

Anchors in Resilient Communities – Regional Food System Project Value Chain Assessment

Table of Contents

Introduction	3
ARC's Regional Food Systems Project.....	3
ARC's Role in the Farm to Institution Network in Northern California.....	4
Purpose and Focus of this Assessment.....	4
Methodology.....	6
Findings.....	6
Assets.....	6
<i>Farms and Land in Production</i>	<i>7</i>
<i>Farmer Support Organizations</i>	<i>9</i>
<i>Regional Food Distributors and Food Hubs</i>	<i>11</i>
<i>Food Processors.....</i>	<i>11</i>
<i>Food Safety Technical Assistance</i>	<i>12</i>
<i>Local Procurement Policies and Institutional Demand</i>	<i>12</i>
<i>Food Business Incubation, Entrepreneurship, and Innovation.....</i>	<i>13</i>
<i>Legal Support for Farmers and Cooperative Businesses.....</i>	<i>14</i>
Gaps and Needs.....	14
Challenges	16
<i>Economies of Scale</i>	<i>16</i>
<i>Processing Constraints</i>	<i>19</i>
<i>Distribution and Aggregation Constraints.....</i>	<i>20</i>
<i>Lack of Clarity and Consistency on Institutional Requirements & Demand</i>	<i>21</i>
<i>High Costs of Food Safety Compliance.....</i>	<i>21</i>
<i>Potential Regulatory Constraints Associated with Scale/Capacity Growth</i>	<i>22</i>
Opportunities.....	23
<i>Unsold Produce</i>	<i>23</i>
<i>Expanded and Improved Urban Farming</i>	<i>24</i>

<i>Models for Cost Savings in Local/Sustainable Food Purchasing</i>	<i>25</i>
<i>Best-Practices in Regional Food Systems Logistics.....</i>	<i>27</i>
<i>GroupGAP, Producer Cooperatives, and other Farmer Collaboration Strategies</i>	<i>28</i>
Potential Role of Anchor Institutions	28
Policies and Processes	29
<i>Strategies for Farmer Capacity Building.....</i>	<i>29</i>
Procurement	29
<i>Buyer Collaboration & Demand Aggregation</i>	<i>29</i>
<i>Strategies for Distributor and Aggregator Capacity Building.....</i>	<i>31</i>
Investment	31
<i>Strategies for Farmer Capacity Building.....</i>	<i>35</i>
<i>Strategies for Distributor and Aggregator Capacity Building.....</i>	<i>35</i>
Role of ARC Team	35
Research and Education.....	35
<i>Strategies for Supply Assessment.....</i>	<i>35</i>
<i>Strategies for Farmer Capacity Building.....</i>	<i>36</i>
<i>Strategies for Distributor and Aggregator Capacity Building.....</i>	<i>36</i>
<i>Strategies for Anchor Institution Capacity Building.....</i>	<i>36</i>
<i>Strategies for Leveraging Anchor Investment</i>	<i>36</i>
Partnership Coordination.....	37
<i>Strategies for Farmer Capacity Building.....</i>	<i>37</i>
<i>Strategies for Distributor and Aggregator Capacity Building.....</i>	<i>37</i>
Conclusion	38
Appendices.....	38
Appendix 1: Food System Maps.....	38
Appendix 2: Potential Institutional Vendors.....	38
Appendix 3: Technical Assistance Advisors and Organizations Serving Historically Underrepresented Farmers.....	38
Appendix 3B: AB 1348 – The Farmer Equity Act	38
Appendix 4: Food Hubs within 200 miles of 94610.....	38
Appendix 5: Software for Food Hubs and Regional Food Systems Logistics.....	38
Appendix 6: Food Safety Compliance Resources	38
Appendix 7: Bay Area Farm to Institution Case Studies	38
Appendix 8: Potential Partners	38

Acknowledgements	39
Works Cited	39

Introduction

ARC's Regional Food Systems Project

Anchors in Resilient Communities (ARC) is a multi-stakeholder initiative co-coordinated by Emerald Cities Collaborative (ECC) and Health Care Without Harm (HCWH) that leverages the assets of Bay Area anchor institutions and community-based partners to improve the social determinants of health and build resilience in the Bay Area community. Anchor institutions such as hospitals, schools, municipalities, and universities are rooted in communities, holding significant investments in real estate and social capital, and are among the largest employers in their region. They are often explicitly oriented toward supporting community health and prosperity in alignment with their missions. The anchor institutions engaged with the ARC initiative fit each of these criteria. By aggregating and coordinating the purchasing power and collective investment of the region's anchor institutions, ARC aims to expand community wealth and ownership, improve health outcomes, and strengthen the capacity of communities of color and low and moderate-income residents to be resilient in the face of climate and economic disruptions.

Traditional supply chain economics often does not account for the negative externalities created by the prevailing, transaction-based food system in the U.S. today. Those externalities can include reduced soil health, low quality of life for food chain workers, negative health outcomes for consumers, lack of trust among supply chain partners, and reduced community sovereignty that results in a lack of resilience to climate change, especially for the most vulnerable communities. The ARC Regional Food System project seeks to transform this transactional food chain into one that equitably delivers health, wealth, and climate resilience. Food **value chains**, as defined by the USDA, are “strategic alliances between farmers or ranchers and other supply-chain partners that deal in significant volumes of high-quality, differentiated food products and distribute rewards equitably across the chain” (1). For these reasons, ARC uses the term “value chain” to describe the network of stakeholders involved in getting food from the farm to the institutions at the ARC table.

