



U.S. DEPARTMENT OF AGRICULTURE



The State of Scratch Cooking in School Meals

Findings from the U.S. Department of Agriculture's School Food Preparation Study

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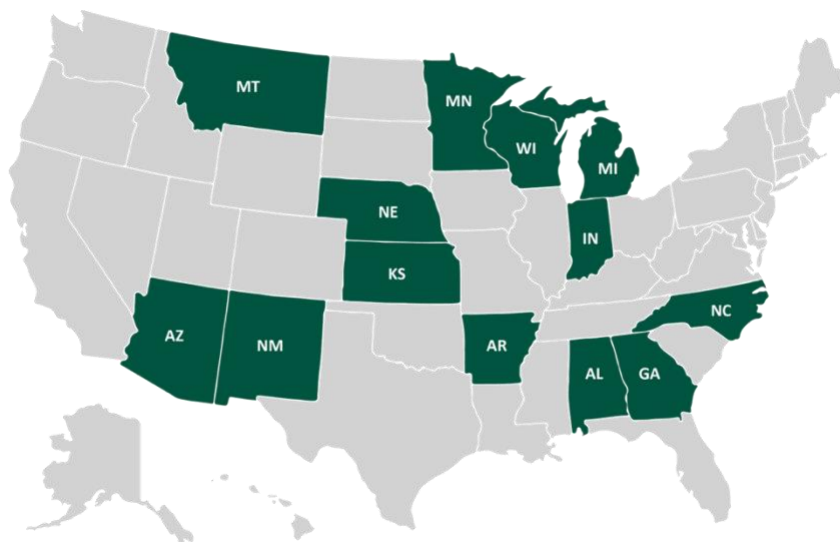
In this document:

- Examples of what scratch cooking looks like in schools across the U.S. and how it is being used to meet program goals and address student and parent preferences
- A description of the school meals context and the factors that influence how much scratch cooking can be done in schools
- An overview of how schools across the U.S. are integrating scratch cooking

The U.S. Department of Agriculture (USDA) National School Lunch Program (NSLP) and School Breakfast Program (SBP) provide healthy, low- and no-cost meals to 30 million students a day across America.¹ Many school food authorities (SFAs)² across the U.S. that participate in NSLP and SBP prepare foods from scratch, thanks to many factors like food industry trends, parent and student preferences, increased access to fresh produce and raw meat from farm to school programs, and investment of COVID-19 relief money into school food infrastructure. Studies have shown that scratch cooking (or using less processed foods in meals) can improve the healthfulness of school meals³ and help SFAs control ingredients and nutrients,⁴ but there are obstacles for SFAs to use more scratch cooking.

This document reflects findings from the USDA School Food Preparation Study, in which researchers spoke to food service leaders and staff from 36 SFAs in 13 states and visited 45 school kitchens. This document summarizes how these SFAs, ranging from small⁵ rural districts with two kitchens to large urban⁶ districts with over 200 kitchens, are navigating the school meals landscape to use scratch cooking to meet their students' needs and their program goals.

Image 1: States participating in the School Food Preparation Study



¹<https://fna.usda.gov/sites/default/files/resource-files/slsummar-8.pdf>

²The school food authority (SFA) is the entity legally responsible for the operations and administration of the local school nutrition programs (e.g., the school district food and nutrition department that operates the National School Lunch Program).

³Behrens T. K., Liebert M. L., Peterson H. J., Smith J. F., Sutcliffe J. T., Day A., Mack J. (2018). *Changes in school food preparation methods result in healthier cafeteria lunches in elementary schools*. American Journal of Preventive Medicine, 54(5 Suppl. 2), S139–S144.

⁴Collins, B. (2012). Can schools save kids' palates? Cooking from scratch in schools—The greatest food service challenge of our time. *Childhood Obesity (Formerly Obesity and Weight Management)*, 8(4), 323–326.

⁵This document uses four categories of SFA size based on the number of enrolled students: small (1-999), medium (1,000-4,999), large (5,000-24,999), very large (25,000+)

⁶This document uses a collapsed version of the National Center for Education Statistics (NCES) Locale Codes to identify urban, suburban, and rural school districts - <https://nces.ed.gov/programs/edge/Geographic/LocaleBoundaries>

What is scratch cooking?

