



Organic School Food: A Roadmap for Success



ACKNOWLEDGEMENTS

The Organic School Food Roadmap was researched and written by Leah Smith, consultant to Friends of the Earth, in collaboration with Kari Hamerschlag, Elizabeth Vaughan, and Emma Finn of Friends of the Earth. Kendra Klein and Lisa Archer of Friends of the Earth and Christopher Cook provided skillful edits. For the incredible design work, we thank Keiko Okisada.

Many thanks to the food service directors, nutrition services staff, food producers, farmers and ranchers, distributors, non-profit partners, consultants and experts who took the time to share their passion and expertise with us. This report reflects primary and secondary research, as well as shared knowledge by numerous leaders dedicated to organic and locally grown school food.

Special thanks to the following food service managers and directors who gave their time to be interviewed for the school food case studies and whose school food service programs serve as an inspiration for organic food in schools: Alexandra Emmott, San Francisco Unified School District; Vince Caguin, Natomas Unified School District; Michael Jochner, Morgan Hill Unified School District; Erin Primer, San Luis Coastal Unified School District; Lea Bonelli, Encinitas Unified School District; Adleit Asi and Scott Berndt, Riverside Food Hub Coordinator, Riverside Unified School District and Kat Soltanmorad, Tahoe Truckee Unified School District.

We thank the following school food supply chain players and organizations who provided valuable information for the creation of this resource: AgLink, Clover Sonoma, California Department of Food and Agriculture – Office of Farm to Fork, Daylight Foods, Earl's Organic, EatREAL, Feed Sonoma, FreshPoint, Goldstar, HealthCare Without Harm - ProCure Works, JSM Organics, Mary's Chicken (Pittman Family Farms), Next Generation Foods, Pacific Rim Produce, Preferred Meals, Revolution Foods, Sustainable Agriculture Education (SAGE), Straus Family Creamery, Sunrise Produce, The Abundant Table, Veritable Vegetable, and Vesta Food Service.

We also thank Nancy Weiss, former food service director for Santa Barbara Unified School District; Jennifer McNeil, LunchAssist and former food service director; Miguel Villareal, food service director at San Ramon Unified School District; Leyla Merandi, Center for Ecoliteracy; Laetitia Benador, California Certified Organic Farmers; Julian Kraus-Polk and Ben Thomas, Community Alliance with Family Farms for their supportive guidance, helpful reviews and edits.

We are grateful to the Clarence E. Heller Foundation, the Bronner Family Foundation and Patagonia for their generous support for the Organic School Food Roadmap and Friends of the Earth's Climate-Friendly School Food Program.

Friends of the Earth's Climate-Friendly School Food Program helps school districts make the shift towards healthy, delicious, plant-forward menus. The program provides technical assistance and marketing materials, supports student and community engagement strategies, and links school districts with the resources they need to be successful. Friends of the Earth also partners with school districts and NGOs to advocate for state and federal policy change.

The findings, recommendations and any errors or omissions in this report are solely the responsibility of Friends of the Earth. ©



I. INTRODUCTION

The **Organic School Food Roadmap** is a practical “how-to” guide, developed to help California school food service teams make organic purchasing decisions and overcome key challenges when buying organic foods. By outlining **six key strategies** and sharing **seven brief case studies** from diverse school districts (see [Appendix A](#)), we hope to show how school districts with various food service models can successfully source organic food. The Roadmap also serves as a resource to school food partners invested in providing healthier, more sustainable food for students in their communities. Having the right partners at the table is essential to making organic school food a reality.

Why organic? We focus the Roadmap on sourcing organic food because of the positive health, environmental and economic benefits associated with the production and consumption of organic foods. By using their vast purchasing power to source more organic food, school districts can provide students with foods that are associated with a range of health benefits while building a more resilient, less toxic, climate-friendly food system.¹

In a typical year, California schools supply 540 million school lunches to nearly six million students² — more than half of whom rely on free and reduced-price school meals for up to half of their daily nutrition needs.³ For these students in particular, school food plays a significant role in their health and educational outcomes.⁴ The coronavirus pandemic has revealed more starkly what we already knew — underlying health is vitally important, and diet-related diseases increase overall health risks and are more prevalent

among low-income children, especially communities of color. This makes school food service a vital opportunity for critically needed interventions to transform our food system toward greater health and justice.⁵ According to a new UC Berkeley report, roughly 30% of California school

districts have engaged in some form of organic procurement. We hope this roadmap can help those districts expand their organic purchasing and provide the tools necessary to inspire new districts to being offering organic items. We believe this roadmap will be especially helpful in light of a new [California Farm to School program](#) that provides technical and funding support for local and regional food purchasing. This \$8.5 million grant program from the California Department of Food and Agriculture encourages school districts to partner with producers that use climate-friendly practices, including **organic farmers or those transitioning to organic** and regenerative agriculture. This exciting new resource, championed by the state’s First Partner Jennifer Siebel Newsom and many healthy school food advocates, creates fresh opportunities for school districts to implement the strategies outlined in this report.



Organic animal products are produced without antibiotics, growth-promoting drugs or hormones, and come from animals raised on certified organic pasture or fed only certified organic grains and grasses. USDA Certified Organic foods are grown without the use of hazardous synthetic pesticides, synthetic fertilizers or genetically modified organisms (GMOs). Organic farmers generally use natural, soil-enhancing fertility and pest management methods like composting, cover cropping, managed grazing and diverse crop rotations.

The **Organic School Food Roadmap** is primarily based on information gathered from more than 35 interviews with professionals from many key links in the school food supply chain: distributors, food hubs,ⁱ farmers and other food producers, as well as school food service directors. The Roadmap is also informed by interviews with organizations that support school food service programs in the following areas: school nutrition, menu development, farm-to-school programming, bid generation, local and/or organic procurement, and marketing and education.

ⁱ A food hub, as defined by the USDA, is “a centrally located facility with a business management structure facilitating the aggregation, storage, processing, distribution, and/or marketing of locally/regionally produced food products.”

Nourishing children with food grown without pesticides and that supports healthy soil aligns with our values, and demand from schools allows us to plan forward. It’s a win-win.

- Adriana Silva, Farmer, Tomatero Farms



II. ROADMAP OVERVIEW

Serving Organic Food: Strategies for Success

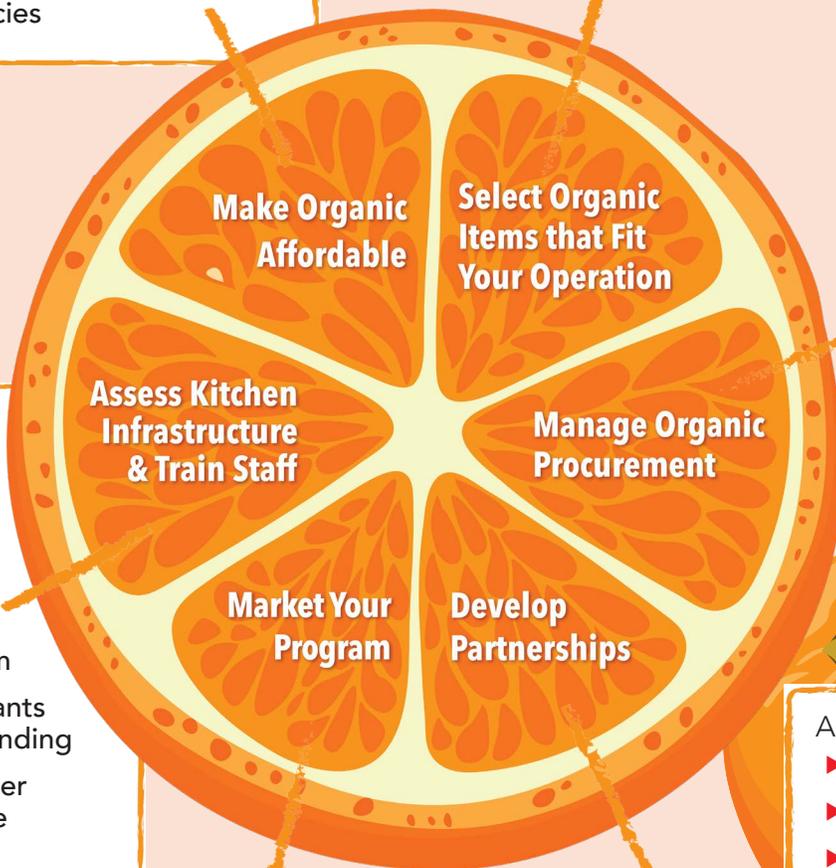
Click on an orange segment to take you to that section of the roadmap!