ARC's Regional Food Systems Project is documenting the assets of the regional food system within 250 miles of the Bay Area, and identifying actions that anchor institutions in the region can take to foster a local food supply chain capable of meeting institutions' growing demand for healthy, sustainable and local foods. ARC is also exploring opportunities for anchor institutions to

leverage their influence to shift rural farmers toward water-saving, regenerative agriculture, and encouraging innovative urban food production, all of which can increase California's agriculture resilience to climate change. Within those efforts, ARC is partnering with Food Service Partners (FSP) on the development of the MyCultiver Food Production Center in Richmond, which aims to purchase directly from local and sustainable farmers, develop hydroponics production within its facility, and foster relationships with community-based organizations supporting healthy food access in urban communities in the East Bay.

ARC's Role in the Farm to Institution Network in Northern California

With a robust agricultural economy and history of progressive policies and programs related to food systems, Northern California is rich in food producers, organizations, and policy makers engaged with transforming the food system into one that delivers more desirable outcomes. Many of these players have their own unique ideological and practical assessments of the challenges and opportunities ahead in food system transformation. Some are focused on building grassroots power and food sovereignty in historically marginalized communities, a project which often entails a rejection of traditional neoliberal economics, while others are focused on tweaking the mainstream economic system through increasing market access for local and regional producers. ARC is evolving its own role amid these complexities, drawing simultaneously from these two approaches.

One of the unique innovations that ARC brings to the existing network is its potential for leveraging institutional procurement resources in concert with philanthropic and community benefit resources around the aim of increasing health, wealth, and resilience outcomes for the communities most negatively impacted by the current system. Because of its position as an intermediary between the players in control of the status quo and those holding the grassroots intention for a more just alternative, ARC is in a delicate, yet fertile position. In pursuit of its goals of creating a more equitable food system, ARC is navigating nuanced social, ideological, and economic complexities of the system's dynamic players in order to foster trusting relationships between key players and allow them to find common ground.

Purpose and Focus of this Assessment

The goal of this assessment is to highlight the current assets, gaps, barriers, and opportunities in the local food value chain of the San Francisco Bay Area to inform the anchor institutions and community partners at the ARC table of strategic actions they can take to realize ARC's interconnected goals. Using this information, the project will coordinate activities to foster an ecosystem of locally-owned enterprises, sustainable food producers, local food aggregators, processors, and distributors that can meet Northern California institutions' demand for healthy, sustainable and local foods in ways that also deliver health, wealth, and climate resilience to communities of color and low-income people in the Bay Area.

The main audiences for this report include the internal ARC staff team, the institutional partners at the ARC table, and the members of the Regional Food Value Chain Working Group that ARC is forming to move its food system capacity-building efforts forward. While not meant to be prescriptive, these findings can help stakeholders form evidence-based strategies for action.

The lines of inquiry this assessment explore were formed around the knowledge that in order for large institutions to purchase local food directly from farms or through intermediaries, many pieces need to fall into place. Generally speaking, for example, in order for a hospital, school, or university to purchase produce directly from a farm, the farm must:

- meet the institution's food safety requirements for the product(s) of interest,
- meet the institution's volume requirements for the product(s) of interest and/or have a relationship with an aggregator that can scale up the volume from several local farms (while still maintaining source transparency),
- be able to sell the product in the form the institution needs (i.e. pre-washed, pre-cut, peeled, frozen, etc.),
- be able to deliver the product to the institution's production facility or be located within a distance that allows the institution to pick the product up from the farm without facing excess transport costs,
- meet the institution's requirements around sustainability, labor practices, and/or other criteria of interest,
- . . . all while offering the product at a price the institution can afford, which is often lower than small or mid-sized farms can access in direct and non-institutional wholesale markets.

The institutions currently engaged in ARC include mostly hospitals and universities. The product, volume, and certification needs of those institutions are being defined by HCWH's Healthy Food in Healthcare team and its auxiliary project ProCureWorks, as well as by the Community Alliance with Family Farmers (CAFF) Farm to Cafeteria program staff and partners. The ARC Regional Food Systems Project is coordinating with these efforts to align its inquiry with the emerging needs of area institutions. As such, this assessment focused on documenting:

- produce farms within 250 miles of the Bay Area that are GAP certified¹ or have expressed interest in selling to institutions, with special focus on documenting those that are owned/operated by historically underrepresented farmers;
- sustainable protein producers within 250 miles of the Bay Area, including beef poultry, eggs, seafood, and plant-based protein;

¹ Good Agricultural Practices (GAP) is a set of recommendations for how specialty crop farmers can reduce microbial hazards in their operation. In 1997, the U.S. Food and Drug Administration (FDA) issued guidance on Good Agricultural Practices (GAPs) and Good Manufacturing Practices (GMPs) for reducing microbial hazards. That guidance was built on existing industry- and academic-led efforts to develop quality assurance systems in agricultural supply chains. Farmers volunteer (and pay) to be audited by an accredited third party organization and receive certification that they produce, pack, handle, and store fruits and vegetables in accordance with FDA's safety guidelines. These certifications can be presented to buyers that request verification of the farm's safe practices (2).

