE IN HOUSEHOLDS

**When teaching about plate and portion size, educators should help households:**

- ▶ Understand that food waste contributes to climate change through unnecessary use of energy and resources, as well as emissions generated during landfill decay.
- ▶ Understand how status quo plate and portion size practices can lead to food waste.
- ▶ Learn how increased plate and portion sizes have contributed to plate waste and the negative cost, health, and environmental impacts associated with plate waste.
- ▶ Explore solutions to preventing and reducing plate waste, such as relying on measuring cups to determine portion size, using smaller plates, and waiting 20 minutes before taking a second helping.
- ▶ Learn to properly measure and serve portion sizes of different foods, while being cognizant of food shaming (i.e., making negative or judgmental remarks about what and how much an individual is eating).
- ▶ Evaluate the impacts of their own actions and how they can adopt more sustainable practices at home and encourage businesses, schools, and other institutions to do the same.

"Educating residents to find simple, sustainable solutions within their homes impacts the entire city. Once sustainability has been integrated into the everyday lives and actions of households, that knowledge then pours into our relationships, neighborhoods, and communities."

- KARISSA HAMPTON, SUSTAINABLE HOUSEHOLDS MANAGER, URBAN GREEN LAB



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## Key Resources on Food Waste

### Reports & Case Studies

NRDC, [\*Wasted: How America Is Losing Up to 40 Percent of Its Food from Farm to Fork to Landfill\*](#) (2017): Seminal report on food waste that includes a thorough description of the problem, recent progress, and emerging solutions.

### Creative Media

Our Changing Climate, [\*Food Waste Causes Climate Change. Here's How We Stop it.\*](#) (2020): Video that provides key food waste statistics and possible avenues for change.

### Ready-to-Use Resources

ReFED, [\*Resources & Guides\*](#) (n.d.): Compilation of online food waste tools that includes a food waste monitor, solutions database, impact calculator, and policy finder.

### Toolkits & Similar Resources

U.S. EPA, [\*Too Good to Waste Implementation Guide and Toolkit\*](#) (n.d.): Comprehensive toolkit that provides strategies and resources for consumers and educators to engage in food waste reduction activities.

### Articles

Rubicon, [\*Food Waste in America: Facts and Statistics\*](#) (2023): Primer on food waste in America that includes statistics and recommendations.

Bloomberg, [\*The US Has a Food Waste Problem and It's Getting Worse\*](#) (2023): Article that provides an overview of food waste trends and key numbers.



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## Understanding Consumers' Impact and Behaviors

Reports & Case Studies	Ready-to-Use Resources	Articles	Creative Media
<p>Amber Werkman, Jenny van Doorn &amp; Koert van Ittersum, <a href="#"><i>Are You Being Served? Managing Waist and Waste via Serving Size, Unit Size, and Self-serving</i></a> (2022): Study that explains the “serving-size effect” and finds that self-serving diminishes plate waste.</p>	<p>Love Food Hate Waste, <a href="#"><i>Food Portion Calculator</i></a> (n.d.): Calculator that helps measure the appropriate portion size of different types of foods.</p> <p>McKinsey &amp; Company, <a href="#"><i>McKinsey for Kids: (Food) Waste not, Want not</i></a> (2021): Interactive resource that demonstrates the most wasted foods on children’s plates.</p> <p>Guardians of Grub, <a href="#"><i>Rise up Against Food Waste</i></a> (n.d.): Calculator that measures avoided costs and emissions from reduced plate waste.</p>	<p>Susan Shain, New York Times, <a href="#"><i>How Central Ohio Got People to Eat their Leftovers</i></a> (2023): Article that contextualizes households’ role in creating food waste and documenting how one family reduced their plate waste.</p> <p>Healthy Food Choices in Schools, <a href="#"><i>Hot or Cold: How State of Mind Influences Food Selection</i></a> (2019): Article that explains how impulsive “hot state” decisions lead individuals to select larger portions.</p> <p>Green Schools National Network, <a href="#"><i>K-12 Cafeterias are Spaces of Civic Engagement for Kids and Cooks</i></a> (2019): Article that explains how by leading plate waste audits, students are able to design solutions to reduce plate waste.</p>	<p>USDA, <a href="#"><i>Serve Smart to Reduce Food Waste</i></a> (2022): Video that encourages consumers to reduce plate waste by serving smart portions.</p> <p>Food Insight, <a href="#"><i>Servings Sizes and Portion Sizes: Making Smaller Sizes the New Normal Again</i></a> (2020): Video that explains the difference between serving size and portion size and their relationship to plate waste.</p>