- ▶ Purchase in-Season for competitive pricing
- ▶ Buy in bulk
- ▶ Reduce meat portions with blended dishes
- ▶ Serve more plant-based foods
- ▶ Increase operational efficiencies

- ▶ Pick the most popular items
- ▶ Start small
- ▶ Choose organic items on the Dirty Dozen list
- ▶ Determine kitchen infrastructure and staff capacity

- ▶ Understand available options
- ▶ Increase supply options with regional producers
- ▶ Buy direct from producers
- ▶ Negotiate prices
- ▶ Use contracting to serve your organic goals
- ▶ Advocate for organic in USDA Foods programs

- ▶ Build skills to support change
- ▶ Purchase equipment to support your program
- ▶ Apply for grants or acquire funding
- ▶ Plan for bigger infrastructure investments



- Additional Resources
- ▶ [Suppliers](#)
 - ▶ [Grants](#)
 - ▶ [Support Partners](#)

- ▶ Employ consistent, creative and bold marketing strategies
- ▶ Incorporate student education
- ▶ Tell your story
- ▶ Celebrate with your community

- ▶ Engage partners, get support and seek funding
- ▶ Update your wellness policy
- ▶ Obtain funding to support innovation



III. THE BENEFITS OF ORGANIC FOOD

Serving organic food in schools produces many health, community and environmental benefits. While reducing students' exposure to toxic pesticides, organic farming protects the health of farmers, farmworkers and rural communities, our air, water and soil, as well as pollinators and other critical species. For an in-depth analysis of the benefits of organic food and farming systems, see the [Benefits Report from California Certified Organic Farmers](#) and [Appendix E](#).

Organic Food Protects Children from Exposure to Harmful Pesticides

Children are especially vulnerable to the effects of pesticide exposure because their bodies are rapidly developing.⁶ Early exposures can have significant and lifelong impacts, from reduced IQ to increased risk of cancers. The American Academy of Pediatrics states that "children's exposure to pesticides should be limited as much as possible."



According to the USDA's 2016 Pesticide Data Program analysis, **47 different toxic pesticide residues were found on conventional apples:** six known or probable carcinogens, 16 suspected hormone disruptors, five neurotoxins and six developmental or reproductive toxins.¹⁸ None of these pesticides are allowed in organic farming.

Switching to Organic Diets Can Quickly Reduce Pesticides in Children's Bodies

In two peer-reviewed studies, after just six days on an organic diet, levels of toxic pesticides in children's bodies (organophosphates including malathion and chlorpyrifos, glyphosate, pyrethroids and more) dropped by 60% to 95%.⁷

Organic Production Eliminates Routine Use of Antibiotics and Other Drugs

Organic meat and dairy producers don't use antibiotics, growth hormones or arsenic-based drugs, whereas over 450 drugs are allowed in non-organic production.⁸ Routine use of antibiotics in conventional animal products is a key driver in the rise of antibiotic-resistant "superbugs" that threaten public health.⁹

Organic Diets Are Associated with Health Benefits

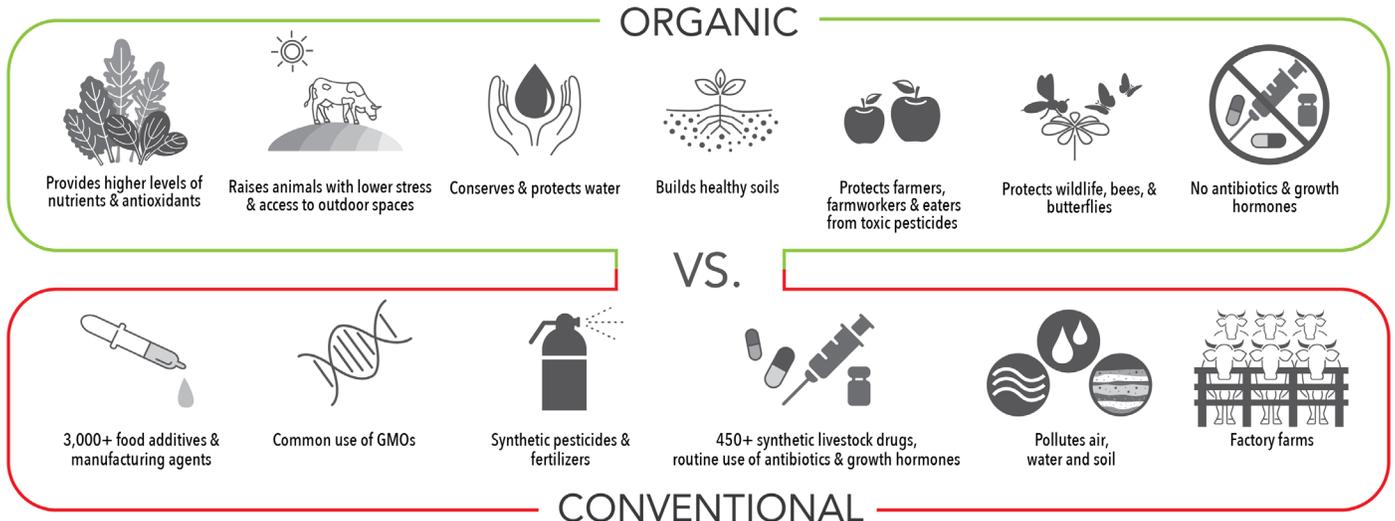
Research shows that organic diets are associated with reduced risk of allergies, otitis media, metabolic syndrome, high BMI, diabetes and certain cancers.¹⁰

Organic Food Can Be More Nutritious

A meta-analysis of 343 studies found "meaningful differences in nutrient composition between organic and non-organic crops," including higher levels of cancer-fighting antioxidants, phenolic acids and flavanones.¹¹ Research has also found that organic milk and meat can have healthier fat profiles.¹²

Organic Farming Is a Climate Change Solution

Organic farming has been found to use less energy and sequester more carbon in the soil than conventional farming.^{13,14,15} It also protects pollinators, conserves water resources and makes farmers more resilient in the face of climate change-related weather extremes like drought and floods.¹⁶





IV. SERVING ORGANIC SCHOOL FOOD: A ROAD MAP FOR SUCCESS

As one of the largest and most populous states in the nation, California is home to a diverse array of school food service programs. California’s schools are in rural, small-town, suburban and urban communities, and range from heat-and-serve to scratch cooking models, vended pre-prepared meals to “speed scratch,” and “grab ‘n go” to family-style food service. Other important variations include differences in community and district size; the presence or absence of satellite or production kitchens, and/or a central kitchen; staff capacity and skill-level; food service leadership and school culture; community values; and storage/refrigeration and kitchen equipment. This Roadmap is designed to address a variety of barriers across diverse food service models, in order to make purchasing organic easier. It is informed by on-the-ground stories from school food service leaders, showing how organic purchasing is possible across different types of food service programs. For more detailed stories from a variety of school districts, see the **case studies** in [Section V](#).

