

**School Food Learning Lab in Denver, Colorado:
A Case Study of School Food Change in Action**

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Executive Summary

From April 2009 to September 2010 Denver Public Schools (DPS), in consultation with the School Food FOCUS Learning Lab, pursued a variety of goals related to increasing its support for the regional food system and introducing more fresh and minimally processed Colorado-grown foods into school meals. A collaborative research process involving senior food service staff, multiple community partners, academic researchers, and FOCUS staff resulted in the following outcomes:

- By emphasizing local purchasing with new and existing vendors, and tracking local purchasing separately for the first time ever, DPS recorded an estimated \$304,700 worth of Colorado-grown fresh produce in SY 2010-11.
- As part of its local procurement initiative, DPS purchased 1,200 pounds (or \$1,560 worth) of student-grown produce from 13 school gardens in fall 2010 through a newly developed Garden to Cafeteria Program.
- DPS built new relationships with local beef and bison ranchers resulting in approximately \$340,000 worth of local, sustainably-raised beef and \$19,000 worth of Colorado pastured bison in SY 2010-11.
- DPS built a new relationship with a Denver-based custom food processor, resulting in approximately \$200,000 in SY 2010-11 of wholesome processed items made to DPS specifications with Colorado-sourced ingredients, including sustainably raised beef.
- Colorado Proud Day, debuted in fall 2009, became a monthly showcase for Colorado-grown, produced, and processed ingredients in school meals by fall 2010.
- Overall, purchases of Colorado grown, produced, and processed foods resulted in over \$1 million circulated back into the local economy in SY 2010-11.

During the same period of time, DPS significantly enhanced the food service operation's capacity for scratch cooking—a change which further paves the way for even greater volumes of healthful, regional, and sustainable school food in years to come. Together, these accomplishments put DPS in the spotlight as a model for other districts across the country.

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Introduction

School Food FOCUS, a program of Public Health Solutions, is a national collaborative that leverages the knowledge and procurement power of large school districts to make school meals nationwide more healthful, regionally sourced, and sustainably produced. Launched in 2008 with generous seed funding from the W.K. Kellogg Foundation, FOCUS currently works with 34 districts, which collectively represent more than 4.2 million children. Its Learning Lab works with food service professionals and their community partners to collect, analyze, and use food system research to spur change in procurement methods in school meal programs.

About the FOCUS Learning Lab

The Learning Lab is a core FOCUS program and the place where FOCUS engages most concretely with school districts on the day-to-day business of buying and preparing food. The heart of the Lab is *participatory research* that fully involves food service leaders and their partner organizations in investigation, analysis of new information, and strategizing around select procurement change goals. The desired outcome is research-based innovation in school food purchasing that has been shown to work—real practices that can have local, regional, and national impact.

In addition to technical and research support, the initial three participating school districts received a \$50,000 stipend over their 18-month commitment in this pilot project. Districts select local partners based on their particular needs for outside expertise and perspectives on their local food system, nutrition, and public health context. Partners have been called upon to serve in a number of capacities, including providing logistical and content-area support, increasing the visibility of the changes made within the community, and enhancing the sustainability of changes over time.

To date, the Lab pilot project has collaborated with three FOCUS districts: Saint Paul (November 2008 to April 2010), Denver (April 2009 to September 2010), and Chicago (August 2010 to January 2012), with each Lab simultaneously building on the knowledge of the last while proving to be unique. To broaden and deepen its work in school food procurement,

FOCUS has now moved to Learning Lab models that will involve multiple large districts and local partner organizations. The first Regional Learning Lab, launched in April 2012, will bring the knowledge and experience gained in the pilot Labs to the benefit of seven school districts across the Upper Midwestern United States over a three-year period.

What follows is a case study chronicling the successes and challenges of the Denver Lab. A Case study on the Saint Paul Lab can be found [here](#). A case study on the Chicago Lab is forthcoming.

About Denver Public Schools Food Service

Denver Public Schools (DPS) has a student body of 79,400 that is highly diverse, with 58% of children identifying as Hispanic, 20% White, 15% Black, 3% Asian, and 1% Native American. Nearly one-third of students are English language learners with languages spoken at home including Spanish, Vietnamese, Arabic, Russian, and Somali.

Over 72% of its students are eligible to receive for free or reduced-price lunches and participation in the school meal program is high, with 60% of all DPS students eating school lunch on most days. On an average school day, DPS serves approximately 16,200 breakfasts, 43,750 lunches, and 4,000 snacks.

