

Executive Summary

As public schools across the nation grapple with how to feed kids healthy, delicious and environmentally-friendly food on tight budgets, this report spotlights a growing movement of school districts using their massive purchasing power to provide food that is healthier for students and the planet. Climate-friendly school food emphasizes low-carbon, plant-based and plant-forward options — and builds on a decade of progress implementing healthy food policies, farm-to-school and garden education programs. Incorporating more climate-friendly food into the seven billion meals served annually by U.S. school districts is a triple win that delivers compelling health, environmental and financial benefits.

Friends of the Earth’s groundbreaking 2017 case study from Oakland Unified School District demonstrated the impressive environmental and financial gains from shifting to plant-forward foods in one district.¹ In response, school food professionals and advocates wanted to know more: *What are other schools across the country doing? How are they ensuring student satisfaction and successfully serving plant-based meals when government subsidies and dominant culture drive foodservice to offer heavily processed, meat-centric meals? What policy changes and resources are needed to scale up healthy, climate-friendly school food?*

We set out to answer these questions by distilling the lessons learned from detailed case studies in four districts and from interviews with 33 school food professionals across the country.

Section I establishes the health, environmental and financial case for climate-friendly foodservice. **Section II** details replicable strategies implemented by four pioneering school districts, including specific climate benefits from simple recipe swaps. **Section III** examines three key factors that drive successful climate-friendly food programs: 1) Ensuring high participation rates; 2) effective operational strategies (staffing, kitchen facilities, context-appropriate recipes and cost-effective procurement) and 3) dedicated leadership by foodservice directors and key stakeholders (students, parents, school boards, industry leaders and advocacy organizations). **Section IV** outlines policy reforms at the district, state and federal levels that are needed to promote wider adoption of climate-friendly food.

Our report shows that climate-friendly foodservice is not only feasible, but can also boost student participation and community appreciation of school food. We document many districts that are showing

the way through tenacious leadership, community buy-in and assistance from supportive organizations. We also emphasize that scaling up climate-friendly school food will require significant cultural, institutional and policy shifts as well as engagement from diverse school food stakeholders and policymakers. Fortunately, many strategies and policy solutions for climate-friendly food also support parallel efforts for fresh, scratch-cooked meals and farm to school purchasing — all interrelated components of the broader healthy, sustainable school food movement. We encourage readers who want to make change in their communities to reach out to the school foodservice leaders we interviewed and experts from supporting organizations, all of whom have agreed to provide suggestions and guidance (see Appendix B and C for contact information).

What is climate-friendly foodservice?

Healthy, climate-friendly foodservice is a multi-benefit strategy that can be achieved in incremental steps. Principally, it achieves a lower carbon and water footprintⁱ than traditional foodservice by offering a wider array of healthy, plant-forwardⁱⁱ and plant-based foodsⁱⁱⁱ and reducing food waste. It also cuts emission by sourcing food from regenerative farms that use carbon-enhancing, healthy soil practices and implementing energy and water-saving measures within cafeterias. The shift to climate-friendly food is inclusive of farm to school initiatives that prioritize fresh, organic and responsibly sourced ingredients from local farms and educate students about the power of food to cultivate healthy people and healthy minds.

Within this broader vision of climate-friendly foodservice, this report focuses primarily on strategies for increasing offerings of healthy, cost-effective plant-forward foods. While we encourage schools to source food from organic, regenerative farming operations, and for distributors to make organic food more widely available, we recognize that budget limitations can often make sustainable sourcing cost-prohibitive for many schools. Over time, we must shift agricultural policies and increase state and federal funding for school lunch in order to expand access to more healthful and sustainable foods.

i “Carbon footprint” refers to climate impact associated with carbon dioxide emissions and other greenhouse gases, including methane and nitrous oxide. These emissions may occur anywhere during the life cycle of a product including production, transportation, use and disposal.

ii “Plant-forward” refers to a diet or a food dish that emphasizes plants instead of meat and dairy but that does not consist solely of foods that are plant-based.

iii “Plant-based” refers to food that is wholly derived from plants, including vegetables, legumes, grains, nuts, seeds and fruits.