For many, the image of “scratch cooking” is cooking with all raw or minimally processed ingredients, such as baking bread from flour, water, and yeast, or making chili from raw meat and dried beans. But many SFAs take a more practical view of scratch cooking. For them, scratch may include cooking with whole, fresh produce or precut frozen produce; using precooked but unseasoned meat; or adding sauce, cheese and toppings to a ready-to-bake pizza dough. Overall, SFAs use a range of food preparation techniques to provide students with freshly prepared options, so “scratch cooking” looks different in every SFA.

Example school scratch recipe: Thai Curry Chicken/Chickpeas with Rice

Curry Sauce: Thaw queso and add measured spices. **Veggies:** Dice zucchini with a continuous feeder, add pre-shredded carrots and bake. **Chicken:** Heat pre-cooked, diced chicken in an oven and mix with curry sauce. **Chickpeas:** Bake canned chickpeas in the oven and mix in curry sauce. **Rice:** Cook in hotel pans in the steamer. **Service:** Mix rice and curry on the service line.



Range of food preparation techniques on service lines and trays

Tomatoes and onions: Diced with a continuous feeder. **Corn salsa:** Assembled from canned corn (from USDA Foods), red onions and peppers diced with a continuous feeder, oil, fresh squeezed limes, black pepper. **Lettuce:** Pre-shredded by vendor. **Oranges:** Sliced with continuous feeder. **Beef:** Raw, local beef cooked in a tilt skillet. **Chicken:** Pre-cooked fajita chicken (from USDA Foods).



Why do SFAs implement scratch cooking?

There is not one overarching reason that all SFAs use scratch cooking – and usually, scratch is not the goal itself. Instead, SFAs say that scratch cooking can be an effective tool to help meet different program goals.

Offer the best quality food

SFAs use scratch when it produces a superior product.

"Scratch items just taste so much better than something that's been preheated again and then cooked off."

- Director, large urban SFA

Increase student participation (in other words, more students get meals)

Some SFAs believe scratch improves how parents and students perceive the program, which increases participation and program revenue.

"I applied [scratch] knowledge, and it has increased everything. Our lunch participation has increased."

- Director, small rural SFA

Improve healthy eating behaviors

Scratch can help expose students to new flavors and build their connection to food.

"I think it's important that kids see [scratch]. It's important for a kid to know where [their] food comes from, how it's made, that chicken is a bird, not a little piece of nugget." – Director, large suburban SFA

Control ingredients

Some SFAs used scratch cooking to remove specific unwanted ingredients, like dyes, additives, and allergens.

"Processed foods have a lot of additives. A lot of stuff your body doesn't need. If you make it from scratch, you can control how much you put in it." – Director, large suburban SFA

Meet nutritional guidelines

Scratch helps some SFAs meet nutrient and meal pattern requirements, like reducing sodium and added sugars.

"The most pressing reason [for scratch] relates to compliance. Being able to control our ingredients - the added sugar, added sodium, calories. The things that outline the menus we write."

– Director, large suburban SFA

What influences how much scratch cooking SFAs can do?

SFAs provide meals to hundreds or thousands of students each day, often preparing multiple entrees and sides to meet their students' needs and preferences. It would require a substantial effort to make everything from raw ingredients. Instead, SFAs balance factors such as student preferences, staffing, equipment, policies, parental perceptions, and program revenue when deciding how much scratch to use. These factors are illustrated on the next page, followed by successful strategies SFAs employ to navigate these factors.

"Sometimes people want us to do everything 100 percent from scratch. That's really just not feasible. People have to remember that we're not all cooking 100 percent from scratch at home either, so for us to do that for thousands of kids every day would be crazy."

– Director, medium suburban SFA

Complexity and Influences in Scratch Cooking

Federal, State, and local policies shape the school meals context for SFAs.