DPS is comprised of 162 schools, including 73 elementary, 16 middle schools, 12 high schools, 16 K-8 schools, 4 K-12 Schools, 30 charter schools, and 11 other kinds of schools. Food preparation is not centralized, with most sites equipped for cooking with ovens, steamers, and stove tops. As such, the majority of food preparation takes place at each school site or at nearby satellite sites. The district also rents off-site freezer space and maintains a fleet of trucks. Delivery varies greatly depending on the school site and the product. Some products, such as milk and juice, are delivered by vendors directly to school sites, while other products are delivered from the DPS warehouse to the school sites one to two times per week.

At the launch of the Lab, DPS food service had a strong operation, due in part to the high percentage of students qualifying for free and reduced price meals (thus, higher federal reimbursement rates), predominately closed campuses, and limited a la carte sales. The program operated in the black, with a sizable fund balance. Yet, DPS was eager to—in their own words—become “a leader in the ‘Food Revolution’ rather than reacting to it.” DPS applied for

participation in the Lab with the hope that the experience would help it increase its purchases of local food—desirable, in the district's view, for its quality and optimal freshness. DPS also saw the Lab as an opportunity to draw in more community partners, and Slow Food Denver—after years of working to improve school food from outside the system—eagerly accepted the challenge of drafting the project proposal on behalf of DPS.

Launching the Denver Lab

Work got underway in April 2009. The Lab included DPS senior food service staff and primary decision makers—the food service director, supervisors, buyer, and lead menu planner. Their primary district partner, Slow Food Denver, managed the school gardens and shared its considerable knowledge of the local food system. Slow Food Denver also acted as primary liaison to other community partners, who served in various consultant roles intermittently over the 18-month period. These included the Rocky Mountain Farmers Union, the Colorado Department of Agriculture, and Colorado Farm to School. Researchers from Michigan State University provided content area expertise in agriculture economics and food systems analysis; evaluators from the University of California, Davis, provided project reflection, documentation, and evaluation. A FOCUS project manager coordinated the efforts of all Lab participants.

Before narrowing the Lab's goals, researchers took a close look at district purchasing data in order to establish the baseline context of DPS school food procurement. With the help of introductions from Slow Food Denver, researchers conducted supply-chain interviews to investigate possible opportunities for local purchases. These conversations—which continued through the course of the Lab—included farmers, ranchers, brokers, distributors, processors, and a dairy, as well as representatives from a farmers union, Colorado Farm to School, the State Commodities program, USDA FNS Regional Office, the Colorado Department of Agriculture, the Colorado Department of Education, and the Denver Department of Environmental Health.

As the Lab analyzed this wide range of data, the team explored many goals simultaneously. Over time, clear goals emerged for local produce, beef, and custom-processed food. The Lab also developed a definition for “local” appropriate for DPS; because of the geography of the region and the large scale the district's school food procurement, “Colorado grown and produced” was the most appropriate.

To complement these Lab goals, DPS and Slow Food Denver devoted significant attention and resources to expanding the capacity of scratch cooking, as DPS kitchen staff would need more sophisticated culinary skills to handle the greater volumes of fresh fruits and vegetables. Slow Food Denver also worked closely with DPS to launch a Garden to Cafeteria program to provide school garden produce for the newly installed school lunch salad bars¹. Both the efforts surrounding scratch cooking and school gardens were crucial in supporting food service culture change within DPS and generating significant excitement for change and positive publicity throughout the community.

What follows is an overview of the DPS Lab's journey as the team worked together to achieve their goals of sourcing local produce, beef, and custom-processed food.

Goal: increase purchasing of fresh and locally grown fruits and vegetables

In SY 2008-09, the “baseline” year before the start of the Lab, DPS spent \$2,186,570 on produce, with 42% of all produce purchases spent on fresh produce, 31% spent on processed fruits and vegetables, 17% spent on juice, and 8% on processed potatoes. DPS began the Lab with little information on the extent to which their produce originated from local sources, as the district's broadline distributor did not track Colorado-grown products. Since baseline purchase data from the years prior to the Lab did not indicate where produce originated, researchers assumed that there were no local produce purchases because of the lack of source identification and transparency in the supply chain.

