

Improving the Environmental Impact of the School Meals Programs

The scale, reach, and purchasing power of the National School Lunch Program (NSLP) represents both a great responsibility and opportunity. The NSLP has an annual budget of \$17.2 billion. The NSLP provided more than 4.6 billion meals in FY2023 and the School Breakfast Program (SBP) provided 2.4 billion meals in FY2023.¹ These programs are critical to ensuring school-aged children have access to adequate nutrition.

Even small changes to reduce the environmental impact of the food and beverages included in the NSLP or SBP can lead to meaningful reductions in emissions and other environmental impacts within the program. Further, some research indicates that a more sustainable NSLP may also reduce costs.²

What can we do? Purchase and Serve More Sustainable Foods

Improve the Mix of Products Served:

The EAT-Lancet Report, a report written by some of the world's leading climate and nutrition scientists, explored how to successfully, sustainably, and healthfully feed the growing global population.³ In 2020, researchers compared the NSLP to a health and climate-friendly diet created by the EAT-Lancet Commission and found that a typical NSLP lunch contained more dairy, red meat, and tubers and starchy vegetables and fewer whole grains, legumes, and dark green vegetables.⁴

A 2022 study assessed the environmental impact of the NSLP across various impact categories, including global warming potential, land use, water consumption, and eutrophication potential. The study found that meals with lower climate impact had more whole grains, seafood, nuts and seeds, and dairy (because cheese is a common substitute for meat in vegetarian options).⁵ Higher climate impact meals had greater volumes of meat (including beef, pork, and poultry), starchy vegetables, and fruit and fruit juice.⁶

The same study found that meat accounted for 8% of the total lunch mass but contributed the most to all impact categories ranging from 28% to 67%. Within the meat category, beef had the largest environmental impact. Dairy was the next largest contributor, after meat, at 17% to 29%, except water consumption (7%). Meat (28%), fruit (27%), and vegetables (14%) were the highest contributors to water consumption.

Ultimately, key improvements to the NSLP would include:

- Replacing animal proteins with plant-based proteins;
- Replacing refined grains with whole grains;

- Decreasing dairy;
- Increasing vegetables; and
- Increasing nuts and seeds (while being cognizant of water usage).

Prioritize Sustainable Food Procurement:

Existing Model: The Good Food Purchasing Program

Since 2012, at least 60 local public institutions have enrolled in the Good Food Purchasing Program (GFPP), a gold-standard framework and verification system for values-aligned food procurement that treats five values equally: local and community-based economies, animal welfare, valued workforce, environmental sustainability, and community health and nutrition.⁷ Per the Center for Good Food Purchasing, institutions in 26 cities and counties participate in the GFPP. Eighteen jurisdictions (including school districts) have adopted a formal policy. Enrolled institutions work with the Center for Good Food Purchasing to undergo annual assessments against the [GFPP standards](#) for each value category and set annual goals to increase their purchasing of “good food.”

The environmental sustainability standards focus on increasing purchasing of products that have one or more third party certifications for environmental sustainability and reducing the carbon and water footprint of food purchasing. The Good Food Impact Hub has a [calculator](#) to help project the environmental impacts of food purchasing shifts.⁸

Policy Recommendations and Examples:

Some states have begun to take action to improve the sustainability of school foods by increasing the availability of plant-based options. There has also been some momentum at the federal level with bill introductions and advocacy.

Federal Policy Recommendations

- During Child Nutrition Reauthorization (CNR), Congress should strengthen access to plant-based meals in school by expanding requirements around availability and authorizing funding to support schools in the transition.
- The USDA should explore opportunities to facilitate district procurement of commodities/USDA foods that are produced and procured in an environmentally sustainable way and incentivize purchases of more fruits, vegetable, whole grains, legumes, and nuts and seeds through the program. USDA should also encourage districts to utilize procurement specifications such as “locally grown,” “locally raised” and “locally caught” and finalize additional procurement specifications that promote environmentally sustainable foods.

- The USDA should conduct a study to explore opportunities to revise the meal pattern and the available products under the USDA foods program to better support climate-friendly school meals.
- The USDA should issue guidance to encourage offering plant-based meals that meet the nutrition standards and meal pattern and provide technical assistance. Immediate efforts should focus on facilitating schools in applying the provisions within the 2024 final rule, *Child Nutrition Programs: Meal Patterns Consistent with the 2020-2025 Dietary Guidelines for Americans*, that allow nuts and seeds to credit for 100% of the meats/meat alternates component and allows beans, peas, and lentils offered toward the meat alternates meal component to also count toward the weekly vegetable subgroup requirement.