A. Make Organic Affordable

Understanding the price and value of organic is key to making strategic cost-effective decisions. This section will help you decide which organic items to prioritize and how to get competitive prices.

PURCHASE IN-SEASON FOR COMPETITIVE PRICING

Surprise! Organic *can be* affordable. Produce is a great starting point for purchasing organic foods. Prices for fresh fruits and vegetables fluctuate from year to year, seasonally and sometimes even week to week. According to Chef Michael Jochner, Director of Nutrition Services for Morgan Hill USD, some organic products are priced remarkably close to their conventional equivalents, as noted in the table below. Chef Michael was able to secure cost-effective prices by building relationships with local organic farmers and by selecting a new distributor that has a wide variety of locally sourced organic options. You can find more details on identifying cost-competitive items through existing supply chains in the [Manage Organic Procurement](#) section.



Organic Items Can Be Price Competitive*

Price Per ½ Cup Serving

	ORGANIC	CONVENTIONAL
 Iceberg Lettuce	\$23.75 per 40 lbs 12 cents	\$20 per 40 lbs 10 cents
 Baby Carrots - Bulk	\$27.84 per 25 lbs 17 cents	\$27.60 per 25 lbs 17 cents
 Baby Spinach	\$16.80 per 4 lbs 27 cents	\$14 per 4 lbs 23 cents
 Blueberries	\$31.20 for 10 lbs 52 cents	\$31.20 for 10 lbs 52 cents
 Fuji Apples	\$45.60 per 40 lbs 15 cents	\$48 per 40 lbs 16 cents

*Note: The prices here are from a snapshot in time from one school district during the 2019/20 school year.

When purchased in-season, organic produce can be cost-competitive. For example, during peak growing season (mid-April to the end of June), San Francisco Unified School District was able to buy organic strawberries (\$1.70/lb.), a popular fruit among students, at a price similar to conventional strawberries (\$1.50-\$2.00 per lb.). According to food service directors we interviewed, some of the top seasonal organic items to buy include lettuce, stone fruit, berries, apples, citrus, summer and winter squash and tomatoes. A recent study by CAFF and Edible Schoolyard found that more cost neutral/competitive seasonal produce includes seedless watermelons, snap peas, kiwis and pears.

FACTORS THAT IMPACT THE COST OF ORGANIC

The higher cost of organic food is largely due to the increased labor needed to manage pests and maintain healthy soils, rather than using synthetic chemicals. Another reason for the price difference is the large federal subsidies for conventional commodities — many of which are available at low cost to school districts through the USDA Foods programs.

BUY IN BULK

When served in bulk, organic milk is highly cost-effective: it saves money and reduces packaging and milk waste. Purchasing oils and dried goods that have a longer shelf life and do not require cold storage — such as legumes, pasta, grains, nuts, seeds and flours — can also be a strategic way to plan and stretch your dollars when buying organic. While some bulk products may be available through your *broadline*ⁱⁱ or regional distributor,ⁱⁱⁱ you may need to purchase them directly from producers. For example, San Luis Coastal Unified School District developed a direct purchasing relationship with Kandarian Farms, which produces ancient grains and pulses, including lentils. See the [San Luis Coastal case study](#) for more information.

ii Broadline distributors serve as one-stop-shops for school districts in need of purchasing a large number of food and non-food items.

iii Regional food distributors provide a bridge between regional food producers and generally focus on customers located in their region.

“Typically, purchasing organic meat can be more expensive, but we have been lucky to get a competitive price. We are able to combine it with other inexpensive proteins like beans, or add the meat to sauces, in order to stretch the product. For example, our scratch-made blended Bolognese sauce has been a hit with students and staff. Our community has been incredibly receptive to the incorporation of higher quality proteins in our menus, and we also see continual increase in meal participation.”

**- Director Lea Bonelli,
Encinitas Elementary USD**

REDUCE MEAT PORTIONS WITH BLENDED DISHES

There are creative ways to accommodate higher prices for organic meat. When districts have the processing capacity, buying raw meat is more affordable, fresher and less processed than pre-cooked organic products. Food service directors also report saving money by using smaller amounts of meat in recipes. Adding meat to sauces and combining it with other foods like beans, mushrooms, onions, celery, or other aromatic vegetables can help “stretch” the meat. Blending is not always necessary to make organic meat affordable. Several school districts highlighted the availability, affordability and popularity of organic chicken drumsticks and organic beef hotdogs.

THE CASE FOR ORGANIC BULK MILK

San Francisco, Napa and Novato Unified School Districts were all able to save money while serving high-quality, local organic milk in bulk dispensers. Districts used a 10-ounce cup to allow for 8-ounce pours at these “offer vs. serve” sites. Children took only the amount they want instead of an 8-ounce milk carton that may only get partially consumed or land in the garbage before it’s even been opened. As a result, even if organic costs \$.10-\$.13 more per serving, there was a net savings because less milk is purchased, served and thrown away. Bulk milk enables a more exact purchase based on actual consumption. One school district reported milk carton savings of \$30-40,000 per year, money that would have been wasted. See the [San Francisco Unified School District case study](#) for more information.

SERVE MORE PLANT-BASED FOODS

Scratch-cooked plant-forward and plant-based meals can be less expensive than meat-based dishes, creating budget flexibility to purchase more organic food. By replacing a share of meat, poultry and cheese with plant-based, plant-forward options, schools districts can save money and reduce their carbon footprints while improving students' access to healthful foods, as demonstrated by Friends of the Earth's [Oakland Unified School District Case Study](#). Additionally, a pilot program in West Contra Costa Unified School District, supported by the nonprofit Conscious Kitchen, was able to serve organic food at affordable prices by offering plant-forward cuisine sourced from regional suppliers with long-standing relationships with organic farmers. Read more about this case study [here](#).

"When adding organic items to your menu, start small. Pick one item and do your research to find the most competitive price."

**- Director Lea Bonelli,
Encinitas Elementary USD**

INCREASE OPERATIONAL EFFICIENCIES

The **case studies** in [Section V](#) highlight strategies for increasing operational efficiency and effectiveness so that more resources can be dedicated to organic foods. These include selecting high-value whole food items within USDA Foods instead of spending fees on commodity processed items, reducing garbage fees and food costs by reducing food waste, and expanding participation rates with additional meal programs (e.g., breakfast and supper) to add revenue while not increasing fixed costs. Investing in a consultant to support budgeting, menu planning or administrative reviews can also free up valuable time that can be invested elsewhere.

Affordable, Organic, Plant-Forward Menu Items from Conscious Kitchen

Plant-Forward Meals (100% organic ingredients)	Food Cost per Meal
Pasta marinara, roasted cauliflower and orange slices	\$1.43
Nachos with pinto beans, salad and apple slices	\$1.51
Vegan chili, roasted broccoli and fruit salad	\$1.17
Grilled cheese, roasted potatoes and mandarin oranges	\$1.07

B. Select Organic Items that Fit Your Operation

California has the good fortune of a long growing season with a diverse range of available organic foods. Produce can be the easiest place to start buying organic, but it's not the only smart choice. Choosing organic foods that fit your operation is key. This section is designed to help you find the organic foods that work well in your program.