Nutrition & Safety

Dietary specifications
Meal components
Health & safety

Purchasing

Buy American
Vendor requirements

Financial

Eligibility for free/reduced price meals
Reimbursement rates
State universal meal programs

SFAs decide to use scratch cooking based on what they can purchase, prepare, and serve, and what their community prefers.

Food Purchases

How much do different foods cost?
How can I use USDA Foods?
How can I use local ingredients?
How frequently are foods delivered?

Food Service Staff

Are staff comfortable cooking scratch?
What training do staff need?
What will staff have time to prepare, serve, and clean?

Equipment and Facilities

How much food can I store and freeze?
What equipment do I have to use for scratch cooking? What items will work well and look good on my serving lines?

Local Context

What do students like to eat?
How much time do students have to eat?
Do parents, teachers, and community members value scratch?
Do parents understand how SFA prepares food?

If students take meals, programs receive revenue.



SFAs invest their revenue in food, staff, and equipment.

Meal Sales

Paid Lunches & Breakfast
Federal Reimbursements
State Reimbursements

Additional funding is often needed to cover operating costs

SFAs sell a la carte snacks and meals
The school district makes up funding gaps
SFAs apply for grants
Community members, businesses, and non-profits provide support
SFAs cater for the school and local community

Student Preferences

Most SFAs in this study shared that student preference was their number one consideration for planning menus. Since school meal programs operate as businesses, they need students to take menu items to drive revenue. SFAs say that scratch cooking can help bring in more students, and schools have developed strategies to use scratch to meet their students' preferences.



Signage and sample for build-your-own tacos at suburban high school.

Students want choice

Many middle and high school programs offer students four or more options for lunch each day, including staples like chicken tenders and pizza along with premade “grab and go” meals like salads, sandwiches, and parfaits. Schools decide which of these items to make from scratch given limitations on staff, equipment, and time.



“Grab and go” salad, assembled daily by staff with hand sliced vegetables.

Many students fall back on what is familiar

Staff report that some students habitually take familiar foods, so SFAs slowly introduce new scratch options that students may not know as well. They are also developing scratch versions of favorites like grilled cheese and flatbread pizzas – when scratch makes a better product.

Fast casual dining trends appeal to students

Many schools are integrating “fast casual” dining concepts like taco/burrito bars, build-your-own ramen, or sandwich stations to emulate popular restaurants. These often allow for, or even require, scratch production while offering students choice, convenience, and familiarity.



Philly cheesesteak flatbread with sliced peppers, red and green onions, and queso sauce, assembled by staff.



A made to order sandwich station and an example tray with a custom, spicy chicken sandwich. Staff make proof-and-bake sub rolls each day, slice most of the vegetables each day, and portion and arrange meat and cheese options for quick assembly.

Food Service and School Staff

After student preference, SFAs most often mentioned food service staff as a key influence for how much scratch cooking they do. Successful scratch cooking requires having enough staff who are trained and willing to do scratch cooking.

Hiring and keeping staff

Many SFAs are struggling to fill empty positions and manage high turnover and frequent absences. In some places, SFA understaffing is caused by the long employment gap over the summer, school district policies like background check fees and slow hiring, or higher wages offered by competing food service jobs.

Unfortunately, SFAs often adjust to these challenges by cutting scratch recipes since it requires fewer staff hours, for example, to heat frozen chicken patties than prepare and serve a build-your-own burrito station.

Staff support for scratch

Staff may not feel motivated or fully capable to do scratch cooking. This partially stems from the COVID-19 pandemic, when senior staff with more culinary experience retired and were replaced with staff who only learned heat-and-serve techniques. As a result, staff often perceive scratch as more work. But many kitchen staff shared that those doing the cooking feel rewarded and motivated when students enjoy their food.

“At first [staff] were very apprehensive. They were thinking, ‘it’s going to be too time consuming, too difficult.’ But seeing the kids liking our products and taking it, [staff] changed their mind about scratch cooking. For us it’s always about the kids and our customers. As long as they like it, we’re making it.” – Director, large urban SFA

Kitchen staff training

SFAs commonly shared that training can support staff to handle more scratch cooking, especially training on production planning, batch cooking, specific cooking equipment (e.g., tilt skillets, automated slicers), or knife skills for specific produce (e.g., pineapples, watermelon).