- processed and/or value-added food enterprises within 50 miles of the Bay Area, especially those owned by people of color or those with mission-oriented practices that benefit communities in Oakland and Richmond;
- food hubs, aggregators, processors, and distributors within 250 miles of the Bay Area;
- catering businesses owned by East Bay residents, especially those owned by historically underrepresented entrepreneurs;
- experts, organizations, and funders in the region poised to offer support to underrepresented food producers in need of building their capacity to sell to institutions.

In addition, this assessment includes information that might aid area institutions in defining the products they choose to prioritize from local producers. The needs of institutions will evolve, and these findings should be treated as a starting point for action and deeper inquiry aligned with the changing priorities of project partners.

Methodology

This assessment drew largely from secondary data, while producing primary data through informal interviews with key stakeholders. Data collection included:

- 1) literature review of local food system assessments, regional food systems project feasibility studies, and farm to institution project case studies from around the region and across the U.S.;
- 2) stakeholder interviews of urban and rural farmers, institutional food service buyers, and food system intermediaries including food hub operators, food systems researchers, food safety experts, regional food procurement specialists, funders, and more;
- 3) analysis of public data from U.S. and California agricultural agencies;
- 4) online research of farms, food businesses, and food systems-focused non-profits and conveners; and
- 5) ongoing engagement with food system stakeholders in the local community of practice.

Findings

Assets

The following section describes the key ingredients of the Bay Area's Regional Food System that demonstrate the potential for increased local, sustainable food procurement in area institutions. Project partners can use the associated Maps and Appendices to explore more detail on these entities and tap into this network for future action.

Farms and Land in Production

There are at least 5 GAP Certified specialty crop² farms and 1 tofu and bean sprouts producer within the 50-mile radius around the East Bay (3). Among those, at least 3 have sold to institutions in the past and expressed interest in pursuing those markets in the future (see Appendix 2 for details on each farm listed). Those 6 hyper-local producers together represent a total of 1,471 acres³ of fruit and vegetable production.

At least 17 other farms and urban gardens run by local residents and/or underrepresented farmers are within the 50-mile radius around the East Bay⁴. Together, those 17 hyper-local farms represent over 63 acres, and several among them are commercially oriented. Anchor institution investment has already been leveraged around building the capacity of some of these operations. For example, Kaiser Permanente recently awarded a grant to Planting Justice Urban Farm to improve the capacity of its aquaponics operation. Additional investments such as these could increase the feasibility of institutional food procurement from urban farms, while contributing to the multifaceted benefits that urban farms provide⁵.

Beyond the hyper-local context, there are 21 GAP Certified specialty crop farms within a 250-mile radius around the East Bay that could potentially supply institutions more readily than the smaller scale farms within a 50-mile radius (3). The operations on that list range in size from 35 acres to several thousand acres, and many have experience selling to institutions. Figure 1 expresses these farms' location, acreage range, and proximity to distributors within both the 50- and 250-mile radii around the East Bay.

² Specialty crops include fruits, vegetables, nuts, and generally all other crops that are grown for human consumption (as opposed to the field/commodity crops corn, soy, wheat, and cotton).