PICK THE MOST POPULAR ITEMS

Make an Easy Switch for Your Program Selecting organic items that are already popular among students or making easy switches with current offerings is a wonderful way to start. If your students love fruit cups, create an organic fruit cup or feature a popular organic fruit such as berries, kiwi or melons and see the results. If it is easy to swap out conventional carrots, organic carrots often have a more delicious, sweet flavor with great crunch that kids enjoy.

START SMALL

Choose a Few Foods or Start with Seasonal Salad Bar Items If you have or plan to start a salad bar, selecting an organic item that stands out visually and has great flavor can yield positive responses from students. Examples include organic strawberries, apples and stone fruit. In addition, salad bars generally help reduce waste (students only take what they want/need), which reduces costs. If "grab 'n go" salads are popular, organic sweet cherry tomatoes and crisp organic mixed salad greens will make them stand out.

CHOOSE ORGANIC ITEMS ON THE DIRTY DOZEN LIST

Prioritize Items on the Dirty Dozen List in order to reduce students' exposure to pesticide residues, the [Dirty Dozen List](#), published annually by the Environmental Working Group based on laboratory tests conducted by the USDA's Pesticide Testing Program and the Food and Drug Administration (FDA), includes the top 12 produce items with the highest number and amount of pesticide residues (strawberries and leafy greens rank worst). Most of these foods are commonly served in school meals. Distributors

and farmers can help compare “peak season” pricing to further determine which of these items have the lowest cost variance when purchased organically.

Select Foods That May Have High Glyphosate Residues

Some conventional foods have particularly high residues of glyphosate, the key ingredient in Roundup, because the pesticide is used right before farmers harvest in order to “dry down” or desiccate crops. Testing shows that oat-based foods like oatmeal and granola bars, as well as other dry goods like crackers and breads, can have high levels of glyphosate residues. Beans and bean-based products like hummus are also found to have high levels.¹⁷ These can be great targets to swap out for organic items when possible.

DETERMINE KITCHEN INFRASTRUCTURE AND STAFF CAPACITY

Staff capacity, skills needed, and time required to prepare a given item, as well as equipment and kitchen infrastructure, should be looked at together to decide which products are most suitable for your program.

For districts with limited staff capacity for washing and processing, there are choices that fit with your program. Choose pre-made organic options including packaged cheeses, yogurt, hummus, bread, rolls, snacks and milk. Purchase organic lettuce that’s already washed, chopped and/or mixed; pre-cut carrot sticks and baby carrots; and pre-cut celery sticks and sliced apples. Enjoy whole organic fruit for individual servings of apples, tangerines, pears, nectarines, plums, pluots, peaches and strawberries. Choose organic prepared food products, such as veggie patties and Mary’s organic chicken hotdogs.

For districts with scratch cooking or speed-scratch capacity, the range of options becomes greater. Investing in proper processing and cooking equipment can make in-house prepared foods competitively priced with pre-cut or pre-cooked foods from manufacturers or distributors. The ability to purchase whole organic produce and prepare on site creates a wide variety of produce-driven recipes that can become the “center plate” of any

TOP PICKS FOR ORGANIC: THE DIRTY DOZEN LIST*

#1		Strawberries	#7		Peaches
#2		Spinach	#8		Cherries
#3		Kale	#9		Pears
#4		Leafy Greens	#10		Tomatoes
#5		Apples	#11		Celery
#6		Grapes	#12		Potatoes

*Source: Environmental Working Group (2020)

school meal. Roasted root vegetables, seasonal fruit salads, homemade dressings, soups and sauces can easily be prepared in a scratch-cooking facility. Raw organic ground beef, whole or cut chicken, ground turkey and plant-based alternatives like organic tofu can be prepared and served by trained food service staff. The staff time needed to process these items is expensive, so it’s imperative to prioritize which organic products can be used in your meal program based on budget, volume, student interest and consistent product availability.

If you use a food service vendor to supply meals, working with your vendor is key. Find vended meal options that include organic foods, use organic preference in your bid language and contract with vendors that offer organic items. Negotiating for organic foods prior to contracting is most effective. Keep in mind that larger school districts that share similar values can vend delicious scratch-cooked organic meals to neighboring districts!

“Do a salad bar! It’s the easiest way. Allow for choice. Plate waste (and therefore cost) will be lower, and your sales of produce will increase. Reduction in waste will allow you to buy fresh fruits and vegetables rather than canned. Prioritizing seasonal organic produce means that you can get the produce more affordably.”

**- Adleit Asi,
Director of Nutrition Services RUSD**

C. Manage Organic Procurement

Obtaining organic foods may require developing new supplier relationships; adopting new bid language that indicates a preference for organic foods in Requests for Proposals; and changing purchasing policies and procurement procedures. It may also require strategic use of purchasing options allowed outside of required contracting processes. To maximize your organic options, this section can help you understand the range of choices available. If your current broadline, regional or produce distributor does not carry the organic items you are seeking, knowing your options empowers you to make the best decisions for your program.

UNDERSTAND AVAILABLE OPTIONS

Selecting cost-competitive organic items available through your current suppliers is an excellent choice. If your primary distributor(s) (broadline and/or produce distributor) offer organic, review their offerings to see if they match your desired products and price points. If not, ask them to carry the items you wish. Inquire about price flexibility and the volume and purchasing frequency required for them to offer these items.

According to school food service directors, broadline distributors may have limited organic choices or non-competitive prices. If your current suppliers do not meet your specifications, you may need to go out to bid for a new regional distributor or produce

FOOD HUBS AND SCHOOL FARMS

Food hubs aggregate and distribute locally produced and often organic crops and products from a variety of farmers. A food hub can be a fantastic way to work with multiple farmers at once while getting a single delivery of local and organic foods. Some school districts grow some of their own organic food for their food service program. Encinitas Union School District has its own 10-acre organic farm. Riverside USD has its own food hub. Bringing these roles “in-house” can help you get the products you want.

distributor that specializes in or offers more organic options. Other good options include direct purchasing, micro purchasing, buying through a food hub, negotiating for lower prices, contracting directly with a farm or even using school district-produced items. These options are described further in the Roadmap.

“For us, it’s about where the food we serve comes from. We know and have relationships with many of our farmers and food businesses. It’s not always more expensive; many vendors will give bulk volume discount pricing.”

**- Erin Primer,
Director of Food Services, SLCUSD**

INCREASE SUPPLY OPTIONS WITH REGIONAL DISTRIBUTORS

Regional distributors frequently have strong buyer relationships with local/regional producers and can offer a competitive price due to the higher volumes of products they source. For a **list of potential suppliers**, see [Appendix B](#). Keeping a close relationship with your distributors and learning through them what is coming in season helps with planning for organic purchases. If you can indicate demand for a particular item, regional produce distributors often consider sourcing what you need from a new organic producer. For examples of sourcing organic products through regional distributors, see this [Conscious Kitchen Case Study](#) about three Northern California schools.



BUY DIRECT FROM PRODUCERS

Building direct relationships with food producers and tracking seasonal prices has yielded remarkable results for food service directors looking to procure in-season organic produce. Produce is not the only organic item that can be purchased directly. Meat, dairy, pasta, tofu, bread and other items can be more cost-competitive when purchased directly from producers. For some organic suppliers, a commitment to regular purchases and buying a specified volume is key to lower pricing. Another way to get the benefits of purchasing directly without adding vendors is to ask distributors to cross-dock, in which a school orders from the farm but the distributor invoices and/or ships your product. In some cases, producers can ship directly as well. Micro purchases^{iv} are a great vehicle for making direct organic purchases and are allowable by school districts within specified limits. Micro purchase and small purchasing thresholds are set by the state, currently at \$10,000 for the 2020 year. Community partners like [Community Alliance with Family Farmers \(CAFF\)](#) can help navigate these procurement opportunities.