## Plate and Portion Size: Dining Out

### Reports & Case Studies

WRAP, [\*Citizen Food Waste Attitudes and Behaviors Out of Home\*](#) (2023): Survey that analyzes citizens' portion-sizing behaviors when dining out and explores behaviors that could reduce plate waste.

### Toolkits & Similar Resources

I Value Food, [\*Eating Out Without Waste\*](#) (n.d.): Infographics that provide strategies for how to reduce plate waste when dining out.

Mississinewa Community Schools, [\*Parent FAQ \(Offer vs. Serve\)\*](#) (n.d.): Resource that guides parents on Offer Versus Serve USDA standards.

### Articles

Food & Wine, Jillian Kramer, [\*What to Do if You Can't Decide What to Order at a Restaurant\*](#) (2019): Article that describes strategies to avoid plate waste when selecting dishes at a restaurant.

### Creative Media

Clean and Green Singapore, [\*Tips to Reduce Food Waste \(ordering\)\*](#) (2018): Video that offers tips on how to avoid plate waste when eating out.

## Plate and Portion Size: At Home

### Ready-to-Use Resources

I Value Food, [\*Food Waste Quiz\*](#) (n.d.): Quiz that measures the individual's plate waste and provides strategies for reduction.

NRDC Save the Food, [\*The Guestimator\*](#) (n.d.): Calculator that estimates portion-sizes for dinner parties.

NRDC Save the Food, [\*Meal Prep Mate\*](#) (n.d.): Meal prep guide and calculator that creates personalized shopping lists and portions meals to reduce plate waste.

### Toolkits & Similar Resources

I Value Food, [\*Portion Size Guide\*](#) (n.d.): Guide that offers solutions to portion distortion and including a portion size "cheat sheet."

British Nutrition Foundation, [\*5532 a-day: Perfect Portions for Little Tums\*](#) (2019): Booklet that guides parents on serving correct portion sizes to children ages 1 to 4.

### Articles

I Value Food, [\*Ten Ways to Get Kids to Waste Less Food\*](#) (n.d.): Guide that provides families with strategies to reduce food waste with young children.

Steve Green, Homenish, [\*Guide to Plate Sizes \(with Drawings\)\*](#) (2022): Guide that helps readers select the appropriate plate size at home to avoid over-portioning.

British Heart Foundation, [\*8 Top Tips for Portion Control\*](#) (n.d.): Article that lists strategies for portion control.

### Creative Media

Peter Lehner, TEDx Manhattan, [\*A Recipe for Cutting Food Waste\*](#) (2013): Talk that explains how increasing portion and plate sizes contributed to plate waste (10:20 to 11:30).

Dana Gunders, [\*Waste Free Kitchen Handbook\*](#) (2015): Handbook that includes checklists, recipes, strategies, and infographics to reduce plate waste.

Robin Donovan, [\*5-Ingredient Cooking for Two\*](#) (2020): Cookbook that includes portioned recipes for two.

For more information: Linda Breggin, ELI Senior Attorney ([lreggin@eli.org](mailto:lreggin@eli.org)) and Todd Lawrence, UGL Executive Director ([todd@urbangreenlab.org](mailto:todd@urbangreenlab.org)).