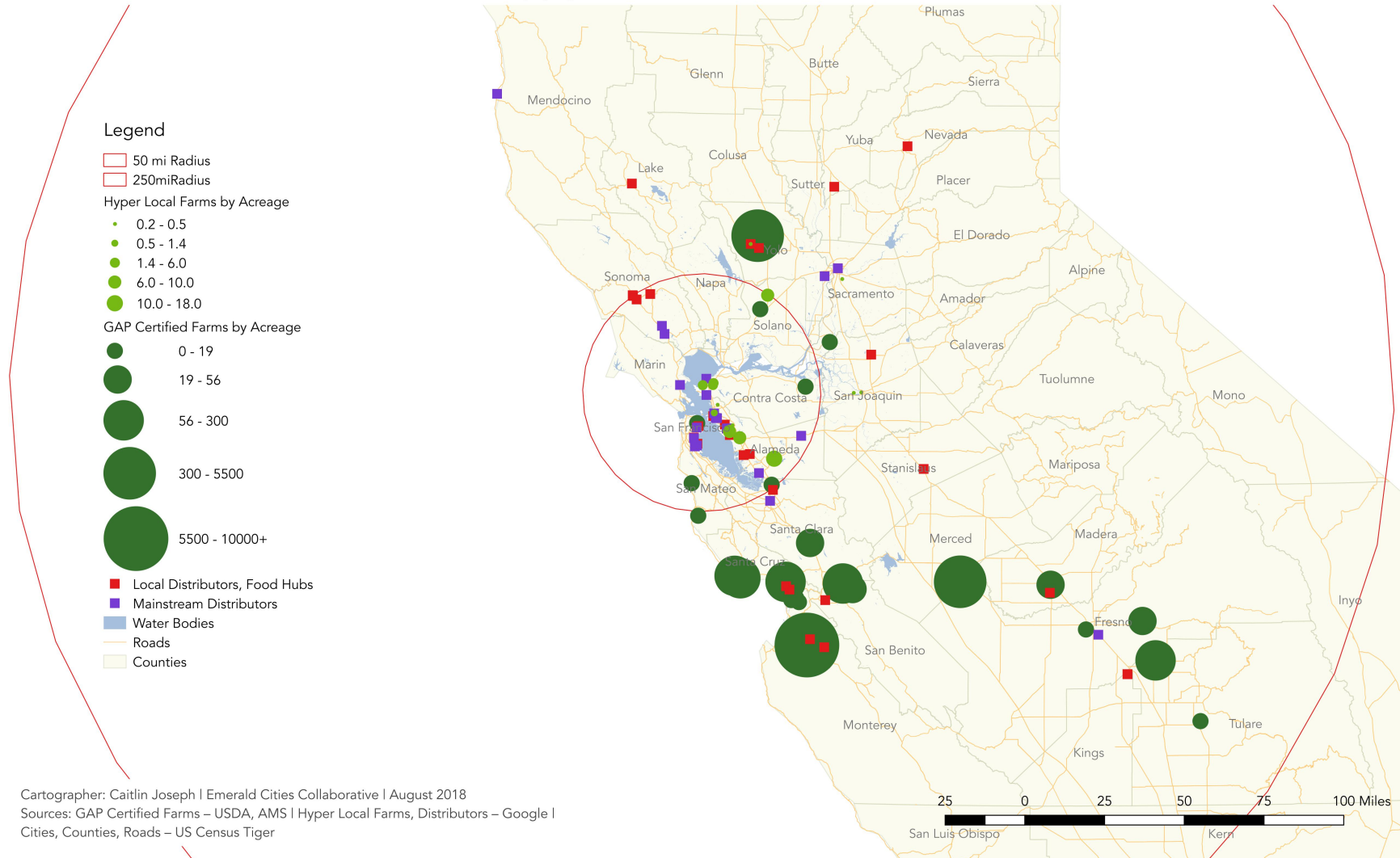
³ Total based on adding up the acreage of all farms listed in the [ARC Regional Food Systems GoogleMap](#), which used online prospecting to document each farm's acreage/capacity.

⁴ A 2011 assessment identified 15 urban farm operations oriented toward commercial production in Alameda County alone (4). It is likely that some of those farms are no longer operating, but may also suggest that there are additional operations that this analysis has not yet identified that could be interested in pursuing institutional sales.

⁵ Page 199 of Reynolds (2011) provides a useful summary of the benefits, drawbacks, and challenges of urban agriculture cited in U.S. peer-reviewed literature, many of which also apply to the Bay Area (4).

Figure 1: Produce Farms & Distributors within 50- and 250-mile radii of the Bay Area

Institutional Supply Chain: Produce Farms & Distributors



This map reveals a few notable patterns. First, the largest farms and greatest number of GAP certified farms are outside the 50-mile radius. Second, the area just outside of the 50-mile radius to the south has a cluster of high-volume, GAP certified farms and a number of local food aggregators and distributors that may be well poised to get produce to Bay Area institutions. This indicates that it may be most strategic to develop relationships with some of the food hubs and distributors in that particular area. Additional maps in Appendix 1 show the locations of anchor institutions in ARC's network, as well as the network of food system non-profits and other conveners that are poised to support the connections between producers and buyers.

In addition to produce farms, this 250-mile radius includes a plethora of grain, dairy, beef, and poultry production, as well as seafood operations that meet the sustainability criteria of HCWH. Appendix 2 provides a list of such operations, with detailed information about their locations, current markets, product specifications, and volume capacities. More work is needed to understand these operations' capacity to sell to institutional markets, an effort which is being led by the Market Assessment Taskforce of ProCureWorks, a project of HCWH. More detail on ProCureWorks and ARC's contributions to it are presented in later sections of this report.

Previous assessments have demonstrated that within each agricultural sector, many regional farms and ranches are capable of (or are already) providing storage and/or packing services for other nearby producers (5). [Coke Farm](#), for example, began as a small produce farm in 1981 and has evolved into an aggregation, storage, and distribution business, serving more than 60 Organic growers in the Central Coast region. Since such services will be critical to meeting institutional demand, ARC and its collaborators should seek and promote opportunities to let producers themselves lead aggregation efforts in addition to employing the help of food hubs and other intermediaries (5).

Farmer Support Organizations

Small, diversified farms across the U.S. face many challenges remaining profitable and accessing stable markets for their products. Institutional markets can offer stability for these farmers in the form of high volume markets and forward contracts. However, many farms need to grow their capacity before they could sell to institutional markets. Also, increasing consolidation and globalization in the agriculture and food industries in recent decades has hollowed out the infrastructure (i.e. processing, storage, and distribution) needed to get food from local farms to local plates in an economically viable manner. As such, the network of producers and buyers interested in growing local economies must rebuild much of the social and physical infrastructure that is scaled appropriately for such an endeavor. In the Bay Area, many organizations have been focused on these efforts for decades. This section describes some of those key organizations, while highlighting how each may fit into ARC's efforts to rebuild regional food system infrastructure.