The development and implementation of new menus with greater volume and variety of fresh produce was key to increasing purchasing of Colorado-grown fruits and vegetables. Also early on in the Lab, DPS celebrated its first ever Colorado Proud Day in September 2009 as part of a statewide initiative of the Colorado Department of Agriculture. For that first Colorado Proud Day, DPS served Colorado watermelon, peaches, and cucumbers. Through the work of community partners, DPS students engaged in nutrition education, gardening, and cooking demonstrations with local chefs. Colorado Proud Day was repeated in September 2010 with a

¹ Approximately 6 of the 85 salad bars were purchased with “Lets Move Salad Bars to Schools” grants; the remainder were purchased on the market (Laura Stanley's April 2011 notes).

media event, school garden tours, and cooking demonstrations, marking the beginning of Colorado Proud Days as a monthly tradition for DPS.

Beginning in SY 2010-11, DPS began a new contract with its distributor, which called for “locally grown and processed products when quality and availability permit” and which required tracking and reporting of all Colorado-grown and processed foods. This agreement, along with careful record-keeping of other local produce purchases directly from farms, allowed DPS to record an estimated \$304,700 worth of Colorado-grown fresh produce purchases in SY 2010-11, including \$24,300 worth of organic apples purchased direct from a local orchard. As a result, a major part of the change that the Lab facilitated was the transition from *not knowing* the extent of local purchases at the baseline to *knowing* the extent of local produce purchases.

Additionally, with assistance from the Lab, DPS explored a new relationship with a local produce processor that provided minimally processed fresh raw produce to support DPS’ scratch cooking and salad bar expansion efforts, including pre-washed, chopped, bagged, and ready-to-use raw fruits and vegetables. Much of this produce was local, including spinach, carrot-cabbage coleslaw, and butternut squash pre-cut for roasting.

In addition to these changes, DPS and Slow Food Denver worked on other fronts to increase the quantity of fresh local produce in the school meal program. Fall 2010 marked the beginning of a new Garden to Cafeteria Program, with a food safety protocol developed by Slow Food Denver and the Denver Department of Environmental Health. The fall 2010 harvest yielded over 1,200 pounds (more than \$1,560 worth) of student-grown produce from 13 school gardens purchased for the school meal program, establishing the program's viability and setting the stage for expansion to other sites in the district.

Furthermore, DPS provided scratch cooking training for all 600 DPS kitchen staff, an effort which began in summer 2010 and continued into SY 2010-11, giving all employees the skills they needed to safely handle and prepare the increased volume of fresh produce, as well as bake bread, handle raw meat, and sharpen knives. As part of this move toward scratch cooking, the district introduced ninety new salad bars during this time, with plans to continue increasing salad bars to nearly all schools in the district in the near future.

As a result of these combined efforts, DPS' local procurement rapidly transitioned from un-measurable at baseline, exploratory in SY 2009-10, and fully engaged in SY 2010-11. Figure 1 illustrates the extent of the changes in produce purchase from before the start of the Lab in SY 2008-09 (“baseline”) to after the end of the Lab in SY 2010-11. Largely because of its expansion of salad bars and scratch cooking, DPS increased its purchases of *fresh* (unprocessed and minimally processed) produce from 42% of total produce purchases at baseline to 81% of total produce purchases in SY 2010-11. *Local* produce, which was un-measurable at baseline and therefore considered by the Lab’s researchers to be 0%, amounted to \$304,700 (or 9%) of all produce purchases in SY 2010-11.