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# PLATE AND PORTION SIZE: WORKPLACES

Offering flexibility in plate and portion size is the number one solution to reducing greenhouse gas emissions associated with food waste, according to ReFED. Adjusting plate and portion sizes and implementing other food-saving measures can help reduce post-service food waste, also referred to as plate waste.

The table below compiles free resources for teaching workplaces about sustainable choices to reduce food waste through plate and portion size adjustments.



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# KEY TAKEAWAYS FOR PLATE AND PORTION SIZE IN **WORKPLACES**

**When teaching about plate and portion size, educators should help workplaces:**

- ▶ Understand that food waste contributes to climate change through unnecessary use of energy and resources, as well as emissions generated during landfill decay.
- ▶ Recognize how status quo plate and portion size practices can lead to food waste.
- ▶ Understand why plate waste is a problem and how reducing it can lower costs as well as result in other benefits.
- ▶ Leverage plate and menu design to reduce plate waste.
- ▶ Learn about food waste audits as a mechanism for identifying and measuring which food items constitute the most plate waste and subsequently adjusting portion sizes and ingredients.
- ▶ Learn how to help educate customers and employees on the importance of reducing plate waste.
- ▶ Share food waste reduction successes internally and with customers.
- ▶ Understand the ability of workplaces to reduce food waste through sustainable choices and knowledge-sharing within their workforce, customer base, and business communities.

"It's a wonderful experience to distill complex scientific information into tangible actions for citizens to digest and utilize in their own way. If an attendee walks away from one of my trainings doing just one or two new sustainable activities that add value to their life, that's a huge win. Connecting people to resources in sustainability that are vetted and accurate is one of the best things we can do to empower them to make long-lasting changes."

**- JACQUELINE GOODWIN, ASSISTANT DIRECTOR OF WORKPLACES, URBAN GREEN LAB**



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## Key Resources on Food Waste

### Reports & Case Studies

NRDC, [\*Wasted: How America Is Losing Up to 40 Percent of Its Food from Farm to Fork to Landfill\*](#) (2017): Seminal report on food waste that includes a thorough description of the problem, recent progress, and emerging solutions.

### Creative Media

Our Changing Climate, [\*Food Waste Causes Climate Change. Here's How We Stop it.\*](#) (2020): Video that provides key food waste statistics and possible avenues for change.

### Ready-to-Use Resources

ReFED, [\*Resources & Guides\*](#) (n.d.): Compilation of online food waste tools that includes a food waste monitor, solutions database, impact calculator, and policy finder.

### Toolkits & Similar Resources

U.S. EPA, [\*Too Good to Waste Implementation Guide and Toolkit\*](#) (n.d.): Comprehensive toolkit that provides strategies and resources for consumers and educators to engage in food waste reduction activities.

### Articles

Rubicon, [\*Food Waste in America: Facts and Statistics\*](#) (2023): Primer on food waste in America that includes statistics and recommendations.

Bloomberg, [\*The US Has a Food Waste Problem and It's Getting Worse\*](#) (2023): Article that provides an overview of food waste trends and key numbers.



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**The Role of the Foodservice Industry and other Businesses in Reducing Plate Waste**

**Reports & Case Studies**

Amber Werkman, Jenny van Doorn & Koert van Ittersum, [\*Are You Being Served? Managing Waist and Waste via Serving Size, Unit Size, and Self-serving\*](#) (2022): Study that explains the “serving-size effect” and finds that self-serving diminishes plate waste.

**Ready-to-Use Resources**

The Chancery Lane Project, [\*Reducing Supply Chain Food Waste\*](#) (2022): Model contractual clause that can be used by businesses to reduce food waste in their supply chains, in order to reduce greenhouse gas emissions and realize financial benefits.

**Toolkits & Similar Resources**

National Restaurant Association, [\*86 Food Waste: Customer Messaging\*](#) (2021): Guide that lists best practices for restaurants when communicating food waste reduction efforts to customers.