Since 1978, the Community Alliance with Family Farmers (CAFF) has provided critical support to small and mid-sized farmers and food businesses engaged in local and regional food system projects throughout California, particularly in the development of farm to institution markets, and in growing their capacity to meet food safety regulations. CAFF's network of experts is dedicated to sharing knowledge with collaborators and farmers, and is working to create inclusive pathways of engagement for limited resource and underrepresented farmers to better access their programming. In recent years, their programming has expanded to provide one-on-one technical support to farmers, especially around the implementation of the new food safety regulations under the federal Food Safety Modernization Act (FSMA), as well as state-level policies related to food safety. CAFF also hosts Farmers Guilds throughout California, which are run by community-based food producers and volunteers and allow current and aspiring farmers to share knowledge and support each other locally. CAFF has a wealth of experience developing wholesale markets for local food through the Growers Collaborative initiative, which was an early, innovative effort to aggregate and distribute the products of small farmers to meet the burgeoning demand of large purchasers (5). CAFF has conducted several detailed supply and demand analyses of the agricultural sector in and around the Bay Area, including a food hub feasibility study for the North Coast in 2011 and a local food economy analysis of San Mateo County in 2014, each of which provide detailed estimates of the scale and type of production in the counties of interest (5, 6). Tapping into CAFF's network and the reports it has produced will be critical for ARC's success in increasing sales of local food in institutions.

Kitchen Table Advisors is a non-profit organization dedicated to supporting the viability of small, sustainable farm businesses in Northern California. Each year, a new cohort of farms is chosen by the organization to receive personalized support to grow and/or stabilize their businesses. Depending on the farm's unique needs, advising may focus on anything from decision-making around farm expansion, to strategic planning around sales and marketing, to financial record keeping (7). Critically, its cohorts over the last three years have comprised high percentages of historically underrepresented farmers, including more than half of farmers who identify as female, around 40% who identify as Latino, and around 7% who identify as Asian (8).

Supporting farmers in an inclusive manner is critical to the sustainability of agriculture in California. Although California leads the nation in the diversity of its farmers and ranchers, and that diversity has been growing in recent years, white men still dominate the industry (9). The last U.S. agriculture census data show that in 2012, 92% of farm operators in California were white and only 18% of farm operators were female (9). At the same time, farm operators are aging out of the profession at increasing rates, putting thousands of acres of farmland at risk of being removed from production (10). To ensure the preservation of vital farmland, it is increasingly important to enable historically underrepresented groups to enter and sustain professions in agriculture (10). As reflected in the current demographics of the profession, female farmers and farmers of color have historically faced systemic challenges accessing resources critical to the success of their agricultural businesses, such as land, capital, financing, and stable markets (11, 12, 13). Like Kitchen Table Advisors, a broad network of support organizations across California aims to reduce barriers for underrepresented farmers to establish viable businesses. Appendix 3 provides a list of such organizations, as well as individual technical assistance providers that

are poised to serve farmers from underrepresented backgrounds. Appendix 3B summarizes the benefits of the recent passage of AB 1348, the Farmer Equity Act, at the state level, and highlights what ARC's role could be in ensuring its effective implementation.

Regional Food Distributors and Food Hubs

The USDA defines a food hub as “a centrally located facility with a business management structure facilitating the aggregation, storage, processing, distribution, and/or marketing of locally/regionally produced food products” (14). The food hubs across California will be critical to aggregating and minimally processing produce, eggs, value-added products, and other items that may be of interest to institutional markets. According to USDA data, 12 food hubs exist in California, but grassroots practitioners are aware of more food hubs in the operation or development stage (15). Appendix 4 provides a list of the regional food hubs that are within a 200 mile radius of the San Francisco Bay Area, along with detailed information about each hub's business model, local product offerings, and services offered to the regional food supply chain (such as aggregation, storage, or farmer business planning support). This list showcases the diversity of approaches food hubs employ, and presents many key potential partners for the ARC Regional Food System project.

UC SAREP operates a Food Hub Network that brings together 8 California food hubs into closer collaboration to increase their viability and efficiency. Due to the diversity of operations in the network, however, getting all members working toward collective goals has been challenging (15, 16). The network involves monthly calls, a yearly convening, and research aimed at paving the way for greater collective impact of local and regional food system partners. One of the outcomes of the network has been the documentation of tools that food hubs are using to overcome common challenges such as the need for streamlined systems of aggregation, marketing, order fulfillment, and distribution coordination. Many food hubs have utilized emerging technology to solve those problems, which have yielded mixed results. More detail on the software platforms used for these efforts and each platform's pros and cons is documented in Appendix 5.

Food Processors

Given that many institutional food service operations cannot profitably process raw agricultural products for use in their operations, intermediaries capable of minimally processing fresh produce and proteins into specified forms and with proper food safety certifications will be needed. The California League of Food Producers is a statewide trade association that advances the viability of its members, which include about 50 food processors across the state (17). This section describes some of the Northern California based entities that could potentially serve the processing needs of local farmers and institutions, and Appendix 2 provides additional detail on each of these entities.