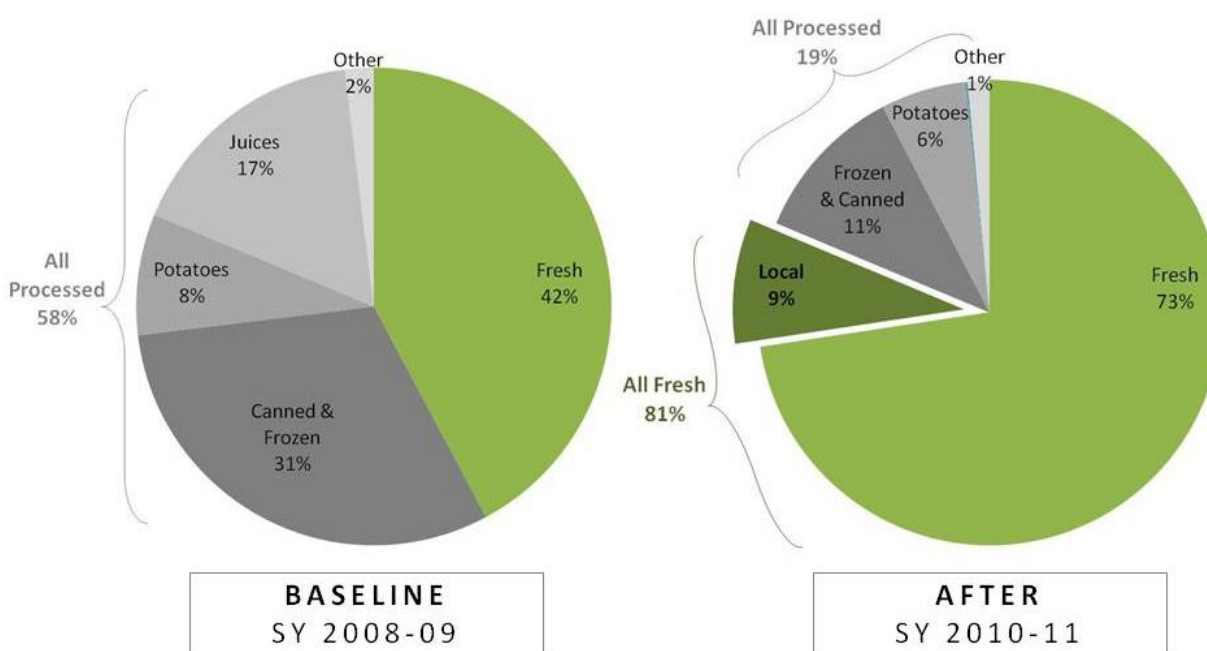


Figure 1 Denver Public Schools Produce Purchases at Baseline and After the Lab

Not surprisingly, the district experienced a number of challenges in shifting to more fresh and local produce. When DPS introduced its first salad bars in August 2010, the sudden jump in the volume of produce that they needed called for more frequent delivery to school sites, from once to twice a week. Part of the problem, it turned out, was that kitchen managers were overstocking salad bars. Addressing this issue helped to reduce the significant overage.

Another challenge for DPS was that the increased use of local produce introduced a new degree of uncertainty to their menu planning—for instance, local peaches could not be counted on to

ripen in time for their scheduled August appearance. Similarly, local apples were not ready at the beginning of the school year, with the first shipment delayed until October and arriving without the consistency and sizing that the district was accustomed to. Related to this was DPS' need for consistency across all of its school sites and its limited flexibility at the point of service because of standardized menu offerings district-wide and the need to provide very specific directions to food service staff, who tended to focus on items that were easiest to prepare. This lack of flexibility and need for consistency made it difficult to switch produce offerings on short notice to accommodate seasonal local supply.

Additional challenges came from trying to accurately quantify local produce purchases. Despite its agreement with the district, DPS' distributor did not have a good enough system in place to track local purchasing as accurately as required, with certain products that should have been listed as Colorado-grown not appearing, other products that should not have been listed appearing, and sporadic identification of growers. At the close of SY 2010-11, DPS was still pushing the distributor to develop a more reliable method for reporting local purchasing.

Goal: purchase sustainably raised Colorado beef

At the start of the Lab DPS, like most school districts, did not purchase local or raw meat. Most meat was USDA commodity, diverted to large commercial processors that produce frozen heat-and-serve items for the K-12 market. Yet, in a region known for cattle ranching, sustainably raised local beef for school meals programs had obvious appeal, and the Lab was up for the challenge of identifying local ranchers open to working with schools. The Lab had no trouble tracking down a promising source, a Colorado beef rancher and processor who raises beef without the use of antibiotics and hormones, on pasture with some grain to finish. The rancher's primary markets were niche retail outlets in the Denver area and a restaurant chain headquartered in Colorado. These buyers, who paid a premium for steaks and roasts, left him with cuts that he proposed to process into ground beef for school buyers. Following some negotiations, DPS decided to try the product for its first Colorado Proud Day in 2009. A year later, DPS participated in FOCUS member districts' "Better Beef Days" event held during National School Lunch Week, serving beef from the same rancher district-wide in "haystacks" (tortilla chips topped with ground beef and low-fat cheese) and in spaghetti with meat sauce. These pilot

purchases of local, sustainably raised beef led to additional purchasing in SY 2010-11. A pilot purchase of Colorado-grown bison was made for Colorado Proud in the spring of 2011.

The rancher was excited to be serving local schools. “The more we support our local supply chains, the healthier the kids and the economy are,” he reasoned. Yet there were challenges to forging this new relationship. Initially, the rancher experienced the primary barrier of the cost of scaling up his operation. He later explained that, without commitment to buy from DPS and another large Colorado school district, he would not have made these capital improvements. Both districts were willing to forgo third-party certification of the rancher’s claim to no antibiotic or hormone use, given their trust in him; this helped to keep costs down.