NEGOTIATE PRICES

Direct purchasing enables school food purchasers to have a close relationship with a farmer or food producer, which can allow them to negotiate directly. Sustaining an ongoing relationship can go a long way toward securing more favorable prices. Negotiating prices is a fair and customary practice. Key to being successful is knowing the cost of items offered by competitors. Working with your suppliers to understand cost breaks for volume and purchase frequency can help with negotiating a better price. In addition, groups of neighboring districts can form food purchasing cooperatives (co-ops) to use their collective buying power to secure better prices.

USE CONTRACTING TO SERVE YOUR ORGANIC GOALS

School food contracting — formal and informal — requires a competitive bidding process that abides by federal, state and local requirements. To improve your procurement contract, work in advance of the new contract cycle to put together a tailored bid specifying organic produce and products that you

^{iv} A micro purchase is defined as a purchase where the aggregate dollar value does not exceed \$10,000 (per purchase). To meet the requirement for competition, purchases must be distributed equally among qualified suppliers with reasonable prices (to the extent practicable). Visit the California Department of Education website for further guidance on the procurement regulations; <https://www.cde.ca.gov/ls/nu/sn/mbcnp012019.asp>

would strongly prefer, including a list of organic items requested. Indicating specific organic products at the outset of the bidding process ensures a distributor's bid will address specified organic requirements. Utilize CAFF's technical assistance and bid generator to create a bid that prioritizes organic while meeting legal requirements. You are permitted to include specific organic and geographic preference language and include desired/required organic items on your itemized bid list.

"Leverage your menu by spotlighting local and organic items, and utilize USDA Foods programs, such as Brown Box and DoD Fresh, to stretch small food budgets."

**- Erin Primer,
Director of Food Services, SLCUSD**

ADVOCATE FOR ORGANIC IN USDA FOODS PROGRAMS

Advocating for USDA programs to carry more organic food signals that there is demand, and is a first step to getting the USDA to consider increasing organic offerings in its subsidized food programs.

California's Unprocessed Fruit and Vegetable Pilot Program (UFVPP) has enormous potential to onboard local organic farmers; already a few products are being offered from California organic farms. Through an application process and within allocated budgets, your district's Department of Defense (DoD) Fresh funds can be reallocated into this program via the CA Department of Education's (CDE) Food Distribution Program. Using this program and prioritizing organic through the bid process can help increase the number of options available and encourage organic suppliers and producers to enroll in the state program. Advocating for organic items to be offered through DoD Fresh and [USDA Foods](#) is also important.

YOUR VOICE MATTERS!

Together, we can use our collective voice for change. Contact [Friends of the Earth](#) if you are interested in joining us to advocate for changes in policies that result in more organic foods being available through these USDA programs.

D. Develop Partnerships

ENGAGE PARTNERS, GET SUPPORT AND SEEK FUNDING

Partnerships with community organizations are a key ingredient for success in serving organic foods. Review the list of **School Food Technical Assistance Resources** in [Appendix D](#) to find help with procurement, curriculum, marketing, professional development, menu development, bid language, program redesign and farm-to-school programming.

School districts can build valuable partnerships to support values-based changes to their food service through the [Good Food Purchasing Program](#) or [Eat REAL Program](#). By setting good food purchasing standards and offering technical assistance, these programs help districts make significant strides in setting and reaching goals to improve the quality of school food.

UPDATE YOUR WELLNESS POLICY

School district wellness committees are powerful vehicles that establish clear policies related to nutrition, student health and wellness. Wellness committees can be important for engaging district leadership, including superintendents, school board members, parents and others to support increased general fund budgets for school food. Wellness policies often point to the importance of healthful, minimally processed school food and can specify organic procurement preferences. For example,

Berkeley Unified School District's wellness policy states: "Ensure that the food served shall be organic to the maximum extent possible, while maintaining fiscal responsibility." Prioritizing organic foods in your wellness policy is a strategic investment in building momentum and buy-in for organic food. Districts can also include organic in their purchasing procedures and administrative regulations to boost organic foods in your program. Adopting policies and procedures helps organic consumption move beyond individual passionate leadership to becoming part of the school institution.

"I would stress to others that it doesn't happen overnight, and it doesn't happen alone. You can find people to write grant applications, to work with your facilities department, to connect with the community. Figure out what your needs are first, then you can identify the partners who can help make it happen."

**- Kat Soltanmorad,
Nutrition Services Director, Tahoe Truckee USD**

OBTAIN FUNDING TO SUPPORT INNOVATION

Grant funds to support school district organic food initiatives and farm-to-school programs are available. Several districts interviewed for the Roadmap have received grants to support their meal programs and increase staff capacity. In California, school districts have a fresh opportunity with the new \$8.5 million Farm to School Program administered by the California Department of Food and Agriculture. School districts and school food stakeholders will need to keep advocating for these funds to be made available beyond the initial funding year of 2021. You can find information about several federal and state government as well as private foundation grants in [Appendix C](#).



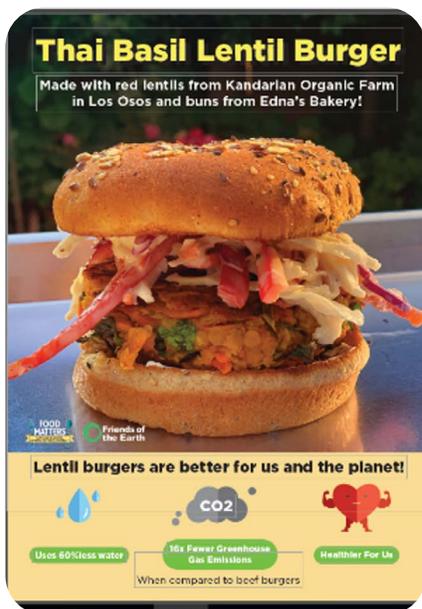
E. Market your Program

Marketing your food service program is the single most effective strategy for increasing daily participation. Highlighting and communicating your program's new initiatives, improvements and commitment to wellness as a means of supporting academic achievement raises visibility and builds community trust and support. Below are some examples of marketing strategies used by school district food service programs.

EMPLOY CONSISTENT, CREATIVE AND BOLD MARKETING STRATEGIES

Share the news and toot your horn! Marketing in a school food service context can mean many things. Creatively communicating new organic menu items or featuring an organic farmer can create loyalty, generate trust and positive associations with the program and increase participation. Understanding your audience and developing promotional capacity and skills (even if self-taught or secured through volunteers) is key to creating a successful marketing plan.

Educational Posters Colorful posters can inform your students about how their food choices make a difference. Many non-profit organizations provide excellent marketing materials, often available for free online. One example is the Community Alliance with Family Farmers' (CAFF) cafeteria signage and [various resources](#) from the Center for Ecoliteracy (CEL).



Friends of the Earth created this educational poster that encourages students to think about where their food comes from, how it is grown, and the impact of their meal on the environment.

Specify Organic Items on Hard Copy and Online Menus



Every school year, Berkeley Unified creates an artistic menu calendar which includes recipes, nutrition information, essential information about nutrition services, as well as colorful images of fresh fruits and vegetables.