- **[Legacy Supply Chain Services](#)** processed butternut squash from Coke Farms for distribution by Fresh Point SF and use in the SF VA facilities as part of the Farm Fresh Healthcare Project pilot, spearheaded by HCWH in 2012 - 2014 (18).
- **Scully Produce** washes and packs whole, locally grown pears. Their product list includes many pack formats that may be viable for institutional markets.
- **Pacific Coast Producers** is an agricultural cooperative owned by Northern California fruit and tomato farmers that specializes in processing organic and conventional apricots, peaches, tomatoes, apples, and cherries. Its product list includes pouches of processed fruits and sauces formulated for institutional food service.
- **Del Mar Food Products** processes apricots, blackberries, peaches, strawberries, Brussels sprouts, red bell peppers, and spinach into a variety of packs and forms useful for institutional food service, such as Individual Quick Frozen (IQF), food service packs, and purées.
- **Bay Cities Produce** is a produce wholesaler and distribution company that specializes in California-grown produce and has partnered with CAFF to bring local food into area hospitals over the years (19). It also operates a processing facility that can cut and slice whole produce (19).
- **Mandela Marketplace Foods Distribution** is expanding its services to farmers and large food buyers, including potentially installing equipment that would allow them to provide some minimal processing of produce for its farmers and buyers.

Food Safety Technical Assistance

Compliance with food safety laws such as the Food Safety Modernization Act (FSMA) is critical to farmers' access to institutional markets, especially hospitals and schools. Given the complexity and costs associated with implementing these practices and the lack of assistance that the FDA is poised to provide, farmers will need a great deal of support from locally-based entities to understand and come into compliance with FSMA and/or achieve third-party verified certifications to demonstrate their high quality safety practices to buyers (40). CAFF has a food safety expert on staff who works with small farms to create and implement food safety plans aligned with both state and federal regulations. Several distributors, including Bay Cities Produce and FreshPoint SF, offer scholarships to farmers who work with CAFF to create those plans (20). The California Department of Food and Agriculture also offers subsidized trainings for farmers. Online resources from the National Sustainable Agriculture Coalition, UC Cooperative Extension, UC Small Farm Program, and many third-party certifiers also offer free information and assistance for farmers and food facilities. Appendix 5 provides a detailed list of food safety compliance resources and technical assistance providers for farmers and local food stakeholders.

Local Procurement Policies and Institutional Demand

Compared to farm to institution projects across the country, local procurement projects in the Bay Area benefit from the clarity of intention that California state laws and institutional procurement policies have created around local procurement. For instance,

CAFF conducted a comprehensive review of state policies and produced a report clarifying the ability of healthcare institutions to purchase from local farmers (21). The state Office of Farm to Fork also produced materials to help K-12 schools understand the regulations they face and highlighted best-practices for overcoming barriers (22). In 2017 alone, the state passed several bills that encourage the procurement of local foods within institutions such as AB 822, which requires all California state-owned or state-run institutions give preference to CA grown food in procurement decisions and SB 782, which establishes a California-Grown Fresh School Meals Grant Program within California Department of Food and Agriculture to provide grants for public schools to buy CA-grown food and expand the number of freshly prepared school meals that use those products (23).

Among the institutions within the ARC collaboration, several have also made bold commitments to local⁶ and sustainable purchasing. Kaiser Permanente, for example, is committed to sourcing 100% local and/or sustainable food by 2025. Many institutions within the University of California system have already exceeded their goal of making at least 20% of their food purchases sustainable by 2020 (24, 25). These commitments clarify the strong and growing institutional demand for local, sustainable food, which can help pave the way for the supply chain transformation that will be needed to meet that demand.

Food Business Incubation, Entrepreneurship, and Innovation

Oakland and Richmond are home to more than 11 **kitchen incubators** that are fostering the growth of an immense number of artisan food entrepreneurs based in the area (26). Incubators are critical to the success of these entrepreneurs and they represent potential assets for identifying food businesses that might be able to supply locally produced value-added products to anchor institutions. Additionally, many of these incubators are owned by people of color who are rooted in the communities they serve and aim to provide increased benefits for their workers and communities through living wages and career pathways. The values alignment between these incubators and the ARC project is clear, and shows great potential for deeper, mutually beneficial collaboration.

The strength of the alternative food movement in the Bay Area and the region's agricultural assets have brought on a massive proliferation of school gardens, urban farms, community gardens, and farmers markets, which are helping to foster greater interest in farming as a career. This network of **farm incubator programs**, sustainable agriculture education programs, and agricultural leadership associations is poised to turn those with a desire to farm into successful business people. Appendix 3 includes a list of these programs, which could be explored as part of ARC's long-term strategy of growing a diverse supply chain for local food.

The Bay Area is also a hub for researchers and entrepreneurs seeking to solve the challenges of the local food system using **innovative technological tools**. Regional food system stakeholders have already taken advantage of several of these innovations,

⁶ Most of the anchor institutions participating in ARC define "local" as being produced within 250 miles of the purchasing facility.

especially for solving distribution, ordering, and logistics challenges, as is documented in Appendix 5. The plethora of companies and start-ups working in this space represent opportunities for collaboration that ARC might pursue.

A number of creative, **mission-driven financing agencies** and organizations in the area are focused on infusing the local food system with needed capital. For example, FarmLink provides low-interest loans to farmers of color and limited resources farmers to make the investments they need to access consistent markets for their products. They have also partnered with Mandela Marketplace to expand their distribution capacity and services to their local farmers. The Northern California Community Loan Fund and Self-Help Credit Union also present opportunities for local farmers and food businesses to access financing. Pacific Community Ventures has also been awarded funding to grow quality jobs within small business in the Bay Area. These funds have been used in the past to support small food entrepreneurs in growing their capacity, and thus there is some potential that this program could be leveraged around regional food systems capacity growth, as well.

