

# INSTITUTIONAL PROCUREMENT OF REGIONALLY-GROWN CROPS

# **LEARNING LESSONS**

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Center for Precision Medicine and Data Sciences



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# INTRODUCTION

Large institutions such as hospitals, schools, and prisons can play an important role in supporting the sustainability of local farms and food systems by purchasing, cooking and serving large quantities of locally-grown food from farms and ranches using sustainable farming practices. The significant purchasing power of institutions can both stimulate local economies and influence healthy eating behaviors amongst consumers (Becot et al., 2016; Warsaw & Morales, 2022). Healthcare settings present a particularly good opportunity to influence community health with nutrition-targeted interventions (Mazza et al., 2018). In a recent survey, sustainability was identified by food service directors as the biggest trend in healthcare dining (Gingerella, 2022). To adopt purchasing strategies that support local, sustainable farms, institutional food services can learn from the experiences of institutions implementing similar programs.

# PILOT PROJECT: UC DAVIS MEDICAL CENTER

In 2012, Sacramento, California was dubbed America's Farm to Fork capital by the City's Mayor, reflecting the region's production, promotion, consumption and celebration of agriculture and food. A variety of area institutions are increasingly committing to regional sourcing (Visit Sacramento, 2012). However, the number of farms in six counties in the Sacramento area declined from 2012 to 2017, signaling a need to strengthen local food purchasing programs in the region to support farm viability (USDA National Agricultural Statistics Service, 2017).

Between 2020 to 2023, UC Davis Center for Precision Medicine and Data Sciences, UC Sustainable Agriculture Research and Education Program (SAREP), and UC Davis Health Food and Nutrition Services undertook a collaborative project addressing barriers and enhancing pathways for the production kitchen at UC Davis Medical Center¹ to increase purchasing of specialty crops² from regional farms. Leading up to the project, UC Davis Medical Center had the second largest production kitchen in Sacramento, spending \$1.63 million on produce annually and serving 2.4 million meals per year. The food services program had also made significant strides in local purchasing but wanted to both increase and systematize their approach to procurement from local farms. Given the purchasing power of the UC Davis Medical Center, along with a history of local sourcing practices, it is well positioned to be an institutional leader in supporting farm viability by piloting new approaches to procurement that improve upon its program.

In this report, we draw on lessons learned from UC Davis Health project and share barriers, opportunities, and recommendations for institutional food services interested in building or improving on local food procurement programs.



# **KEY TAKEAWAYS**

- Institutions have the potential to foster local economic benefits and influence healthy eating behaviors by prioritizing local crop purchasing from sustainable farms.
- Barriers including administrative structures in institutions, farm scale, pricing, and logistics – can present challenges to the development of values-based purchasing programs.
- Targeted interventions including consistent communication between farms, distributors, and institutional food purchasers; accurate tracking of crop origins; and education of staff and consumers – may support efforts towards increased local purchasing.
- Food hubs can play a role in providing institutions with produce that aligns with values-based purchasing programs, but efforts should be made to address common challenges surrounding price, volume, and capacity.

Located in Sacramento, the UC Davis Medical Center is a 646-bed academic health center with three retail cafés, patient care and catering services.

They serve over 6,500 meals daily and employ 220 staff in their Food and Nutrition Services Department.

<sup>&</sup>lt;sup>1</sup> UC Davis Medical Center is part of UC Davis Health, which also consists of the medical and nursing schools and medical group.

<sup>&</sup>lt;sup>2</sup> The USDA Agricultural Marketing Service (AMS) defines specialty crops as "fruits, vegetables, tree nuts, dried fruits, and horticulture and nursery crops (including floriculture)" (USDA AMS, 2016).





# BARRIERS TO INSTITUTIONAL LOCAL FOOD PURCHASING IN A HOSPITAL SETTING

The following barriers were identified by the grant project team based on their efforts to increase specialty crop procurement from local farms to UC Davis Medical Center. Many are also supported by literature focused on values-based institutional purchasing programs.