Promotional Organic Menu Signs convey what is being served and list its ingredients. Colorful signs grab students' attention and encourage them to try the items offered.



San Francisco Unified School District displays this sign showing that the tomato soup is vegan, dairy free, wheat free, organic and local.

Program Branding Many school districts create a unique brand for their food service program to help with marketing and to reflect program values. Concepts like freshness, made from scratch, local, organic and home-grown can be conveyed through the program's brand.



Encinitas Unified School District's branding shows how to create a positive image of the program by designing a logo and program image.

INCORPORATE STUDENT EDUCATION

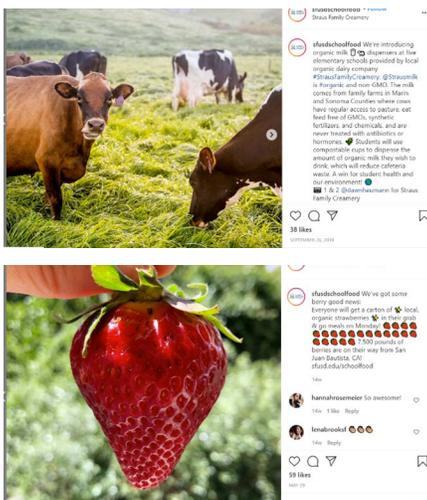
Other ideas include highlighting organic when taking part in “[Harvest of the Month](#)” and “[California Crunch](#),” and promoting local and organic farmers and California-grown foods, such as CAFF’s Know Your Farmer program and CEL’s [California Thursdays](#) program.



San Luis Obispo Unified School District developed this local sourcing map to represent and promote where the food served at its schools comes from. This artfully designed map, created in-house by the district’s talented food service director, emphasizes foods produced within their own community.

TELL YOUR STORY

Write Engaging Social Media Posts Making school food fun by telling the behind-the-scenes story of how the food is made, who prepares it and the ingredients that go into each meal is a fantastic way to create loyalty, support and enthusiasm for your district’s school food program among students and parents. Encinitas Unified uses Instagram to tell stories about freshness, pride and local and organic sourcing. By marketing organic menu items to parents, EUSD has seen steady rates of increased participation.



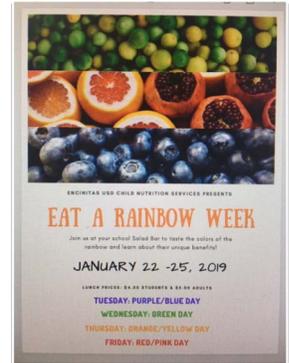
San Francisco Unified also uses social media to effectively communicate with the community, as shown by their promotions of organic bulk milk from Straus Family Creamery and organic strawberries from Coke Farms.

CELEBRATE WITH YOUR COMMUNITY

Organizing a healthy food celebration that promotes specific organic and seasonal food items is a wonderful way to feature foods while engaging students in fun educational activities.

Examples of School Food Events:

- Eat a Rainbow Week
- Meet-a-farmer event, and/or farm field trips
- School garden education
- Student poster contest
- CA Crunch Day (hosted by CAFF)
- Student-led taste testing



Some of the most successful school food service programs employ at least a few of these strategies to communicate information about organic foods, new recipes, nutritional content and the positive impacts of purchasing organic on the local economy, agriculture and, most importantly, student health. Many districts have been highly creative when faced with little marketing capacity by asking district staff, dietetic interns and committed stakeholders and partners for their support. Being resourceful and creative helps make a little marketing go a long way.

“We teach the kids about seasonality and where their food comes from. I am surprised by how many students know the farmers by name!”

**- Chef Vince Caguin,
Natomas USD**



F. Assess Kitchen Infrastructure and Train Staff

Serving more organic foods may require additional staff training, financial resources and kitchen infrastructure. Even if you are not able to fully upgrade to scratch cooking, there are many ways to enhance your kitchen's capacity to serve minimally processed organic foods.

BUILD SKILLS TO SUPPORT CHANGE

Scratch-cooked food is often the most cost-effective way to create organic meals. To support organic foods in your program, you may need to develop an in-house professional development and/or culinary training series to teach knife skills and more advanced culinary skills. A [report](#) co-authored by Friends of the Earth documents how a program called Conscious Kitchen helped three school sites invest in food service jobs, training and kitchen equipment upgrades. Once these investments were made, it became more cost-effective for the schools to serve organic food.

"I am most proud of having trained and empowered my staff to be able to prepare fresh foods. The organic food items included on the new salad bars have been the impetus for teaching scratch cooking and knife skills to staff, as they learn to slice and prepare produce for the salad bars."

- Chef Michael Jochner, Director of Nutrition Services, Morgan Hill USD

Educating kitchen staff about the benefits of organic food and farming is valuable for creating buy-in and boosting participation. Having on-site personnel sharing information about the food with kids has been an effective way to get kids to try new items. Developing staff skills may include asking them to help market the program. Organizational partners, including Friends of the Earth, can help with this education. Consult our [list of School Food Technical Assistance Resources](#) for additional potential organizational partners.



PURCHASE EQUIPMENT TO SUPPORT YOUR PROGRAM

You may need to purchase kitchen equipment including items like a food processor, salad spinner, chef knives, blenders, mixers and other kitchen tools to help with chopping, washing, drying, making salads and dressings, mixing and preparing foods from scratch. More efficient scratch cooking will help facilitate more organic procurement. Other equipment may include a walk-in refrigerator or freezer, pantry shelving, resealable bulk food storage containers and other storage items.

APPLY FOR GRANTS OR ACQUIRE FUNDING

Review [Appendix C](#) to identify and apply for grants to provide professional development trainings and/or invest in infrastructure to support your program. Local fundraising may also be the right choice, depending on the infrastructure investment needed.

PLAN FOR BIGGER INFRASTRUCTURE INVESTMENTS

If there is a need for a kitchen renovation project or another large infrastructure investment, work with your school board and policymakers to secure funding. If a kitchen renovation is needed, this investment will require added planning, fundraising and often a bond measure. See [this UC Berkeley report](#) for recommendations on increasing kitchen infrastructure for schools.





V. ORGANIC SUCCESS STORIES FROM SEVEN CALIFORNIA SCHOOL DISTRICTS

Seven stories are highlighted here to inspire and generate ideas for organic products, partnerships and pathways. More detailed case studies on these districts can be found in [Appendix A](#). The food service programs included here were selected because they represent a diversity of different-sized programs; span from urban to rural settings; and have a range of free and reduced-price lunch participation. Illustrating a range of different programs, these snapshots and stories of success feature organic foods you can use.



Buying Organic: What Does it Take?	Organic Purchasing Tips
<ul style="list-style-type: none"> • Passionate leadership from key decision-makers • Commitment to student health • Dedicated staff willing to expand their skills • Supportive school board and school community • Creative use of entitlement dollars (or commodities) • Strategic marketing and effective student engagement • Better policies and funding to support organic procurement 	<ul style="list-style-type: none"> • Buy in-season and locally produced foods • Purchase milk and dried goods in bulk • Build direct relationships with farmers, food hubs and regional distributors • Develop partnerships with organizations that can support your program • Take small steps and celebrate all victories

ENCINITAS UNION ELEMENTARY SCHOOL DISTRICT

Lea Bonelli, Nutrition Services Director

Encinitas in San Diego County, CA (suburban)

Nine elementary schools

5,342 students

15.4% eligible for free & reduced-price meals (FRPM)

244,980 lunches served (annually)

Food service model: Central kitchen; scratch cooking; family-style; waste reduction/composting; district organic garden; local and organic food

Sources for organic foods: American Produce, The Farm Lab (Encinitas USD Farm) and direct purchasing from local suppliers

Featured organic items: ground beef, chicken drumsticks, fruits, vegetables

Key partnership: The Ecology Center in Encinitas, CA



Success story: By marketing new organic menu items to parents, Director Bonelli was able to increase participation in her school meal programs by 16% in five years. This increase generated a bigger budget for her program, enabling more organic food purchases. EUSD has sourced a diversity of organic foods including meats, poultry and produce. Some organic produce is grown on the district's 10-acre organic farm, which is managed by a local non-profit, The Ecology Center. Other organic produce is purchased via their distributor, American Produce. EUSD's full case study can be found [here](#).