Legal Support for Farmers and Cooperative Businesses

Producer Cooperative formation is a long-standing strategy for helping small- and mid-sized farmers access larger, more stable markets, especially among farmers of color (27). Cooperatives can foster collaboration among producers, allowing them to achieve food safety certifications in a less-costly manner, aggregate products to reach higher volumes, and market their products under a common, values-driven brand. Several organizations in the Bay Area have experience helping farmers form such entities, and ARC has already engaged with these partners to enable their support for farmers looking to grow their capacity to sell to institutions, and for the formation of a worker-owned cooperative within institutions' own food service operations. Several of these entities are listed below.

- **Sustainable Economies Law Center (SELC)** offers free legal advice to farmers on cooperative formation and other issues concerning law and policy. Their monthly Policy Cafes serve as open office hours-style support for any farmer to drop in and receive customized assistance. ARC could play a role in spreading awareness of these opportunities for farmers.
- **Tuttle Law Group** provides in-depth legal consulting to farmers seeking to form cooperative enterprises. ARC has a relationship with their team, and is well poised to connect farmers and food businesses to this resource in the future, as needed.

Gaps and Needs

Although California leads the country in producing fruits, vegetable, and other food for human consumption, it remains unclear how much and which kind of this food is available for institutional markets (19). Even for products that are available in sufficient volumes, producers may have many valid reasons for preferring not to sell to local institutions. Large producers may be uninterested in the additional marketing and relationship building required, and small farmers may be reluctant to sell their products for lower

prices or may be unable or unwilling to invest in the infrastructure improvements that institutional sales require (19). Medium term growing contracts with institutions may reduce risk for farmers, encouraging them to pursue such markets, but both buyers and producers need to test sales relationships before establishing such contracts (19). Collaborative marketing models such as co-ops and local distribution alliances may be potential solutions to some of these barriers, but deeper analysis of the feasibility of them in the local context is needed. The following lists describe what this assessment found is needed to more effectively enable farmers, intermediaries, and buyers to participate in farm to institution markets. ProCureWorks' Market Assessment Task Force is conducting further inquiry on these needs and the broader potential for local supply to meet institutional demand.

Farmers Need . . .

- Farm Business Management Technical Assistance and one-on-one counseling, particularly in farmers' native languages, and workshops on basic principles of how to price products, market to institutions, etc.
- Grants rather than loans for capacity investments.
- Knowledge of food safety training opportunities/proximity to trainings/affordable trainings.
- Assistance getting to existing food safety and business trainings (many farmers are not nearby and need more affordable transportation options).
- Affordable land that is close to distribution infrastructure.
- Urban farms, especially in Richmond, may face zoning and policy restrictions related to processing, distribution, or sales of agricultural products, where they are not expressly allowed in city zoning ordinances. Any future updates to municipal policies related to urban agriculture should be aligned with food safety regulations.
- Marketing, aggregation, and sales coordination support from food hubs and other intermediaries, especially for farmers of color and farmers for whom English is not their first language.
- Assistance forming farmer collaborations (such as producer cooperatives) and/or assistance spreading awareness about how farmers can join existing ones, especially when such entities are poised to enable small- and mid-sized farmers to obtain GroupGAP certification and/or market products collectively.
- More tools for farmers to implement the technical details they learn in workshops and trainings. One-time workshops and/or training series programs are helpful, but farmers need more opportunity to practice implementing strategies and receive support from other farmers throughout.
- More incubator programs to grow the number of young people, especially people of color, leading successful farming operations.

Distributors and Aggregators Need . . .

- Diversified and innovative sources of large and small financing for capital investments (i.e. hospital community benefit support, foundation grants, letters of intent from buyers, etc.).

- More pathways to connect with buyers who value supply chain transparency and/or have set goals around increasing their local, sustainable purchasing.
- Greater connectivity and resource sharing between regional food hubs, producers, and technology innovators on cost-effective aggregation and distribution logistics strategies. A map compiling distributors' and food hubs' routes could help intermediaries identify opportunities for temporary storage, back-hauling support, or other collaborative efficiencies.
- More local product volume, adequate delivery systems (with traceability), and more third-party food safety audits.
- More clarity from FDA and assistance from implementers on how food hubs can comply with FSMA.

Buyers Need . . .

- Clarity, templates, and shared language for what buyers need to require of local farmers, ranchers, and distributors in order to establish new buying agreements.
- An accessible database of local, sustainable producers and distributors interested in and capable of supplying institutions.
- More opportunities to meet and develop relationships with local, sustainable farmers, food hub operators, and intermediaries.

Challenges

In addition to the need to address gaps in the local network of support, systemic challenges constrain farm to institution sales. Many of these are tied to complex political and economic issues in the broader U.S. and global food system, and as such addressing these challenges may require strategic partnerships across grassroots, business, and policy stakeholders. This section discusses some of those anticipated challenges and the extent to which they may constrain regional food systems from reaching their potential in the Bay Area.