Student response to the local beef was mixed. It fared well in recipes such as chili and haystacks; however, in taste tests of burgers students preferred those made with commodity beef. DPS food service staff reflected that students are “just not used to the real thing” but were hopeful that time and repeated exposure would shift students’ tastes.

The most significant challenge came towards the close of the SY 2010-11, when the rancher was forced to raise his prices because of increases in the cost of feed and fuel. This resulted in the local raw ground beef costing 21% more than commodity raw ground beef and the resulting beef patties costing 83% more than the conventional product. Although the price of commodity beef also increased at this time, it remained within reach for DPS while the local beef did not. As a result, DPS dramatically reduced its purchasing of local beef to every other month for Colorado Proud Day. Yet, despite this cutback, in SY 2010-11, DPS purchased approximately \$340,000 (over 131,000 pounds) of local beef and \$16,800 (or 2,400 pounds) of local bison. Together, these local purchases represented 44% of the district’s total purchases of beef and bison in SY 2010-11 (Figure 2).

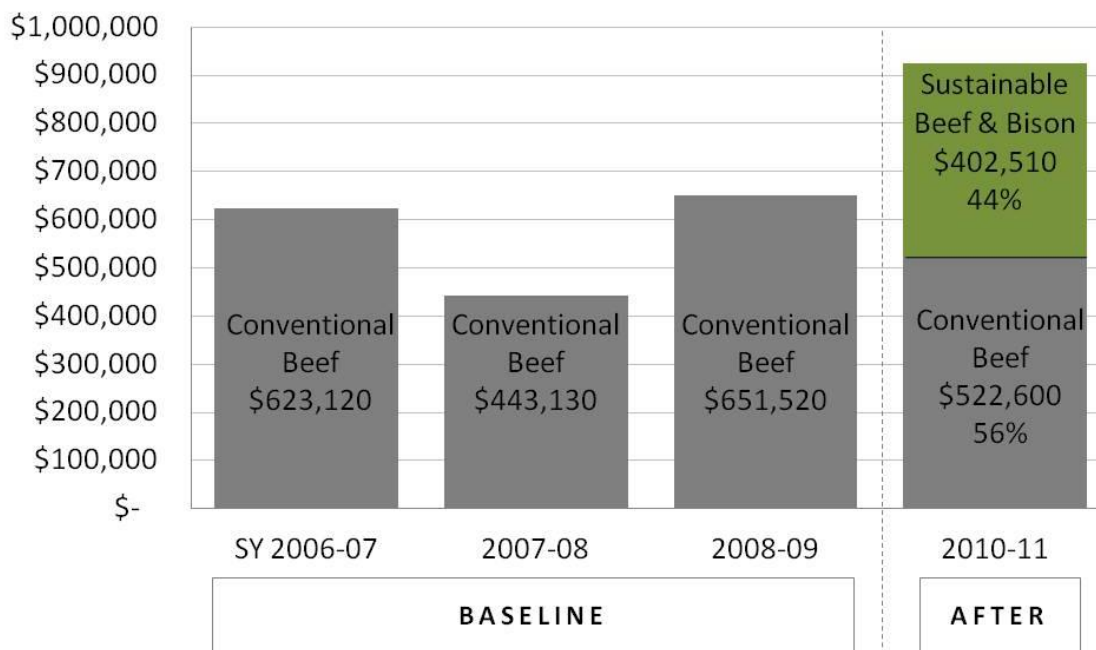


Figure 2 Beef and Bison Purchases (in Dollars)

Goal: Work with custom processor to develop wholesome prepared foods

Even with staff training underway, the near-simultaneous introduction of salad bars and scratch cooking had the potential to result in considerable strain on DPS kitchens. Clearly the district could not “do it all” on its own, at least not right away. DPS school food leadership felt strongly that consistency from site to site was important and DPS kitchens were not ready to handle raw meat in volume. Since continued reliance on some processed food was clearly a must, the district requested the Lab’s help in sourcing *better* processed food—wholesome items made to the district’s specifications, with the district’s chosen ingredients, including DPS’ commodity products and Colorado beef, produce, and beans.

Through the Lab, DPS built a new relationship with a family-owned custom processor, located just blocks from DPS food service headquarters. The proprietor, who was well-established as a supplier to local Mexican restaurants and restaurant chains, was initially not interested in working with schools because he did not want his company associated with what he believed to be “the cheapest, worst food.” However, the custom processor had a pre-existing and very successful relationship with Boulder Valley School District. This experience helped “pave the way” for working with DPS. Furthermore, DPS’ high standards came as a pleasant surprise. As a

result, the processor embraced the opportunity to expand his business in what he saw as a promising direction.