# **Institutional kitchen limitations**

Constraints in facilities, infrastructure, and labor make it challenging for institutional kitchens to process whole farm produce. The cost and availability of labor may necessitate purchasing processed produce (e.g., cubed butternut squash, diced cucumbers). Additionally, some institutions may not have the equipment or skills needed to process fresh whole produce (Sachs and Feenstra, 2008).

# Menu development

In hospitals, menu development may involve approval of ingredients and recipes by separate departments (e.g., to accommodate the dietary needs of patients). Administrative structures can make it difficult for recipes to be flexible and centered on farmer availability; instead, recipes are often determined by factors that do not necessarily correspond with seasonality. Without enough lead time, the culinary team may miss an opportunity to incorporate local, seasonal produce available for a short window of time into their menu.

# **Source identification**

When sourcing from distributors that purchase through brokers rather than farm-direct, it becomes difficult to trace the farm origin of each crop. Additionally, the origin of crops processed at a fresh-cut facility may be obscured, depending on the facility's sourcing and tracking practices.

# Farm scale compatibility

Institutions often require a large volume of one crop to fill their needs. Small farms, particularly those growing a variety of crops, may find it difficult to accommodate the volume or pack size required by the institution (Becot et al., 2016).

### **Processing specifications**

Specifications required for processing by a facility outside the institution can be a barrier for some farmers' crops that might not meet those standards.

# **Crop availability**

While produce buyers favor a consistent and predictable crop supply to simplify menu-planning, it can be difficult for growers to avoid events such as extreme weather conditions and pest issues that disrupt crop availability (Sachs and Feenstra, 2008).

### Cost

Farmers may find it economically challenging to match the prices expected by institutional buyers for some crops, in particular those that require intensive labor for a low price point (e.g., summer squash, which requires frequent harvesting to meet sizing standards). Food service programs may be reluctant to pay higher price points for organic produce or take on higher indirect costs associated with purchasing locally, such as increased labor expenses for processing and changing menus (Sachs and Feenstra, 2008).



# INTERVENTIONS TO INCREASE REGIONAL SPECIALTY CROP PURCHASING

In 2019, UC Davis Medical Center spent \$1,074,876 on all fresh specialty crops, and in 2022, \$1,482,481, representing an increase of \$407,605 or 38% across the span of the project. As a gateway for assessing system-wide opportunities, the project collaborative focused on increasing purchasing of 12 select priority crops. The priority crops were selected because they represented a high dollar value of out of state purchases at project baseline, while also being commonly produced on farms in the region. A focus on a limited number of crops allowed the collaborative to understand the unique needs of sourcing each crop, resulting in more targeted communications around grower logistics, processing, and menu development.

The project collaborative sought to increase the purchasing of regional specialty crops by implementing a multi-pronged intervention strategy, outlined below.

# Track and analyze purchasing data

The project collaborative analyzed purchasing data to measure the change in fresh specialty crop spending between 2019 and 2022 with guidance from an institutional purchasing framework developed by the Center for Good Food Purchasing.<sup>3</sup> Following their "local economies" framework, the collaborative primarily focused on the (1) distance of the farm from the institution, but also

considered (2) size of the farm and (3) ownership structure of the farm. This meant investing significant time and labor in the process of accurately tracking the source of the crops used by UC Davis Medical Center production kitchen. The Center for Good Food Purchasing advised the collaborative on strategies and tools for gathering data using the local economies criteria.4 Food purchasing reports were organized and analyzed, leading to an understanding of baseline food purchasing trends; opportunities for expanding local procurement; outcomes of targeted project interventions; and overarching results from the project. Figure 1 shows the classification system the project collaborative developed to differentiate specialty crop purchasing data based on origin.



Priority specialty crops selected based on their representing a high dollar value of out of state purchases while also being commonly produced on farms in the region:

- 1. Asparagus
- 2. Beets
- 3. Carrots
- 4. Sweet corn
- 5. Cucumbers
- 6. Melons
- 7. Pears
- 8. Summer squash
- 9. Tomatoes
- 10. Cherry tomatoes
- 11. Winter squash
- 12. Watermelon

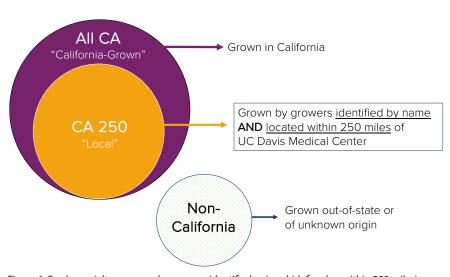


Figure 1. Fresh specialty crop purchases were identified as Local (defined as within 250 miles), California-Grown, or Non-California.