Support from school staff

School and district staff, namely teachers, principals, and superintendents, also play a huge role in supporting scratch cooking through their behaviors toward the meal programs and policies that shape the school food environment:

- Teachers who eat at school, even occasionally, encourage younger students to eat at school as well.
- Supportive principals can help market scratch options to the school community.
- The school district sets the lunch schedule and “seat time” – which dictate how much time food service staff have to serve meals and how much time students have to eat them.
- School boards determine open campus policies, which by allowing students to leave campus for lunch, force schools to compete against unhealthy fast-food options.



Kitchen manager with culinary training quickly cuts eight cases of pineapples (a student favorite)

Equipment

SFAs named equipment as another important factor for including more scratch items in their menus. No single piece of equipment made scratch possible. Instead, SFAs used a range of large and small equipment to increase efficiency when scratch cooking.

Key large equipment, such as tilt skillets and kettles, help staff scratch cook in large batches and improve the taste and appearance of items. Without these, SFAs are still able to scratch cook with equipment like ovens and steamers, but it may require more staff time or may limit certain scratch recipes.

SFAs also use small specialty equipment to increase efficiency while providing fresh food.

The right equipment can provide efficiencies and improve product quality



A **countertop dicer** dices produce in uniform size.



A **continuous feeder** cuts produce in uniform size.



A **sectionizer** cuts produce into uniform wedges or slices, adding visual appeal.



Tilt skillets can tilt to safely transfer products and cook large batches of scratch items like soup, raw meat, or chili.

SFAs also named several equipment challenges that can limit scratch cooking:

- **Inconsistent equipment:** When each school in an SFA has different cooking equipment, food storage, and refrigerator and freezer space, it is challenging for the menu planner to create menus with scratch items that every school can prepare.
- **Training:** Some large equipment and specialty equipment require specific training to use safely and effectively, but not all staff have the necessary training or time to be trained.
- **Storage:** Some SFAs lack the cold storage needed to process fresh foods in advance and store them.
- **Costs:** Replacing equipment is costly, as is paying for repairs for aging equipment. For some small SFAs in which kitchen managers or SFA directors contribute to food preparation, the process of communicating and coordinating with maintenance staff can also take time away from preparing food.
- **Grants:** Equipment grants can help cover the expense of new equipment, but grant applications tax already limited time and require expertise. Funding amounts may not cover large purchases given that, for example, the cost of one tilt skillet exceeds \$20,000.

Policies and Administrative Procedures

SFAs reported that several local school, State, and Federal policies and administrative procedures create barriers to a supportive environment for scratch cooking in schools.

Sodium limits

SFAs are concerned that upcoming sodium limits (which must be implemented by July 1, 2027) will impact the frequency with which they can do scratch cooking. SFA staff shared the following perceptions:

- Specific scratch menu items that students enjoy (e.g., soups, pastas with sauces, sausage and gravy) might be hard to prepare within the weekly sodium limits. SFAs may choose instead to offer commercially processed products that use non-sodium chemical substitutes to provide flavor.
- Replacing salt with herbs and spices will cost more money when doing scratch cooking.
- Label reading and compliance will take staff time away from other priorities. When compliance is challenging for SFAs to understand, they may choose to use a commercially processed product with a food label instead of doing nutrient analysis for a scratch item.

“The coming sodium requirements and the shifts for me, I would be concerned as an operator with regards to potential losses and participation.” – Director, very large urban SFA

Added sugars limits

A few SFAs foresee challenges in meeting the added sugars limits, which restrict added sugars to less than 10% of calories across the week (and must be implemented by July 1, 2027), with their breads, breakfast muffins, and other baked goods. SFAs are proud of their baking operations, and many use baked goods to generate revenue through a la carte sales and catering.

“We had a district-imposed sugar limit. Our only home baked good was a muffin, and the muffin didn't meet it. Every processed food met it except for one. So, we can't make our scratch-made muffins, but can serve our frozen muffins? That sucks!” – Director, medium suburban SFA

Procurement regulations

Regulations can create barriers to purchasing raw or minimally processed ingredients used in scratch cooking. Many SFAs experience challenges in finding enough vendors to respond to bids, staying within the small purchase threshold, and planning purchases throughout the year. Smaller SFAs often encounter more challenges with these barriers, especially in states without cooperative procurement agreements.