The processor had the capacity to produce almost any recipe made in a kettle, including soups and sauces. The company also had an in-house chef to create products to customers' specifications and to provide nutritional profiles. This research and development was free, with the understanding that the client would eventually make a purchase. The processor had a number of attributes that made it ideal: (1) proximity, enabling close collaboration between its in-house chef and DPS meal planners in the development of new recipes; (2) a willingness to try, and try again, as the district took taste samples back to students and requested continued adjustments to reach a 70% acceptance rate; (3) quick turnaround time in product development, not possible for the larger-scale processors that dominate the school market; and (4) the ability to deliver finished cook-chilled products "just in time" for service, in bags (5-10 gallons each) ready for re-heating at the point of service.

In SY 2010-11, the processor made a number of ready-to-serve items for DPS, including vegetarian green chili made with onions from Colorado and the chilies from nearby New Mexico and used as a sauce over burritos, beef stew made with local beef and served as a stand-alone entrée over rice, and shredded beef using regionally purchased conventional beef and featured in a barbecue beef sandwich. The company also processed pinto beans from Northeastern Colorado farms cooked just the way the district liked—softer for easy mashing, for use in burritos, chili, vegetarian tacos, vegetarian nachos, and "picnic beans." Additionally, the company processed DPS's raw commodity beef into a cooked product that food service could more easily use in DPS kitchens, as the district transitioned to scratch cooking. Total purchases of the custom-processed items came to approximately \$202,945. Figure 3 Custom Processor Expanded Use of Local Products in School Meals highlights how use of the custom processor enabled DPS to expand its use of local products in school meals with the inclusion of local beef, produce, and beans into the custom-processed items.

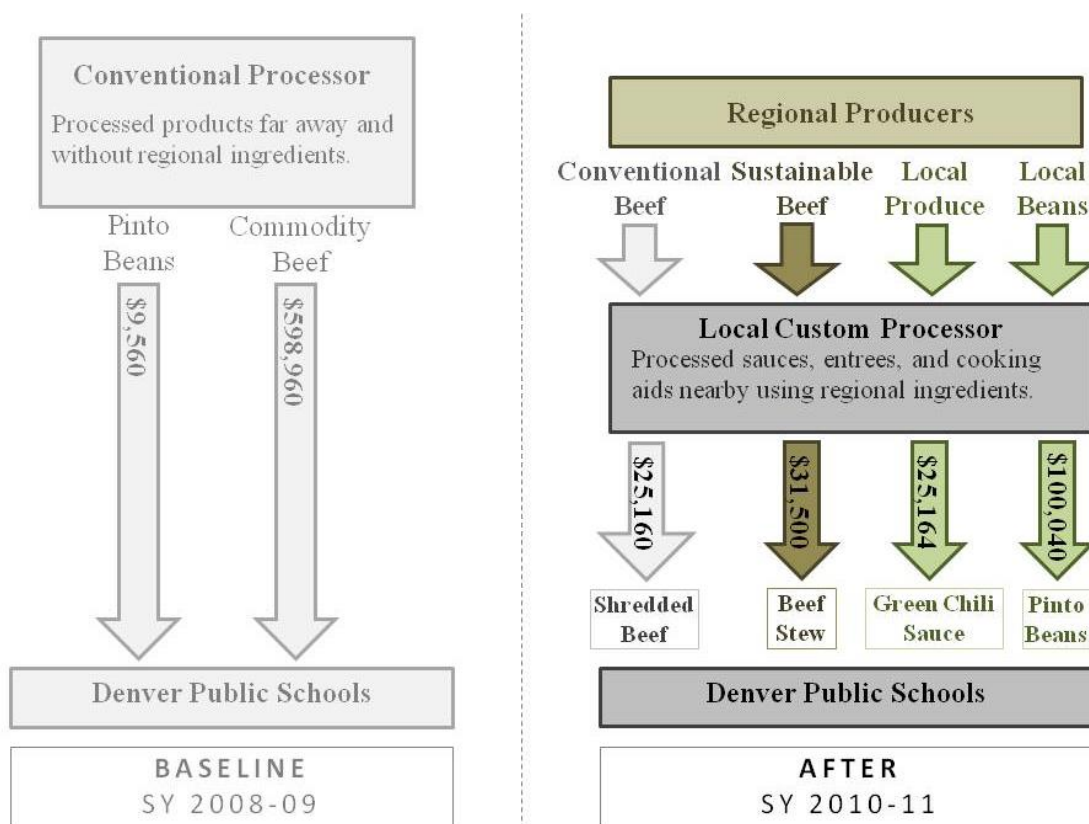


Figure 3 Custom Processor Expanded Use of Local Products in School Meals

By building a strong relationship with the custom processor, DPS was able to purchase items processed to its specifications for DPS kitchens not yet ready for scratch cooking. This was seen as a real advantage, since the district does not have a central commissary kitchen to accomplish this on its own.