<sup>&</sup>lt;sup>3</sup> The Center for Good Food Purchasing (2023) assists public institutions transform their purchasing programs with the goal of creating transparent and equitable food systems. They identify five core values to support institutional decision-making towards more sustainable sourcing: local economies, environmental sustainability, valued workforce, animal welfare, and nutrition.

For a review of literature related to these values-based purchasing criterion, read Distance, Scale and Ownership in Values-Based Purchasing: A Review of the Literature.

## **Increase communication with Regional Produce Distributor**

The project team instated regular biweekly meetings – attended by the Executive Chef, Produce Distributor, Sustainable Supply Chain Analyst, and Data Analyst – to communicate about opportunities for purchasing local specialty crops. The Produce Distributor was in frequent and direct communication with farmers, and therefore served as a liaison to forecast which locally-grown crops would be available, when, and to share information about environmental challenges impacting the timeline of crops. Consistent communication helped the culinary and procurement teams plan ahead and capture more opportunities for local crop procurement.

# Feature priority crops on menus

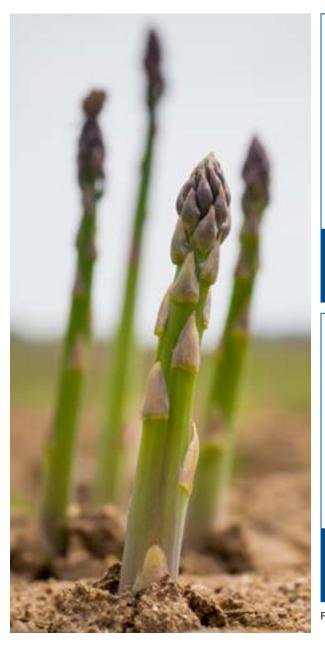
The culinary team incorporated and featured the select specialty crops in menus when they were in season to create more opportunities for the purchase of locally-grown produce.

# **Train and educate staff**

The culinary team conducted training for food services staff at UC Davis Medical Center to increase their knowledge and capacity to prepare, cook, and process regional specialty crops.

# **Educate consumers**

Recipe cards highlighting specific specialty crops featured in a season's menu item were offered at point of sale to cafeteria customers. These cards included nutrition information, where the crop was grown, and the grower(s) involved. Figure 2 shows an example of recipe cards shared with cafeteria customers.



# **Butternut Persimmon Pie**

### Directions

- Make UC Davis Health Fall Spice Blend: Mix 4 oz ground cinnamon; 1 oz ground ginger; 1 oz ground nutmeg; ¼ oz ground allspice: and ¼ oz ground cardamom
- Cook butternut squash according to your preferred method. Cool and set aside.
- To prepare filling, combine 1½ cups cooked butternut squash, persimmon, 1 tsp UC Davis Health Fall Spice Blend, evaporated milk, brown sugar, granulated sugar, eggs, vanila extract, and kosher sait. With a blender or immersion blender, blend till smooth.
- 4. Pour filling into premade pie crust.
- 5. Bake at 375 °F for 75 minutes or until filling has set. Cool before serving.

Makes 1 pie

### Ingredients

- 1 small butternut squash
- 1 cup Fuyu persimmon, peeled & diced
- 1 tsp UC Davis Health Fall Spice
   Blend (see directions for recipe)
- 112-oz can evaporated milk
- ½ cup brown sugar, packed½ cup granulated sugar
- 2 large eggs, whisked
- 1tsp vanilla extract
- 1 pinch kosher salt
- 19-inch premade pie crust

# UC**DAVIS** HEALTH

The butternut squash featured in the fall menu are sourced from Yeung Farms in West Sacramento, CA located less than 8 miles from the UC Davis Medical Center.