Federal Policy Examples

- (Introduced) The Healthy Future Students and Earth Pilot Program Act of 2023 (Federal Bill H.R.3276) would establish a pilot program for providing 100% plant-based food and milk options in school meals.⁹ USDA would award grants for activities such as training food service personnel on serving 100% plant-based options and covering additional costs of buying plant-based ingredients.¹⁰
- (Introduced) The Green New Deal for Public Schools Act of 2023 (Federal Bill S.2988) would establish a grants program for climate resiliency projects including kitchen facility upgrades for more scratch cooking and the use of whole produce and legumes.¹¹
- (Introduced) H.R. 1619 would amend the Richard B. Russell National School Lunch Act to require schools provide fluid milk substitutes at the request of students, rather than just at the request of a doctor or parent/guardian, thus increasing access to plant-based milks.¹² CSPI is supportive of this bill and similar legislative strategies to increase access to plant-based milks so long as they are not paired with introducing full fat (whole) milk back into schools or other measures to circumvent school nutrition standards.

State and Local Policy Recommendations

- States should pass legislation that ensures consistent availability of plant-based meals and requires increased usage of plant-based proteins, decreased dairy, and other swaps that reduce the environmental impact of meals while maintaining evidence-based nutrition standards.
- States should include funding in their state budgets to support school districts in transitioning to meals with lower environmental impact, including for school kitchen infrastructure and staff training.

- Local institutions should pass legislation, such as formally adopting the GFPP, that seeks to improve the environmental sustainability of school meals programs and should appropriate funds to support implementation and monitoring.

State and Local Policy Examples

- (Passed) In 2022, California included a major investment in their state budget for more sustainable school meals. A total of \$700 million, including \$100 million for supporting schools in procuring plant-based, sustainability-produced, and California-grown foods in addition to foods that meet dietary needs of students.¹³ The remaining \$600 million will go towards upgrading school kitchen infrastructure and training for staff.¹⁴ The funding followed several years of effort by California State Assemblymember Adrin Nazarian to increase plant-based options in schools.
- (Passed) Illinois School Lunch Plant Based Option (HB4089) requires school districts to provide a plant-based school lunch option that complies with federal nutritional standards to any student who submits a prior request.^{15,16}

What can we do? Reduce Food Waste

In the United States, over one-third of all available food is uneaten due to loss or waste, costing an estimated \$218 billion annually and food waste in the school meals program (also known as plate waste) is consistent with this overall trend.^{17,18} According to USDA data, nearly one-third of all vegetables and milk served is wasted in NSLP.¹⁹ In addition to environmental concerns, there are also economic concerns about wasted food in schools. The World Wildlife Fund found that food waste could cost as much as \$9.7 million per day or \$1.7 billion every school year.²⁰

Critics have claimed that the stronger standards are to blame for the amount of waste in school cafeterias. However, research does not support this claim. The USDA's nationally representative School Nutrition and Meal Cost Study (SNMCS) found that the quantity of food waste before and after the implementation of HHFKA was similar.²¹ A 2021 systematic review analyzing strategies to improve school meal consumption concluded that "concerns regarding an increase in food waste following the HHFKA were not supported."²² Thus, as a longstanding problem, it remains critically important to reduce food waste in schools.

There are several additional proven strategies that can both increase consumption of healthy food options and decrease food waste. We provide background on those strategies below.

Meal Time Requirements

Students with a lunch period longer than 20 minutes increased consumption of their meal and placed less of their meal in the trash.²³ The Centers for Disease Control and Prevention (CDC) recommends students have at least 20 minutes once they are seated, especially as they try new food items. The majority of relevant studies analyzed in a systematic review found that students at schools with recess before lunch consumed more of differing meal components than students with recess after lunch.²⁴

Offer Versus Serve

Offer versus Serve (OVS) allows students to decline some of the food items offered in the NSLP and SBP.²⁵ It is mandatory for high schools and optional for elementary and middle schools. In elementary schools, the use of OVS is correlated with significantly lower levels of waste for calories and fruits and vegetables when compared to serve-only schools.²⁶

Taste Tests

The majority of the relevant studies with a low risk of bias analyzed in a 2021 systematic review of strategies to improve school meal consumption found a positive association between taste tests, including those paired with nutrition education, and consumption.²⁷ Taste tests can be utilized to both introduce new menu items and tweak existing recipes and can also be used in combination of other waste reduction strategies.^{28,29}

Share Tables

The USDA defines share tables as “tables or stations where children may return whole food or beverage items they choose not to eat, if it is in compliance with local and state health and food safety codes. These food and beverage items are then available to other children who may want additional servings.”³⁰ Foods may also be collected for another meal service or donated to a non-profit such as a local food pantry.³¹

In a model simulating the efficacy and safety of share table policies in schools, share tables reduced the amount of wasted fruit items by 54%, while increasing food consumption by 21%.³² While this food recovery model can raise concerns for food safety, the simulation reflects simple management strategies that contribute to reduced illness risk, including handwashing and hand sanitizers.³³ Share tables also serve as an opportunity to address pre-consumer waste (all waste that happens in the school kitchen before the food is served) due to forecasting errors, (challenges with predicting demand) in addition to student plate waste.³⁴