Section I. The Case for Healthy, Climate-friendly School Food

The need to dramatically reduce meat consumption is clear. Public health experts overwhelmingly agree on the need to reduce consumption of processed and red meat in favor of more plant-based foods. Americans eat significantly more meat than is recommended by U.S. Dietary Guidelines for Americans,² and adults consume an average of 66 percent more protein per day than they need.³ Only 20 percent of adults eat the suggested amounts of fruits and vegetables.^{4,5,6} High consumption of red meat, especially processed meat, is associated with increased rates of cancer, heart disease, obesity, diabetes and a shortened life span. Meanwhile, diets high in vegetables, fruits, whole grains and beans help prevent these diseases, saving our nation billions of dollars in costs from diet-related chronic diseases.⁷

Industrial meat and dairy production take a huge toll on our planet. They are major drivers of our gravest environmental problems, including climate change, deforestation, species extinction and depletion and pollution of our soil, water and fisheries. Animal products are the most carbon- and resource-intensive foods in our diet, requiring massive water and energy inputs. Studies show that we cannot avert the worst impacts of climate change or protect future water supplies unless we reduce meat and dairy consumption in favor of plant-forward meals.⁸ The U.S., which consumes 2.6 times more meat than the global per capita average, must help lead the way toward a plant-forward food culture.⁹



Source: San Francisco Unified School District

We also address cost — a top concern among foodservice directors. The good news is that several reports, as well as our case studies and interviews, show that meat reduction can actually save money, or at least be cost neutral, depending on kitchen facilities and staff resources. Using more plant-based proteins will become more even cost-effective over time, as volatile weather and shifting subsidies will increase the cost of animal products in coming years.^{10,11}

Healthy, climate-friendly food is a positive trend boosted by growing demand

Schools districts across the country are providing more plant-based options, creating meatless days and participating in culinary trainings to energize staff about plant-forward recipes. Public institutions are expanding their commitments to serve healthy, climate-friendly food through efforts like the [Good Food Purchasing Program](#), [Meatless Monday](#) and “Lean and Green” days. Student activism and growing demand were central to shifts toward plant-based menus in Boulder, CO; Charlotte-Mecklenburg, NC; Dallas, TX; Lee County, FL; St. Louis, MO; Los Angeles, San Diego, San Luis Coastal and Ukiah, CA school districts.

Section II. Climate Benefits from Plant-based Menu Shifts in Four Pioneering School Districts

- [Novato, California](#): A single recipe swap (serving a Morning Star veggie burger instead of a beef burger) reduced the district’s footprint by 1.3 million pounds of CO₂ emissions over 10 years — equivalent to not burning 70,000 gallons of gas or 650,000 pounds of coal.
- [Lee County, Florida](#): By replacing beef tomato pasta eight times a year with Beyond Meat Crumble tomato sauce, this district reduced its footprint by 2.3 million pounds of CO₂ emissions over a two-year period — equivalent to not burning 120,000 gallons of gas or 1.2 million pounds of coal.
- [Santa Barbara, California](#): The district reduced its carbon footprint by 300,000 pounds of CO₂ emissions over two years, simply by replacing beef chow mein with Hungry Planet’s non-GMO soy-based chow mein. This is equivalent to not burning 15,000 gallons of gas or 150,000 pounds of coal.
- [Boulder Valley, Colorado](#): Offering a veggie nachos option alongside beef nachos, the district reduced its carbon footprint by 800,00 pounds of CO₂ emissions — equivalent to not burning 41,000 gallons of gasoline — over a seven year period. (Roughly 13 percent of students choose the veggie option, suggesting even greater gains are possible.)

Section III. Strategies for Scaling up Healthy, Climate-friendly Foodservice

A. Boosting participation and image of school food

Since participation rates are the main driver behind school foodservice profitability, strategies are needed to help kids enjoy and want more of these healthy and climate-friendly foods.