MORGAN HILL UNIFIED SCHOOL DISTRICT

Michael Jochner, Director of Nutrition Services

Morgan Hill, Santa Clara County, CA (suburban)

15 K-12 schools, plus an adult continuation school

9,022 students

36% eligible for free & reduced-price meals (FRPM)

373,961 lunches served (annually)

Food service model: On-site cooking; scratch cooking; bulk purchasing; local and organic produce; waste reduction

Sources for organic foods: Daylight Foods, Goldstar and Sysco

Featured organic items: Fuji and Pink Lady apples, strawberries, blueberries and black beans

Key partnership: LunchAssist



Success story: In 2019, Morgan Hill Unified School District (MHUSD) launched its Fresh Meals program to increase its selection of fresh fruits and vegetables and began offering salad bars at four of its eight schools (the remaining schools plan to come on board in school year 20/21). One positive result is that participation has significantly increased. The program focuses on fresh and local scratch cooking and sourcing local and organic products from Daylight Foods. In recent years, the program transitioned from individually packaged meals to scratch cooking. By increasing fresh food options, buying in bulk and eliminating individually-wrapped items, the district has increased healthy food consumption and reduced packaging and food waste — reducing the district's carbon footprint! MHUSD's full case study can be found [here](#).

NATOMAS UNIFIED SCHOOL DISTRICT

Vince Caguin, Director of Nutrition Services & Warehousing

North of downtown Sacramento (suburban)

14 K-12 schools

15,595 students

50.5% eligible for free & reduced-price meals (FRPM)

1.2 million lunches served (annually)

Food service model: Scratch cooking; in-season, local, organic produce; seasonal menus

Sources for organic foods: Pacific Rim Produce, Pacific Star Garden and direct purchasing from local suppliers

Featured organic items: tomatoes, lettuce, turkey, butter-nut squash

Key partnerships: Community Alliance with Family Farms (CAFF), California Department of Food Agriculture (CDFA) and Center for Ecoliteracy (CEL)



Success story: In 2019, Vince Caguin, Director of Nutrition Services and Warehousing, began buying from local and organic farms after launching a salad bar program a few years earlier. Chef Vince purchases as much locally grown produce as possible and seeks out organic or transitional organic foods to feed his students. He adapts and creates menus based on what is in season and available locally, and frequently connects with the farmers to learn what is coming into season to develop the district's school lunch menu. By focusing on scratch cooking and saving money through bulk raw food purchases, Chef Vince has been able to buy more organic foods. He views his role as that of an educator, introducing students to new foods to develop their pallets. He has invested time and care in his relationships with farmers, and helps his students get to know them as well. NUSD's full case study can be found [here](#).

RIVERSIDE UNIFIED SCHOOL DISTRICT

Adleit Asi, RUSD Director of Nutrition Services

Scott Berndt, Riverside Food Hub Coordinator

Riverside, CA, Greater Los Angeles area (city)

50 K-12 schools

41,617 students

68% eligible for free & reduced-price meals (FRPM)

4.3 million lunches served (annually)

Food service model: Scratch cooking; central kitchen; salad bars; food hub; local farms

Source for organic foods: Riverside Food Hub

Featured organic items: citrus, persimmons, peaches and lettuces (Romaine, Red, Green Leaf)

Key partnerships: Riverside Food Hub; United States Department of Agriculture (USDA) Local Food Promotion Program (LFPP) - for Food Hub funding



Success story: RUSD has been a leader in the farm-to-school movement since 2005. The district is dedicated to bringing farm-fresh and organic produce to its students, along with agricultural and nutrition education. Underlying RUSD's commitment to fresh and organic foods is the belief that good eating habits are formed early. By focusing on scratch cooking, RUSD produces most of its food in-house, and has a central kitchen where staff wash, chop and prep all the fresh produce for school cafeterias. The central kitchen staff preps all the organic lettuce for the elementary school salad bars, as well as prepared salads and other produce items for older students. The district's central kitchen infrastructure allows staff to process substantial amounts of fresh produce from local and organic farms. By building strong relationships with local farmers, RUSD supports the local economy by investing its dollars in local farms via the Riverside Food Hub. RUSD's full case study can be found [here](#).

SAN LUIS COASTAL UNIFIED SCHOOL DISTRICT

Erin Primer, Director of Food Services

San Luis Obispo, CA (small city/town)

15 schools (10 elementary, two middle, three high schools)

7,801 students

33.7% eligible for free & reduced-price meals (FRPM)

294,252 lunches served (annually)

Food service model: Scratch cooking; local and organic farms; local food businesses

Sources for organic foods: The Berry Man, GoldStar and Sysco Ventura, as well as direct purchasing from local suppliers

Featured organic items: Lentils (for a made-from-scratch lentil-burger) and pasta, both sourced locally

Key partnerships: Center for Ecoliteracy, Friends of the Earth and a local purchasing co-op



Success story: San Luis Coastal USD's emphasis on locally sourced, fresh and organic foods, has been a recipe for success. Under the leadership of Director of Nutrition Services Erin Primer, San Luis Coastal prioritizes local food businesses and locally produced food — proudly displayed on its website using a creative and attractive local purchasing map. Included on this map are four certified organic farms. The district has successfully demonstrated how to make a delicious scratch-cooked organic lentil burger — a hit among students — as well as a homemade mac n' cheese dish using organic pasta and Cal Poly Creamery cheese from two local businesses. The mac n' cheese was featured in a *Blue Apron*-inspired Thanksgiving meal kit sent home to families. SLCUSD's full case study can be found [here](#).

SAN FRANCISCO UNIFIED SCHOOL DISTRICT

Jennifer LeBarre, Executive Director

Alexandra Emmott, Culinary Manager

San Francisco, CA (city)

135 K-12 schools

61,031 students

48.2% eligible for free & reduced-price meals (FRPM)

3.6 million lunches served (annually)

Food service model: Mixture of 25% self-operated scratch-cooking food service and 75% prepared foods from vendor Revolution Foods; bulk foods; organic and local foods; waste reduction

Sources for organic foods: Daylight Foods, Veritable Vegetable, Mindful Meats and FreshPoint Sysco

Featured organic items: ground beef, bulk milk and strawberries

Key partnership: Good Food Purchasing Program (GFPP)



Success story: When San Francisco Unified School District rolled out Straus Family Creamery organic bulk milk at a few low-income San Francisco elementary schools, it was a huge success. Buying organic milk helped the district achieve its Good Food Purchasing goals related to environmental sustainability and animal welfare. The difference in quality is amazing, according to SFUSD, which means a triple win — for the students and their health; for supporting organic agriculture and family farming; and for saving money and reducing waste! SFUSD also buys organic produce, especially strawberries, from Coke Farms through the Unprocessed Fresh Fruit and Vegetable Pilot Program via Daylight Foods. SFUSD's full case study can be found [here](#).