“We'd like to buy from more local farms, and I've even seen schools that buy local beef, I just don't know how to....I guess that's my issue. I don't know how to go about that yet. We're such a small school I'm just like. We just wouldn't be ordering a whole lot.” – Director, small rural SFA

Community Perceptions

Many SFAs believe that families and other community members have a generally negative perception of school meals and foods served – but that scratch could help overcome that image. They believe that parents and others don't understand what goes into preparing school meals, especially when it comes to scratch cooking.

Limited school menus

Few parents have visited a school cafeteria to see the food options and fresh menu choices available, so the school menu is often their only perceived source of information. These menus lack information about how foods are prepared and which items are made from scratch, and available menu software and staff capacity to use it are limited.

The menu says, "Fresh Fruit Variety 1/2 cup" or "Fresh Veggie Variety ½ cup"

Students see a colorful, rotating combination of options including produce from local farmers.



The menu says, "Sloppy Joe"

Students get a roll baked from raw ingredients topped with beef supplied by a rancher one town over.



The menu says, "Salad Entrée, Variety"

Students get fresh, colorful salads prepared daily.



Perceptions of local foods

Many parents value using local foods in school meals and supporting the local economy. Increasing the use of local foods has the potential to improve the image of school meals, and most SFAs are already using local foods in some ways. However, SFAs don't always market those products specifically as local.

[Local foods] just needs to be win, win, win. That's why I always promote it. We're keeping our dollars here. We're supporting [State] farmers. We're supporting [State] growers. If we can do that, why wouldn't we do that?" – Director, medium rural SFA

Creative marketing strategies

SFAs have ideas about how to market and communicate scratch cooking, but many lack time, money, and expertise. However, some SFAs are finding creative strategies to engage the school community and parents.

Catering for the community

Offering catering or concessions at school and community events, like sports, plays, or board meetings, provides exposure to highlight scratch made items.

“Board members [were] there, media, staff, parents, students. And we did it like ‘supermarket sample.’ We have learned all those knife skills, so we had a cutting board, and they were actually preparing the recipes as a food demo in the lobby on the way to the board meeting, so people could sample our foods.” - Director, large rural SFA

Leveraging school resources

Partnering with other educational and resource teams in schools (e.g., art department, audio/visual team) for marketing support.

“We have a really good relationship with our media A/V folks, so we actually get the students to come and do the videos for us, and then they put it on the school news. So, you know, again, it's the customers are the ones that are promoting it and us.” - Director, large urban SFA

Program Revenue

SFAs operate as businesses separate from their school district, with distinct revenue, expenses, and cash flow. Most SFA revenue comes from payments for meals, either by students or the Federal government,⁷ which is generally between \$3.00 and \$4.50 per meal. With this as their primary revenue, SFAs pay for staff, equipment, food costs, and any other initiatives to improve the program (e.g., marketing).

Financial challenges

Like many businesses, SFAs in this study said rising costs of food and labor were a major challenge for sustaining their programs. The average SFA in this study covered only 81% of annual expenses with food sales alone. For some, minimally processed fresh foods, and scratch cooking can be the easiest costs to cut.

“When I started, you might allot 60 cents for [center plate cost]. Now I'm lucky if center plate is less than \$1.25.” – Director, medium dense rural SFA

With such thin margins, serving meals is not enough, and SFAs used additional revenue like a la carte sales⁸ (snacks, extra portions, beverages), catering, grants, donations, and funding from the school district to cover their total costs.

“I'm only 30 percent free and reduced and we still have 70 percent plus participation. So, we have a really great program and I'm very blessed. But I can barely make that work with also selling \$40,000 of a la carte and a lot of catering.” - Director, medium rural SFA

⁷In this study, SFAs reported their top two revenue sources, by percent of total revenue, were Federal reimbursements for eligible meals (64% of revenue on average), and payments for full price meals (19% of revenue on average).