Strategy 1. As Bertrand Weber from Minneapolis Public Schools says, **changing the mindset from fast-food to “true-food” boosts appreciation of healthier food.**

Key approaches include:

- **Using fresh and local ingredients:** Districts report that highlighting more farm-fresh, local and seasonal ingredients is important to building more student and community trust in the foodservice. (Austin, TX; Vancouver, WA; Novato, CA; Boulder, CO, and others).
- **Serving plant-forward meals in a friendly dining environment via** food trucks (Santa Barbara, Austin and Boulder), food courts (Riverside and Lee County), build-a-bowl stations (Dallas and Minneapolis), salad bars, grab-n-go carts (Dallas and Ukiah) and plant-based “pop-up restaurants” (Riverside).
- **Increasing scratch and speed-scratch cooking:** If feasible with kitchen and staff capacity, scratch cooking is the best way to make fresh, delicious meals that students and the community value. Boulder, Minneapolis, Santa Barbara and Oakland all do this successfully. When scratch cooking isn’t possible, many districts have succeeded with heat and serve and cold plant-based options.

Strategy 2. Shift cultural preference toward plant-forward food by building appreciation for plant-based food and confronting the misguided belief that plant-based meals do not provide enough protein.^{12,13}

- **Taste tests** emerged as the number one way to improve participation rates, including try-it days (Vancouver), recipe competitions (Charlotte-Mecklenburg, San Diego, Boulder), build-a-meal concepts (Dallas), student focus groups (San Francisco and San Diego), piloting a plant-based food court line (Lee County) and food festivals (Dallas and Santa Barbara). (See Appendix A, p. 35 for an extensive list and links to popular climate-friendly recipes).
- **Positive messaging** that highlights the flavors and deliciousness of plant-forward items, while avoiding the words “vegan” and “vegetarian,” is essential. “Positive framing is really important,” said Tara McNamara, marketing coordinator for San Diego Unified. “By calling it vegetarian, it makes it sound like it is just for the vegetarians, but it’s really just for everyone.”

- **Staff ambassadors, including the principal,** are effective and motivational spokespeople who can help instill healthy eating habits (Novato, San Francisco and Austin).
- **Prioritize class-based and parent-focused nutrition education** (New York’s [Coalition for Healthy School Food](#) and [Wellness in the Schools](#) as well as San Diego and Novato school districts).

B. Investing in kitchen facilities, staff, recipes and cost-effective procurement strategies

For students to embrace climate-friendly food, it needs to be delicious. And delicious food requires good ingredients, good cooks, good equipment and good recipes.

Strategy 1. Investments in staff training and hiring pay off: Several districts report that investments in professional development, supported by culinary training grants and NGO resources, have reaped substantial dividends in the form of tastier meals and greater student satisfaction (Oakland, San Diego, Minneapolis and St. Louis). For districts with frequent labor shortages that are unable to hire sufficient staff for scratch cooking (common in rural districts, such as Ukiah Unified), climate-friendly foodservice is still possible using [pre-made plant-based products](#) in conjunction with cost-saving strategies.

Strategy 2. Better cooking facilities are ideal, but plant-forward food is possible in any school kitchen: Several districts say that scratch and speed-scratch (combining scratch cooking with a pre-made product) are typically the most cost-effective way to create plant-based, fresh-tasting meals that students love. Scratch cooking lends itself to using local and fresh ingredients, which make meals more delicious and appealing. Despite the added challenges, districts with limited capacity for scratch cooking (such as Ukiah and Lee County) have successfully served plant-forward meals using pre-made products.

Strategy 3. Ensure access to culturally- and context-appropriate foods and recipes: To succeed, climate-friendly recipes must be accepted by students and adapted to each district’s cultural contexts, sensitivities, religious traditions and cooking capacities. (See Appendix A for an extensive list and links to popular plant-based and plant-forward recipes, including less carbon-intensive blended meat recipes.)