# **Nutrition**

Butternut squash is an excellent source of many nutrients including vitamins A and C; and minerals manganese and potassium. The Dietary Guidelines for Americans, 2020-2025 recommends a healthy dietary pattern that includes 2-4 cups a day of vegetables such as butternut squash for most adults.

# Farm to Hospital

Ray Yeung worked on his father's farm near Woodland, CA for decades before he started Yeung Farms Specialty Produce in West Sacramento in the 1990s. Besides winter squash, Yeung Farms is most well-known among Sacramento chefs for their heirloom tomatoes in the summer.

# For 1 cup cooked butternut squash:

- · Calories: 82
- Fiber: 7 g
- · Carbohydrates: 22 g
- Vitamin A: 457% Daily Value
- Vitamin C: 52% Daily Value
- Manganese: 18% Daily ValuePotassium: 16% Daily Value

# UC**DAVIS** HEALTH

This recipe card was funded by a USDA Specialty Crop Block Grant awarded to the UC Davis Center for Precision Medicine & Data Sciences with the UC Davis Health Department of Food and Nutrition Services. Funding for Expanding Opportunities in Hospital Food Service for Small and Mid-Scale California Specialty Crop Growers was made possible by the U.S. Department of Agriculture's (USDA) Agricultural Marketing Service through grant AM200100XXXXG032. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the USDA.

Figure 2. Recipe cards created to highlight locally-grown crops and educate consumers at UC Davis Medical Center about seasonality, local farms, and nutrition.

# RESULTS OF PILOT PROJECT TO INCREASE REGIONAL SPECIALTY CROPS PURCHASING

A multi-prong approach to increasing purchasing of regional specialty crops at UC Davis Medical Center led to results that far exceeded the expectations of the project team. The following summary, also reflected in Figure 3, represents the increased spend across the span of the project, from 2019 to 2022:

- California-grown fresh⁵ specialty crops (All CA) Increased by 25% (\$185,835)
- Fresh specialty crops grown within 250 miles of UC Davis Medical Center<sup>6</sup> (CA 250)
   Increased by 377% (\$432,005)
- Selected priority fresh specialty crops grown in California (Priority-All CA) Increased by 69% (\$99,243)
- Selected priority fresh specialty crops grown within 250 miles of UC Davis Medical Center (Priority CA 250)
   Increased by 5,976% (\$169,994)

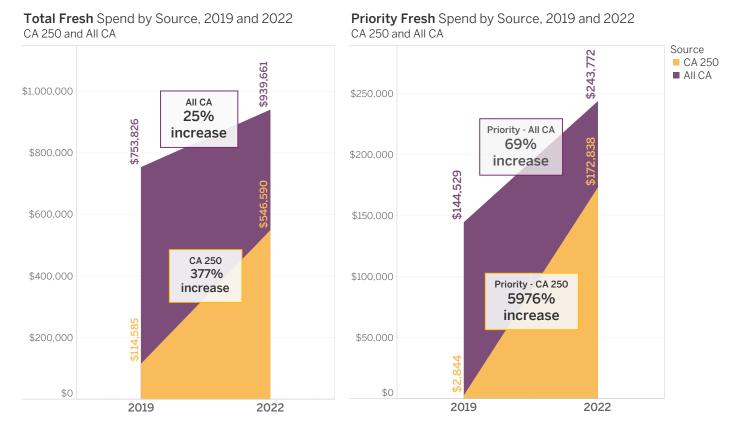
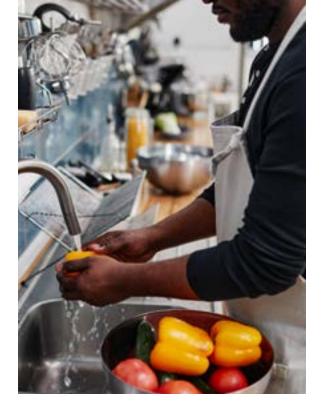


Figure 3. Total spent by UC Davis Medical Center on all California-grown fresh specialty crops and priority fresh specialty crops from 2019 to 2022. Note: The CA 250 category is included in All CA

<sup>&</sup>lt;sup>5</sup> The definition for "fresh" in the context of this project is "whole or minimally-processed (such as washing/trimming/peeling/cutting/dicing/slicing/shredding or similar); uncooked; unheated; not aged or fermented; includes cured garlic and raw/unheated honey."