TAHOE TRUCKEE UNIFIED SCHOOL DISTRICT

Kat Soltanmorad, Nutrition Services Director

Truckee, CA (rural)

12 K-12 schools

4,193 students

41.3% eligible for free & reduced-price meals (FRPM)

235,000 lunches served (annually)

Food service model: Scratch cooking; bulk purchasing; waste reduction; composting; local, sustainable and organic farm purchasing

Sources for organic foods: Tahoe Food Hub and Produce Plus

Featured organic items: Stone fruit, kiwi, citrus (blood oranges and Satsuma mandarins), melons, lettuce, squash (zucchini, butternut and spaghetti), tomatoes (slicer and cherry) and pears.

Key partnership: Tahoe Food Hub



Success story: Tahoe Truckee Unified School District (TTUSD) has a clear mandate — supported by the district's superintendent, board of education and the community — to transform its food service program to scratch cooking; bulk purchasing; increased local and organic purchasing; and prioritizing waste reduction and composting. Working with three main distributors, TTUSD emphasizes fresh produce and supports local farmers and organic procurement as much as possible. Approximately 10% of the district's local and organic produce comes from the Tahoe Food Hub. Produce Plus, also known for its organic and local selection, represents 60-70% of the district's produce purchases. TTUSD's full case study can be found [here](#).



VI. CONCLUSION

This Roadmap is intended to provide practical tips for launching or expanding organic purchasing and setting priorities that work for your district's school food service. With specific guidance from a range of successful food service programs, we hope that the information, resources and data shared here will inspire a clear and bold vision of what is possible in your school district.

All students deserve to be well-nourished, particularly low-income kids who participate in the National School Lunch Program and may lack access to healthy, organic food at home. The food served at school does not just represent calories and nutrients, it carries a story that has human and environmental impacts throughout the supply chain, from the farms to cafeteria tables. By increasing purchases from suppliers that use organic, climate-friendly farming practices, you can provide healthier food for kids, while mitigating climate change and fostering robust and resilient regional food systems that provide new markets for small- and mid-scale farmers and ranchers. Climate change is a fundamental threat to our children's future — and school districts and their food service programs can be critical points of intervention to provide the healthiest and most nutritious, climate-friendly food possible to our young people.

We hope this tool inspires you to leverage the buying power of school districts and take bold action in support of healthy kids and a healthy planet. You can count on Friends of the Earth to be by your side as your journey takes flight!





VII. APPENDICES & REFERENCES

APPENDICES

Appendix A: [Organic School Food Case Studies](#)

1. [Encinitas Union](#)
2. [Morgan Hill USD](#)
3. [Natomas USD](#)
4. [Riverside USD](#)
5. [San Luis Coastal USD](#)
6. [San Francisco USD](#)
7. [Tahoe Truckee USD](#)

Appendix B: [Organic Product and Supplier List](#)

Appendix C: [Grant Opportunities for School Districts](#)

Appendix D: [Organic School Food Technical Assistance Resources](#)

Appendix E: [Why Organic School Food: Benefits of Organic Food and Farming](#)

REFERENCES

- 1 Vigar, V., Myers, S., Oliver, C., Arellano, J., Robinson, S. and Leifert, C., 2020. A Systematic Review of Organic Versus Conventional Food Consumption: Is There a Measurable Benefit on Human Health? *Nutrients*, 12(1), p.7.
- 2 California Department of Education (2020). 2019-20 California Enrollment by School [Data file]. Data posted April 13, 2020 by the CDE – Data Reporting Office at <https://www.cde.ca.gov/ds/sd/sd/filesenr.asp>
- 3 California Department of Education (2020). 2018-19 California Longitudinal Pupil Achievement Data System (CALPADS) [Data file]. Data posted December 12, 2019 by the CDE – Data Reporting Office at <https://www.cde.ca.gov/ds/sd/sd/filesabd.asp>
- 4 Fleischhacker, S. et al. (2020) Strengthening national nutrition research: rationale and options for a new coordinated federal research effort and authority. *The American Journal of Clinical Nutrition*, nqaa179. <https://doi.org/10.1093/ajcn/nqaa179>
- 5 Center for Disease Control and prevention (2019). Prevalence of childhood obesity in the United States, Childhood Obesity Facts. Retrieved from <https://www.cdc.gov/obesity/data/childhood.html#Prevalence>
- 6 Roberts, J. R., Karr, C. J. & Council on Environmental Health. Pesticide exposure in children. *Pediatrics* 130, e1765-1788 (2012).
- 7 Hyland, C., Bradman, A., Gerona, R., Patton, S., Zakharevich, I., Gunier, R., & Klein, K. (2019, February 12). Organic diet intervention significantly reduces urinary pesticide levels in U.S. children and adults. Retrieved from <https://www.sciencedirect.com/science/article/pii/S0013935119300246>
- 8 21 C.F.R. § 520.23-520.2645 (Oral Dosage Form New Animal Drugs); 21 CFR § 522.23-522.2690 (Implantation Or Injectable Dosage Form New Animal Drugs); 21 CFR § 558.3-558.680 (New Animal Drugs For Use In Animal Feeds). Retrieved from the Center for Food Safety at http://www.centerforfoodsafety.org/files/animal_drug_es_10_26_77814.pdf
- 9 United States Centers for Disease Control and Prevention, Antibiotic Resistance Threats in the United States, 2013, pgs. 36-37.
- 10 Vigar, V., Myers, S., Oliver, C., Arellano, J., Robinson, S. and Leifert, C., 2020. A Systematic Review of Organic Versus Conventional Food Consumption: Is There a Measurable Benefit on Human Health?. *Nutrients*, 12(1), p.7. and Sun, Y. et al., 2018. Inverse Association between Organic Food Purchase and Diabetes Mellitus in US Adults. *Nutrients*, 10(12), p.1877.
- 11 Barański, M., Średnicka-Tober, D., Volakakis, N., Seal, C., Sanderson, R., Stewart, G.B., Benbrook, C., Biavati, B., Markellou, E., Giotis, C. and Gromadzka-Ostrowska, J., 2014. Higher antioxidant and lower cadmium concentrations and lower incidence of pesticide residues in organically grown crops: a systematic literature review and meta-analyses. *British Journal of Nutrition*, 112(5), pp.794-811.
- 12 Palupi, E., Jayanegara, A., Ploeger, A. & Kahl, J. Comparison of nutritional quality between conventional and organic dairy products: a meta-analysis. *J. Sci. Food Agric.* 92, 2774–2781 (2012).
- 13 Ghabbour, E.A. et al., 2017. National Comparison of the Total and Sequestered Organic Matter Contents of Conventional and Organic Farm Soils. *Advances in Agronomy*. 146[1-35].
- 14 Gattinger, Andreas et al. 2012. Enhanced top soil carbon stocks under organic farming. *Proceedings of the National Academy of Sciences*. 109(44), 18226-18231.
- 15 Niles, M. (2008). Sustainable soils: reducing, mitigating, and adapting to climate change with organic agriculture. *Sustainable Dev. L. & Pol'y*, 9, 19.
- 16 Lund University (2018). Organic farming methods favors pollinators. Retrieved from Science Daily at <https://www.sciencedaily.com/releases/2018/09/180914100327.htm>
- 17 Friends of the Earth. 2019. Toxic Secret: Pesticides uncovered in store brand cereal, beans, produce. <https://foe.org/food-testing-results/>
- 18 USDA 2016 Annual Pesticide Data Program Summary. <https://www.ams.usda.gov/datasets/pdp/pdpdata>