Overall, DPS food service staff was thrilled with the processor, explaining “they’re great!” and “they’ve bent over backwards for us!” Likewise, the processor said that working with DPS “has been so good...we haven’t run into any challenges.” He explained, “I want to work with them and help solve their problems...There’s a certain advantage in being small. I can work in 10,000-pound increments, whereas the large processors are truly processors. For them, food is an engineering problem. They need to invest in the machinery, the software, whatever, so they can move massive amounts of finished goods. I see myself as something different. I see myself as a *cooker*. I work to make something really good as opposed to really cheap.”

Overall Food Expenditures

DPS' purchases of Colorado grown, produced, and processed foods resulted in well over \$1 million circulated back into the local economy in SY 2010-11 and provided a significant shift toward more healthful, regional, and sustainable purchases from baseline SY 2008-09 to the end of the Lab in SY 2010-11. However, upon further analysis, researchers identified a 28.26% increase in total food expenditures, from \$9.1 million in SY 2008-09 to \$11.7 million in SY 2010-11 (excluding equipment and catering) (see Figure 4 Total Expenditures per School Year (in Dollars)).

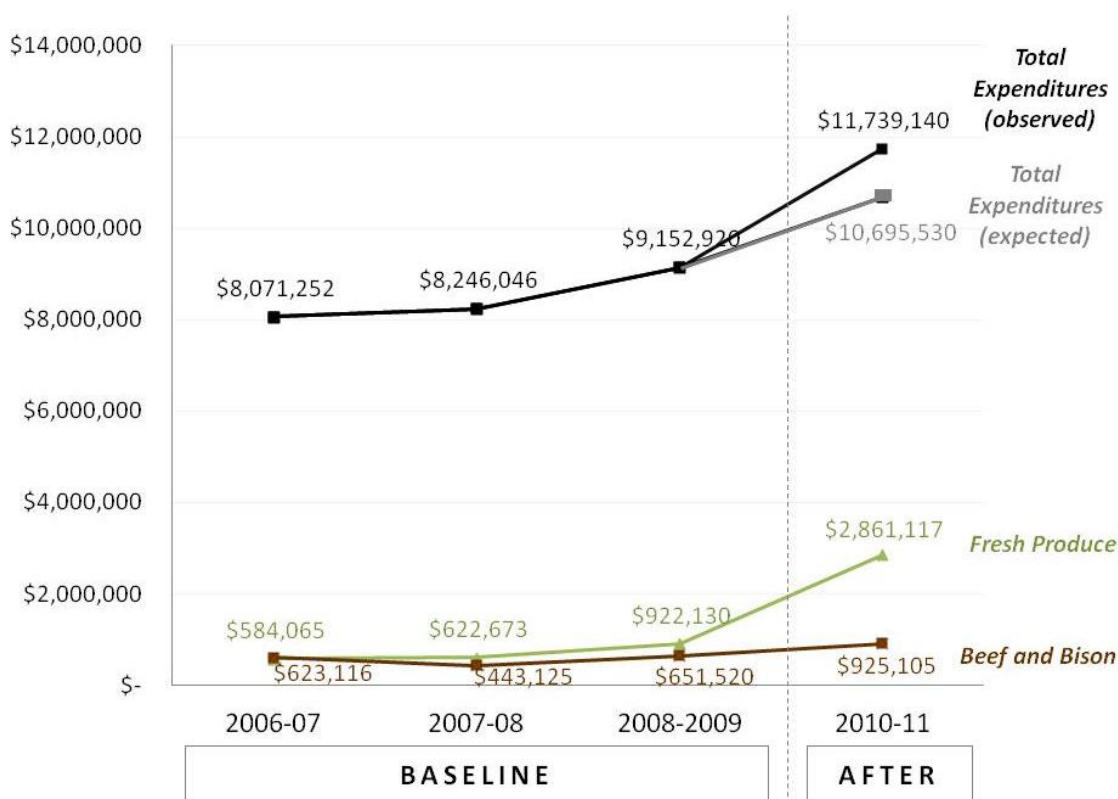


Figure 4 Total Expenditures per School Year (in Dollars)