⁸For the SFAs in this study, a la carte sales (9% of revenue on average) was the third highest source of revenue.

Balancing labor and food

School food leaders carefully consider the cost of different types of products and the time required to process those products. This is particularly critical for the fresh and raw ingredients needed for scratch cooking.

Factors SFAs consider for budgeting	
Is it worth the cost to purchase a more expensive, pre-processed item?	"My gal will get \$20/hour to cut onions, and the onions I need would take two hours. There's \$40. You get a whole [large] bag of onions for \$8, and you only get one [small] bag of diced onions for \$8. But in the long run, that diced is cheaper because you're not paying two hours' worth of labor." – Director, small rural SFA
What should I process on site to improve the quality?	"It depends on the product. Carrots we'll get shredded. But tomatoes and peppers, those don't hold well, we cut those on site as needed. If we get them already cut, then the quality diminishes so quickly. Lettuce, we get those [pre] chopped because of the washing." – Director, large urban SFA

Leveraging USDA Foods and USDA DoD Fresh

USDA Foods in Schools (USDA Foods) and the USDA Department of Defense Fresh Fruit and Vegetable Program (USDA DoD Fresh) allocate raw and minimally processed products to SFAs participating in NSLP. Some SFAs strategically use these free ingredients across multiple recipes to lower the cost of scratch-cooked meals.

Example scratch recipe using USDA Foods: Queso Chicken Soup

Beans: Canned black and cannellini beans (both from USDA Foods), drained, rinsed. **Jicama:** Pre-cut by vendor. **Mixed Vegetables:** Pre-cut, frozen vegetables. **Chicken:** Frozen diced chicken (from USDA Foods). **Broth:** Premade by vendor. **Queso:** Premade by vendor. **Cooking:** Heat slowly in tilt skillet.



Funding for local foods

SFAs reported that using the Federal Local Food for Schools (LFS) funding allowed them to offset the cost of purchasing raw meats and fresh produce from local farmers and ranchers for scratch cooking. SFAs felt that the loss of LFS funding would negatively impact their ability to purchase local foods, which are often raw and minimally processed ingredients used in scratch cooking.

"I don't want to go backwards, and I feel like we're gonna have to go backwards because of the [LFS] cuts." – Director, medium rural SFA

Entrepreneurial strategies

Several school food leaders approached their cash flow and perception challenges with creative problem solving and entrepreneurial thinking, and scratch cooking was often central to these efforts.

Entrepreneurial Strategies	
Build a culture of iteration and improvement	SFA leaders can empower staff to improve and iterate to meet program goals such as increasing revenue. One director from a very large, urban SFA told staff, <i>“If you can answer yes to three questions, try it: 1) Does it follow regulations? 2) Is it good for customers? 3) Is it good for the program?”</i>
Professional networking	SFA directors use professional associations to identify food trends and best practices. Networking with the local business community can help SFAs build awareness of the value of school meals, find food vendors, secure investments (e.g., growing towers, food trucks), and get business and leadership advice.
Leverage partnerships and maximizing revenue	SFAs may work with agricultural or culinary students to grow fresh herbs and produce, process fresh produce, or expand their catering operations.
Customer research	SFAs work to understand what their customers value to help determine where to invest labor and food resources. <i>“In my community, the Uncrustable [sandwich] has a higher perceived value than the in-house peanut butter and jelly. We go with a packaged Uncrustable. Buying a burrito that’s in a package has a lower [parental] perceived value. So, we would then take our labor and make the burrito in house.”</i> – Director, very large urban SFA
Marketing and expanded revenue	SFAs may provide meals or snacks for school board, parent-teacher association, or chamber of commerce meetings to build awareness of school meals, test new scratch recipes, and develop catering clients. Many SFAs provide catering services for local churches, school activities, and private events.
Hydroponic grow tower	Many SFAs are using hydroponic grow towers in schools to grow herbs to flavor their foods and create sauces and sides, or salad greens for salad bars or entrée salads. Grow towers can reduce the expense of ingredients for scratch cooking and fresh or whole produce, which can be especially costly to purchase.

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