**Articles**

Linda Himmelstein, New York Times, [\*Hotel Buffets, a Culprit of Food Waste, Get Downsized\*](#) (2017): Article that contextualizes the buffet’s role in plate waste and identifies relevant solutions.

**Creative Media**

National Restaurant Association, [\*86 Food Waste: Reduce Food Waste in your Restaurant Kitchen\*](#) (2019): Video that explains restaurants’ role in reducing food waste and offers best practices for portion sizes and communication (4:00 to 4:47).

## Reducing Costs by Reducing Plate Waste

Reports & Case Studies	Ready-to-Use Resources	Toolkits & Similar Resources	Creative Media
<p>Champions 12.3, <a href="#"><i>The Business Case for Reducing Food Loss and Waste</i></a> (2017): Report that finds that businesses can save money by training staff and implementing other food-saving measures.</p> <p>David Blum, International Journal of Applied Management and Technology, <a href="#"><i>Ways to Reduce Restaurant Industry Food Waste Costs</i></a> (2020): Literature review that explores how smaller portion and plate sizes in restaurants can reduce plate waste and food costs (pages 3, 6, 8).</p>	<p>Guardians of Grub, <a href="#"><i>Rise up Against Food Waste</i></a> (n.d.): Calculator that measures avoided costs and emissions from reduced plate waste.</p>	<p>WRAP &amp; Guardians of Grub, <a href="#"><i>Protecting Profits from Plate Waste</i></a> (2023): Toolkit that includes actions to increase profit by reducing plate waste.</p>	<p>The City of Portland, <a href="#"><i>Reduce Plate Waste</i></a> (2023): Video that provides tips for restaurants to reduce plate waste and food costs, by tracking plate waste and adjusting portion sizes.</p> <p>The City of Portland, <a href="#"><i>Reduce Food Waste in the Kitchen</i></a> (2023): Video that shares chefs' tips on adjusting portion sizes to manage profit margins and reduce plate waste (Chapter 3, 6:41).</p>

## Plate and Menu Design and Portioning

### Reports & Case Studies

WRAP, [\*Citizen Food Waste Attitudes and Behaviors Out of Home\*](#) (2023): Report that includes recommendations for businesses to reduce plate waste.

Steffen Kallbekken & Håkon Sælen, [\*Nudging Hotel Guests to Reduce Food Waste as a Win-Win Environmental Measure\*](#) (2013): Study that finds that hotel restaurants reduced plate waste by decreasing plate size and providing social cues.

Emil Juvan, Bettina Grün & Sara Dolnicar, [\*Biting Off More Than They Can Chew: Food Waste at Hotel Breakfast Buffets\*](#) (2018): Study that offers strategies to reduce buffet plate waste.

### Ready-to-Use Resources

U.S. EPA, [\*Food Loss Prevention Options for Restaurants\*](#) (2016): Guide that includes serving tips and a checklist for restaurants to prevent plate waste.

### Articles

Steve Green, Homenish, [\*Guide to Plate Sizes \(with Drawings\)\*](#) (2022): Guide that helps readers select the appropriate plate size to avoid over-portioning.

### Toolkits & Similar Resources

LeanPath, [\*20 Waste-Cutting Tips Every Foodservice Chef Should Know\*](#) (2004): Guide that covers plate design and portioning strategies to reduce plate waste.

LeanPath, [\*Preventing Food Waste at the Buffet: A Guide for Chefs and Managers\*](#) (2019): Guide that covers best practices for reducing plate waste through managing portion size.

National Restaurant Association, [\*Managing Food Waste in Restaurants\*](#) (2021): Guide that helps restaurants design menus to reduce waste (page 11).

ReFED, [\*Restaurant Food Waste Action Guide\*](#) (2018): Guide that describes best practices for menu design (pages 9–11).



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# THANK YOU

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