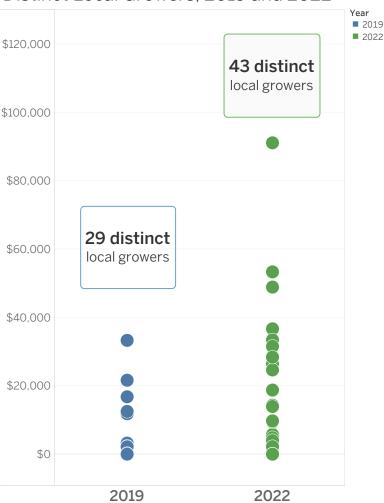
<sup>&</sup>lt;sup>6</sup> The definition for "CA 250" in the context of this project is "must be grown within 250 miles of UC Davis Medical Center and only includes sources where farm/grower name AND growing location are known; does not include items where only location is known but not grower name."

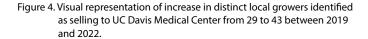


In examining the data, it is notable that there was a sharper increase in priority fresh spending across the span of the project than total fresh spending (Figure 3). This may be due to the project collaborative's targeted efforts (e.g., menu development, strengthening grower relationships) for these particular crops, rather than fresh crop purchasing as a whole. Additionally, the purchasing data show the number of distinct local growers increased across the span of the project, as did the dollars spent with local growers (Figure 4). This increase is likely related to more intentional purchasing of fresh specialty crops from local growers. The increase in number of distinct local growers may also reflect the effort invested by the Produce Distributor and Data Analyst to identify the origin of each crop by grower name whenever possible for improved source transparency.

A closer look at the steps taken by the project collaborative to increase local purchasing for individual priority crops demonstrates how particular barriers and opportunities come into play. We highlight two priority fresh crops below – beets and cucumbers – selected for this report because they demonstrate a successful effort to increase CA 250 spending and a continuing effort that has been more difficult to navigate.

# Distinct Local Growers. 2019 and 2022









# **Priority Crop Profile: Beets**

The spend on beets sourced from within 250 miles of UC Davis Medical Center (CA 250) increased from 0.5% of all beets in 2019 to 75% in 2022, representing an increase of \$27,865 (Figure 5). This success is in part due to increased communications between the Executive Chef, Produce Distributor and Sustainable Supply Chain Analyst, which resulted in the identification of a local grower who was already offering topped beets nearly year-round and able to meet the specifications of the processor. The grower had recently invested in harvest equipment that improved the efficiency of harvest, helping them offer a more competitive price. Additionally, the Produce Distributor had relationships with at least one other local grower offering topped beets who could serve as a backup source should the primary grower experience any supply disruptions.

The overall spend on fresh beets grew significantly between 2019 and 2022 - by \$23,365 or 168%. The increase in the total spend on beets was partly due to purchasing beets at a higher price per pound from the local grower. The Executive Chef also shared that he started using more beets on the menu because they are available from a local source almost year-round, add more color to salads, and provide high nutritive value. He also viewed them as an educational and training tool for both the culinary team and end consumers.

# **Priority Crop Profile: Cucumbers**

Shifting purchasing from cucumbers grown outside of California to those grown locally presented a challenge primarily due to processing specifications and delivery logistics. UC Davis Medical Center uses almost exclusively processed cucumbers (i.e., diced, peeled and sliced), and initially, the project team faced issues identifying a local grower offering a cucumber type that would meet the specifications of the processor. Additionally, the project collaborative's thorough analysis of purchasing data revealed that some 2019 cucumber purchases had been misclassified as California-grown due to the (inaccurate) inclusion of "CA" in the product description line. Increased communication between the Produce Distributor and Data Analyst resulted in more accurate data tracking for 2022 purchases. This increase in data accuracy accounts for why the spend on California-grown cucumbers decreased by \$5,099 between 2019 and 2022, from 39.6% of all cucumbers in 2019 to 1.1% in 2022 (Figure 6). In other words, some of the cucumber purchases in 2019 had been inaccurately categorized as California-grown.