During this same period of time, there was a 2.24% increase in the Consumer Price Index for Food and Beverages and a 6.65% increase in DPS' meal counts (corresponding to slight increases in both the student population and participation rates). Therefore, 8.89% of the increase in total food expenditures may be attributed to the combined effect of inflation and the increased number of meals served, leaving 19.36% of the increase unaccounted for. Interviewees confirmed this finding, explaining that the department went over-budget in SY 2010-11 by

approximately \$3 million. Interviewees referenced the high cost of the learning curve associated with implementing scratch cooking and salad bars—sweeping changes that were made extensively across the district and at a rapid pace. Fortunately, the food service operation had a sizable fund balance and solid rates of participation, enabling the department to temporarily absorb the high cost of its learning. It is beyond the scope of this case study to continue detailed analysis of school food procurement records to assess the financial sustainability of these changes over time, but at the close of the Lab, DPS remained committed to continuing many of the changes and Lab participants were hopeful that they would be able to do so within budget, given the expertise they had acquired through the Lab.

Lessons Learned

Through 18 months of focused attention, DPS was able to make significant progress towards sourcing more healthful, regional, and sustainable school food. Interviewees attribute success largely to the following:

- Committed leadership—both within school food service and within the companies DPS does business with—and strong community partnerships to support the work. As one food service interviewee explained, “We don’t want vendors, we want partners... I get that [feeling of partnership] from local farmers. I like that... I want someone that will invest in my school district, so that I can invest in them.” Another Lab participant said, “We have found good working relationships, and it wouldn’t have been as strong of an effort if it weren’t for those partnerships. We had a strong central partner, but you also have to approach every new relationship as a partnership. Get beyond the mentality of a typical business relationship to think what can we do together to make things better.”
- The importance of working *within* and *with* the school district’s existing systems to ensure that changes are practical for those most affected—school food service. As the district partner explained, “To effect positive change, it was much more valuable for us to work *within* the system than outside of the system. We added new ideas, but we also let DPS take the lead. Over time, we have built successes in a slow steady way that has been highly effective.”
- Vendors’ willingness to exercise creativity and flexibility in meeting the unique needs of the school food market. Even though initially hesitant, the fresh produce processor, custom

processor, and ranchers each found ways to overcome their preconceptions about school food and the perceived barriers in order to give the new relationships a try.

- The strong support from students' families and the positive publicity that DPS received nationally contributed to the overall success of the changes that were made.

Not surprisingly, certain constraints were more challenging than others. Interviewees identified the greatest to be:

- The seasonality of local produce, including a short growing season and a sense that the district may have already tapped the “low hanging fruit” of products appropriate for the school food market within their region.
- The price point of local meat: According to one Lab participant, “You’ve got to make this work with the money that you have. You can’t make this work with outside money. You’ve got to look within to see where you can divert from, because grant money doesn’t last forever. If you build it and lose money, things go back to the old way. This is especially true for buying food, because you’ve got to buy food every day. Otherwise it is not sustainable.”
- The time that transitioning takes, including the time it takes to build more school gardens and fully implement scratch cooking, which requires increasing the skill level of staff and gradually introducing new recipes into the lunch line.

Conclusion

Initially, there were a lot of perceived obstacles to making changes and DPS was reluctant to commit to specific goals even though its general commitment was evident. With the Lab’s help to seek additional information and new opportunities, space was created to innovate with vendors and specific goals gradually emerged over the 18 months of the Lab. As one interviewee explained, “Once we had conversations face to face with the producers, a lot of the obstacles started to go away and solutions were created.” Through the Lab, participants learned that many perceived food system challenges were not insurmountable if they looked in their “own backyards” to leverage local assets. Not surprisingly, interviewees cited the need to have an open mind to new solutions as critical to success.

Going forward, a strong foundation has been put in place for future success: there are new relationships with vendors who strongly desire to do business with DPS and community partners eager to lend support, as well as a strengthened relationship with the district's lead partner, Slow Food Denver, who now has an "immense appreciation" for what DPS does. DPS' commitment to source more Colorado-grown products, paired with its ambitious expansion of scratch cooking and school gardens, has proven to be transformational. Ultimately, the Denver Lab demonstrated that institutional culture change is possible when the requisite skill, knowledge, and support structures are created. As one DPS food service professional explained, "FOCUS got us going," and it is anticipated that the Lab's impact will be felt for years to come.