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REDUCING THE ENVIRONMENTAL FOOTPRINT AND COST OF SCHOOL MEALS

Schools can meaningfully decrease greenhouse gas emissions, water use, and cost of meals by using small menu shifts and reducing food waste. This is according to a study from the Johns Hopkins Center for a Livable Future that quantifies the environmental impact of school meals. "Food Substitution and Waste Reduction Can Reduce the Environmental Impacts and Food Costs of School Meal Programs in the United States" was published in the Journal of the Academy of Nutrition and Dietetics in April 2025.

KEY FINDINGS

Dietary recall surveys from 796 school-aged children across the nation, and other supporting datasets, were used to estimate greenhouse gas emissions (GHGE), the water scarcity footprint (WSF), and food costs of school meals. The GHGE resulting from school meal programs comprises approximately 2% of all diet-related GHGE in the United States.

MILK AND BEEF ACCOUNT FOR THE MAJORITY OF SCHOOL MEALS' GREENHOUSE GAS EMISSIONS.

- Protein foods are the largest contributor to school meals' GHGE, accounting for about one-third of school meals' GHGE–even though they make up a very small portion (5-7%) of meals by weight. Most of these GHGE are from beef.
- Dairy accounts for nearly one-third (32%) of school meals' GHGE, most of which is from cow's milk.

NEARLY 30 MILLION AMERICAN SCHOOLCHILDREN RELY ON FEDERALLY-FUNDED SCHOOL MEALS EACH YEAR

The National School Lunch Program (NSLP) and School Breakfast Program (SBP) reach more than half of the nation's 53 million children in grades pre-K through 12. More than 90% of American schools—nearly 100,000 schools—participate in these programs. In the 2022–2023 school year, SBP served 14.3 million children each day and NSLP served 28 million children each day, a total of nearly 5 billion lunches and 2.5 billion breakfasts per school year at a cost of approximately $30 billion.

These programs are critical for keeping American children healthy and helping them succeed in school. School meals support children's health by increasing their food and nutrition security and improving their diet quality, and numerous studies have found that school meals also help improve students' attendance and academic performance.

REPLACING BEEF AND DAIRY IN SCHOOL MEALS CAN LOWER ENVIRONMENTAL IMPACT.

- Substituting poultry, seafood, or plant foods (e.g., lentils, minimally processed soy) for beef reduces school meals' GHGE by approximately 20%.
- Substituting soy milk for cow's milk decreases school meals' GHGE by approximately 25%.
- Both of these substitutions reduce WSF by approximately 14%.

REDUCING FOOD WASTE IN SCHOOL MEALS IS A SIMPLE AND EFFECTIVE WAY TO REDUCE THEIR ENVIRONMENTAL IMPACT AND COST.

- Reducing food waste by just 5% reduces overall GHGE, WSF, and food costs by 1%.
- Reducing school meals' GHGE by 1% is equivalent to removing nearly 17 million gasoline-powered cars from the road each year.
- Reducing food costs by 1% would result in $300 million in savings across NSLP and SBP.

STUDY RECOMMENDATIONS

The vast reach and scope of school meal programs mean that even small changes can lead to tangible and meaningful reductions in climate impacts and cost. The study's recommendations for schools include:

- Substitute poultry, seafood, lentils, and tofu for beef.
- Offer soy milk as a substitute for cow's milk.
- Reduce food waste in school cafeterias through changes to food preparation and food service processes.
- Implement both food waste reduction and food substitution practices to maximize cost savings and further reduce the environmental impact of school meals.

RESOURCES

The following resources provide additional information on how to implement these recommendations in your school.

Meatless Monday: K-12 for Foodservice

Good Food Institute: Promoting Plant-based Items on Menus

Good Food Purchasing Program: Action Planning Toolkit

Chef Ann Foundation's The Lunchbox: Tools for School Food Change

World Wildlife Fund: Be a Food Waste Warrior

US Department of Agriculture: Use of Share Tables in Child Nutrition Programs

School Nutrition Association: Alternative Breakfast Models: Milk Service Practices In School Nutrition Programs