In summer 2022, the Produce Distributor identified a local grower offering a suitable cucumber type, however, the grower only made deliveries two days a week which was a challenge with the processing schedule. Logistics and timing of processing were discussed to ensure that the quality of the product would be maintained, and that the quantity would meet the usage requirements of UC Davis Medical Center. As an interim step, UC Davis Medical Center purchased locally grown whole cucumbers by the case. While this intervention increased local purchasing slightly (from \$0 worth of CA 250 cucumbers in 2019 to \$332 in 2022), there remained significant opportunity to shift more cucumber purchasing to a local source.

As a result of UC Davis Medical Center's interest in increasing their local and in-state cucumber purchases, the Produce Distributor committed to changing their inventory management practices to have more product on hand from a local grower. The Produce Distributor noted that the price for locally-grown, organic cucumbers was typically greater than cucumbers grown outside of California; nonetheless, planning conversations progressed. As of the writing of this report, the 2023 cucumber season hasn't started, so the purchasing outcomes from the project collaborative's interventions remain to be seen. However, the Purchasing

Team at UC Davis Medical Center expressed willingness to pursue ongoing communication around their cucumber usage, enabling the Produce Distributor to appropriately manage inventory and processing logistics to increase the availability of locally-grown cucumbers for the UC Davis Medical Center production kitchen.

Notably, the overall spend on fresh cucumbers increased significantly between 2019 and 2022 - by \$20,858 or 151%. The purchasing data demonstrates that the growth in cucumber spending between 2019 and 2022 is due to both an increase in usage alongside an increase in the average price per pound. The Executive Chef believes the increased cucumber purchasing is also tied to a focus on cucumbers for the training and education opportunities for staff, and an incorporation of more cucumbers into the menu, for example, to bolster Mediterranean-style salads.

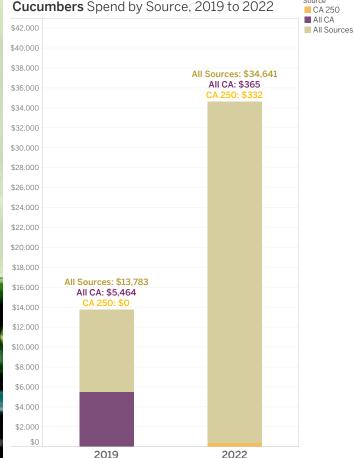


Figure 6. Total spent on cucumbers by UC Davis Medical Center, comparing 2019 to 2022 by source. Note: The All CA total spend includes CA 250, and All Sources includes All CA.

# RECOMMENDATIONS AND OPPORTUNITIES TO INCREASE LOCAL PURCHASING

Institutions implementing local food purchasing programs should consider several strategies to support adherence to procurement values. The following recommendations and opportunities are based on experiences, findings, and ideas from the UC Davis Health project and can likely be adapted to other institutional settings.

# **Sustained communication**

Consistent communication with produce distributors and farmers about upcoming crops, pricing, and volume projections builds institutional knowledge and helps food purchasers stay informed about what to expect locally.

# **Data collection**

Collecting and analyzing internal food purchasing data can help institutions better understand their baseline purchasing patterns so they can set targets based on values important to their program. A useful level of data collection and analysis requires commitment from both the institution and a trusted distributor that aligns with their values.

# **Menu development**

Institutions building their local purchasing programs should plan their menus well in advance of their rollout with consideration to local seasonality. Recipes centered around seasonally-available crops may promote the purchase of more locally-grown crops.

## **Value-added products**

Preserving produce while it is in season presents an opportunity for institutional food service programs to utilize more locally-grown crops. If culinary teams can designate time during a particular season when particular crops are in abundance (e.g., tomatoes in summer) to undertake a large-scale preserving project, they can supplement their menus

with a locally-grown crop.

# **Institutional food policy**

Implementing an institution-wide food policy mandating, for example, that a certain percentage of total purchases must be from local sources, can create accountability and demonstrate the institution's commitment to health-related values (Sachs and Feenstra, 2008). Values-based purchasing programs can also be strengthened by partnering with and receiving technical support from organizations focusing on community health and sustainable food systems.