Strategy 4. Cost-effective plant-based procurement:

- **Menu-level budgeting** entails balancing a product or recipe that is slightly above the budget allocation per meal with a lower cost product or recipe. This allows food service operations to keep weekly menu-level expenditures within the budget. (Santa Barbara, Lee County, and Boulder).

- **Creative revenue generation** allows districts to expand their food budgets and purchase more expensive plant products and local ingredients while also paying employees a living wage. Districts increase their federal reimbursable meals by serving breakfast in the classroom as well as after school snacks, summer meals and catering at school and in the community (Boulder, Minneapolis and Santa Barbara).
- **Joint bids** on plant-based products are an important way for districts to make plant-forward products available and affordable on a larger scale. The [Urban School Food Alliance and Forum for the Future](#) are working on competitive bid processes for plant-based foods.

C. Strong leadership is essential

In the 18 school districts we studied, strong leadership from all stakeholders is essential for overcoming the dominant corporate food status quo. Bold and committed leadership helps these districts create healthy, climate-friendly foodservice despite a challenging regulatory environment and federal policies that incentivize highly processed, meat-centric foods.

Section IV. Policy Actions for Scaling Up Healthy, Climate-friendly K-12 Foodservice

District level:

- Require a plant-based food option at every meal.
- Adopt the [Good Food Purchasing Program](#) to promote a systemic shift toward healthy, local, humane, equitable and climate-friendly foods.
- Adopt [Meatless Monday](#) or Lean and Green days that feature plant-based food as the primary entrée.
- Elect to make your district an [Offer Versus Serve](#) site, in order to make milk optional.
- Reduce and eventually remove processed meats (e.g. chicken nuggets, hot dogs, bacon, lunch meat) from school menus and disallow purchasing contracts with fast food companies for these unhealthy foods.
- Pass local bond measures that increase funding for new kitchen facilities (Oakland, California [Measure J](#)).
- Adopt a [climate action resolution](#) that commits a school district to pursue climate-friendly foodservice.

State level:

- Enact healthy, climate-friendly food resolutions or legislation encouraging or requiring schools to serve daily vegetarian and/or vegan options to students (California, [New York](#) and [Hawaii](#)).
- Enact farm to school purchasing legislation that provides financial incentives for purchasing more

locally sourced plant-based products (a win-win for student health and local farms.)

- Provide web-based educational resources (including recipes, on-line trainings and sample policies), modeled after the [California Department of Education's Vegetarian Meal Options in Child Nutrition Programs website](#).
- Increase plant-based options on state procurement bids and support joint purchasing initiatives.
- Increase funding for school food cooking facilities and invest in nutrition education programs and wellness policies that emphasize the benefits of plant-forward eating.

National level (U.S. Department of Agriculture):

- Rename the Meat/Meat Alternate Category as the "Protein Category."
- Add more plant-based proteins that credit under current M/MA (include tempeh, seitan, all lentils, quinoa and other high-protein, plant-based foods) and allow for crediting/reimbursement regardless of how the food item is presented.
- Require all schools to be Offer Versus Serve for milk as a default.
- Spend a larger portion of USDA Foods budget on plant-based bulk foods and meat alternatives (e.g. veggie burgers; bean burritos) and add diverse products like tofu, seitan and soy yogurt to its food offerings.
- Update USDA's technical resources for wellness policies and nutrition education, including the [Core Nutrition Message](#), to better reflect the 2015-2020 Dietary Guidelines for Americans recommendations that boys should consume less meat and that plant-based proteins are part of a healthy diet.¹⁴
- Provide education and resources, including plant-based recipes and pre-made [product lists](#), to all relevant websites — similar to the resources provided on the web page "[Vegetarian Meal Options in Child Nutrition Programs](#)" hosted by the California Department of Education.

National level (Congress):

- Amend the National School Lunch Act to:
 - a) Allow for higher reimbursements for all meals; and especially for meals with fresh fruits and vegetables;
 - b) increase grant funding for farm to school programs and kitchen improvements (both equipment and built infrastructure); and
 - c) make dairy an optional, rather than mandatory meal component.