Culturally Responsive Menus

Implementing culturally inclusive menus in schools is another potential waste mitigation strategy. Culturally appropriate foods in multiple food service settings have been associated with increased acceptability and thus a potential means of reducing food waste.³⁵ Although research is needed in the school setting specifically, case studies on culturally relevant school meals in multiple states demonstrated greater meal satisfaction and, anecdotally, small increases in program participation but are not directly associated with food waste reduction.^{36,37,38} Preliminary research, including that which captures parent perceptions of school meals, has indicated a need for culturally diverse foods to be served within school meals citing that children enjoy culturally appropriate foods and that parents suggest adding these foods to school menus.^{39,40,41,42} Thus, these efforts should be explored through USDA funding and technical assistance as a potential waste mitigation strategy for school meals.

Policy Recommendations and Examples:

A handful of states have begun to take action to increase the amount of time dedicated to lunch in schools. There has also been some momentum at the federal level with a bill introduction.

Federal Policy Recommendations

- The USDA should fund research to better understand existing implementation of OVS, document potential challenges, identify best practices for OVS with grades K-8, explore opportunities for modifications, and consider opportunities to implement OVS for some items (like milk which is among the most wasted items) and not others.
- The Department of Education should publish non-binding guidance recommending states and districts to provide students with a minimum of 20 minutes of seated time to eat during lunch periods, as recommended by the Centers of Disease Control and Prevention.⁴³
- The USDA should issue updated guidance on best practices for share tables as well as fund additional research through USDA's National Institute of Food and Agriculture to continue to inform and expand these practices.

Federal Policy Examples

- (Introduced) The School Food Recovery Act of 2021 (Federal Bill H.R. 5459) would amend the National School Lunch Act to establish a USDA grant and technical assistance program that would provide resources for more schools to implement programs to reduce waste in school lunch and breakfast programs.⁴⁴

State and Local Policy Recommendations

- States or localities should mandate a minimum of 20 minutes of seated time to eat during lunch periods and require recess to be scheduled before lunch for elementary schools. The Department of Education should issue guidance to local education agencies (LEAs) on recommended duration of lunch periods and the importance of sufficient time to eat. States, localities, and LEAs should pass policies that require that students are provided sufficient time to eat.
- Schools should offer food options informed by culturally relevant foods and student taste tests and feedback.⁴⁵ Technical assistance and trainings provided to schools with USDA funds should encourage taste testing and feedback as a best practice for reducing food waste. Congress should continue to fund robust technical assistance and training for schools to implement the meal pattern and minimize plate food waste.
- School districts and health departments should provide clear guidance on food safety parameters specific to share tables.
- States and localities should provide clear charitable food donation parameters and instruction, including guidance on the Bill Emerson Good Samaritan Food Donation Act.
- States and localities should promote collaboration among school districts and nonprofits to facilitate the donation of share table foods to appropriate hunger relief partners.

State and Local Policy Examples

- (Passed) South Carolina⁴⁶ and West Virginia⁴⁷ both passed policies mandating that students receive 20 minutes to eat their lunch after they receive their meal.

What can we do? Reduce Package Waste

Concerns around waste in school foods programs expands past food waste into plastic waste. Schools often serve meals on single-use food service products, which creates both environmental and health concerns.⁴⁸ Reusable options are the best option because they eliminate many concerns around toxic chemicals and volume of waste.⁴⁹ Alternatively, in areas where there are commercial composting facilities, there may be opportunities to switch to compostable single-use items.⁵⁰ Compostable items can still contain harmful chemicals, so it is important to make informed decisions even within the product category.

Policy Recommendations:

Action to pursue package waste reduction at the federal and state level is necessary.

Federal Policy Recommendations

- The USDA should issue guidance on best practices for reducing non-food and packaging waste and provide funding to support schools in the transition. USDA should include incentives and recognition programs for schools taking the lead on reducing non-food waste throughout their districts.
- The USDA and state-level organizations, especially those already in cooperative agreements with the USDA, should establish funding opportunities and resources to support the transition away from single-use service ware and for food preservation. This funding would support the needs for new equipment, equipment upgrades, and purchases of reusable food service items like plates, trays, silverware, etc.⁵¹
- The USDA should fund research on the life cycle costs and benefits of switching to reusable food service wares could help schools make these decisions.⁵² One option is to complete the research as part of a cooperative agreement with state-level environmental organizations.

Ultimately, just as the federal government and state governments have played critical roles in improving both nutrition and access to school meals, there's a major and urgent role for facilitating the transition to more sustainable school meals.

For additional details see our other fact sheet: [Cut Waste, Not Nutrition, in School Meals](#). Additionally, please feel free to contact the Center for Science in the Public Interest at policy@cspinet.org.

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