# **Involve food hubs**

Many regional food hubs practice transparency with source-identification of all products on their availability lists, streamlining the process for an institution interested in building out a local purchasing program. Also, food hubs may be part of values-based supply chains (Feenstra and Hardesty, 2016), and sometimes vet farmers that belong to their food hubs based on location and their use of organic or sustainable farming practices. These characteristics make them desirable partners for local purchasing programs.



# **Case Study Highlight: The Role of Food Hubs in Institutional Procurement**

In January 2023, UC SAREP conducted surveys and interviews with four self-identified food hubs and one regional food distributor working with local farms to learn about their buyer-seller relationships with institutions. The following were common responses.

# Benefits of working with food hubs:

- Produce is high quality and nutrient-dense because of the quick turnaround between harvest and delivery. It is common practice for the food hubs to order from their farms only what is ordered from their customers ("harvest-to-order" model). Because the product is fresher, this can result in reduced waste or "shrink" for culinary teams.
- Food hubs serve small, sometimes underserved farmers that wouldn't normally have access to institutional markets.

  Because the food hubs aggregate from small-scale farms, institutions have an opportunity to support farms that they couldn't through a broadliner or conventional distributor. One food hub specifically focuses on sourcing from minority-owned, small-scale farms.
- Educational experiences offered by food hubs add value to their products and services. One food hub selling to K-12 institutions regularly visits schools to facilitate taste-testing with students, hosts farm field trip visits, and trains food services staff on processing and preparation of their produce. Another food hub offers pop-up farmers market experiences at the corporate institutions whose cafeterias they supply.
- Farmer-owned and values-driven food hubs treat farmers fairly. Many food hubs are farmer-owned and all of those interviewed emphasized putting the farmer first.

# Challenges for food hubs selling to institutions:

- Contract bidding systems and pricing expectations. Participants all expressed difficulty meeting the price point, and in some cases, contracts, expected by institutions while giving the farmer a fair price.
- Lack of buy-in from key personnel at institutions. Food hubs generally agreed that it is important to have a "champion" within the institution that supports values-based supply chains and is familiar with the benefits of working with food hubs. Participants perceived institutional staff to be time-constrained, and that the required introduction of new ordering systems can prevent them from switching from a broadliner to food hub.
- *High volume of product requested by some institutional accounts.* Because many food hubs source from small-scale growers, it is challenging to get enough of one product for larger institutions.
- Inconsistency and reliance on grants for purchasing. Participants noted that for K-12 institutions that are working with limited funding per meal, opportunities for purchasing from local farms are dependent upon external funding. Some food hubs have participated in "Harvest of the Month" programs where school districts buy a large volume of one product (e.g., seasonal fruit like apples), but these are often one-off instances or short-term grant-driven purchasing programs.
- Varied abilities to process whole produce at institutional kitchens. Many institutions prefer purchasing processed produce due to lack of necessary equipment, lack of labor, and/or lack of knowledge or skills for processing certain types of fresh produce in institutional kitchens.
- Adequate and efficient transportation logistics. One food hub had difficulty acquiring a truck during the pandemic due to supply chain issues. They relied on a neighboring food hub to rent their truck and contract their driver for deliveries. Another logistics observation was that some school districts do not have a central delivery point for multiple schools.
- Staffing shortages at food hubs. Many of the food hubs expressed difficulty finding consistent staffing for positions such as drivers and sales. This shortage had a direct impact on their businesses and ability to serve a larger clientele.



Large institutions have the potential to strengthen regional food systems by prioritizing purchasing from local farms. Institutional food service programs achieving success in this realm can serve as models for those developing values-based purchasing practices. Efforts in local food procurement require targeted interventions related to menu development; sustained communication between purchasing teams, distributors, and farmers; and close attention to purchasing data. Food hubs have potential to add value to institutional purchasing programs because of common attributes such as source-identified and freshly harvested produce. While there are clear benefits to sourcing from local, sustainable farms, administrative structures in institutions, farm scale, pricing, and logistics can present challenges to the development of values-based purchasing programs. A strong internal commitment to the values of the purchasing program, flexibility, creative problem-solving, and partnerships with food systems specialists can help institutions navigate these barriers.

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