Economies of Scale

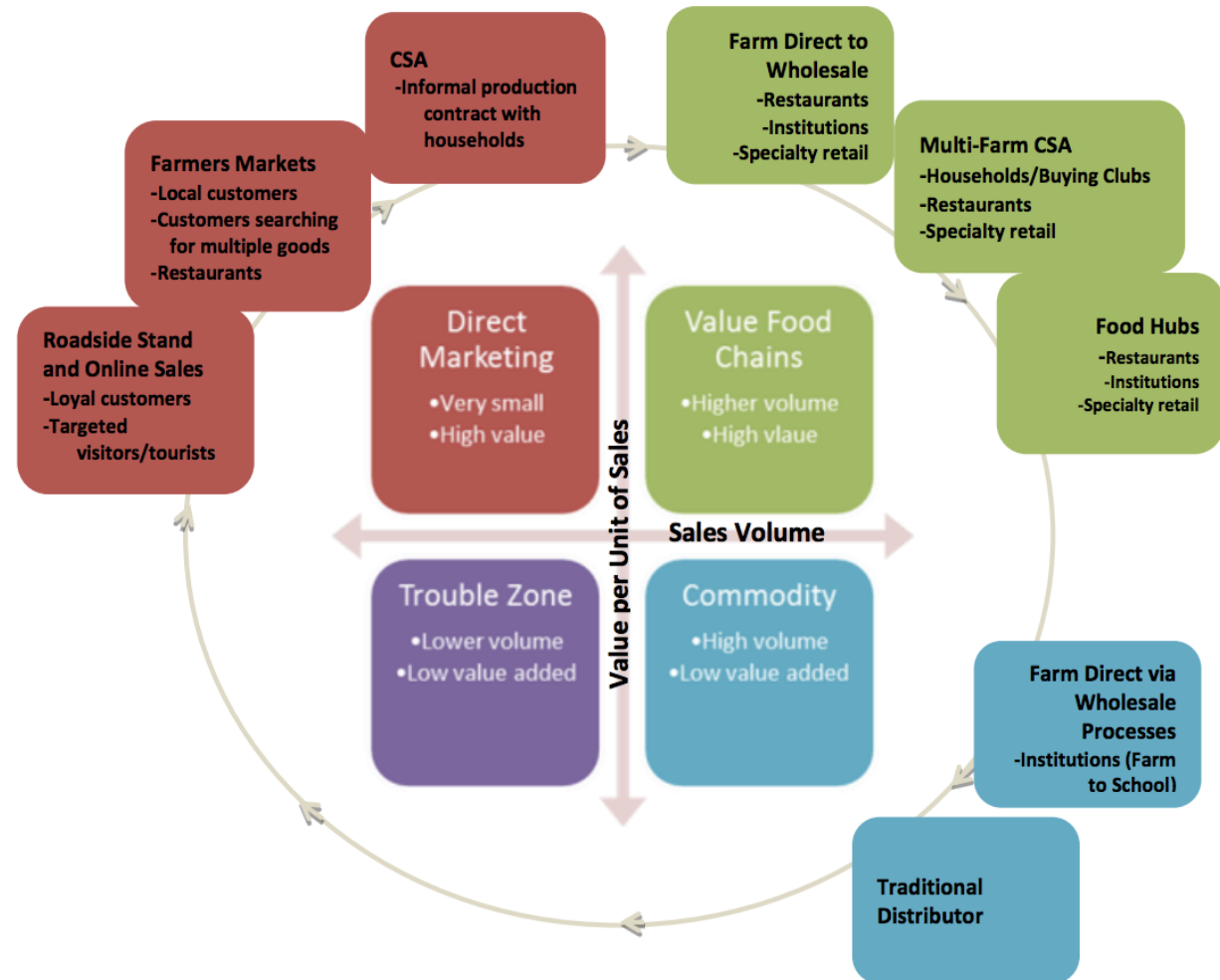
In any enterprise, the cost per unit of production is critical to determining the price the producer must receive in order to stay in business. Costs per unit are dependent on the efficiency of the natural resource, labor, and technological inputs of production. Producers that sell to local/regional markets and/or those that practice values-driven, sustainable practices often do not benefit from the same efficiencies that large scale, conventional producers can. As such, local and sustainable producers often have higher costs per unit of production. The ability of large firms to access lower costs per unit of production as they scale up their volume is called accessing an “economy of scale”.

This issue influences business decisions among local and regional producers. Figure 2 describes a variety of the most common food system enterprises, both those that sell into local and non-local markets. The typology is divided into four quadrants based on the

sales volumes (horizontal) and the value-added per unit of sales (vertical) in each business classification (28). The types are ordered and connected by arrows based on the progression that enterprises typically move through as they expand or decrease in scale. As shown in Figure 2, institutional markets are most typically chosen as profitable markets for enterprises that are able to produce *high volumes* and are able to absorb slightly *lower prices* for their products than they would receive selling into direct markets (28).

This phenomenon illuminates the reasons that institutional markets may not be right for all producers, especially small urban farms serving local direct markets. It also clarifies why prices for local and sustainable foods are sometimes higher per unit than what institutions are accustomed to paying for conventional food produced and distributed on larger scales. The next two subsections highlight a few instances where *dis-economies of scale* may constrain the ARC Regional Food System from reaching its potential.

Figure 2: Local Food Business Models



Source: 28

Limitations of Commercial-Scale Urban Food Production

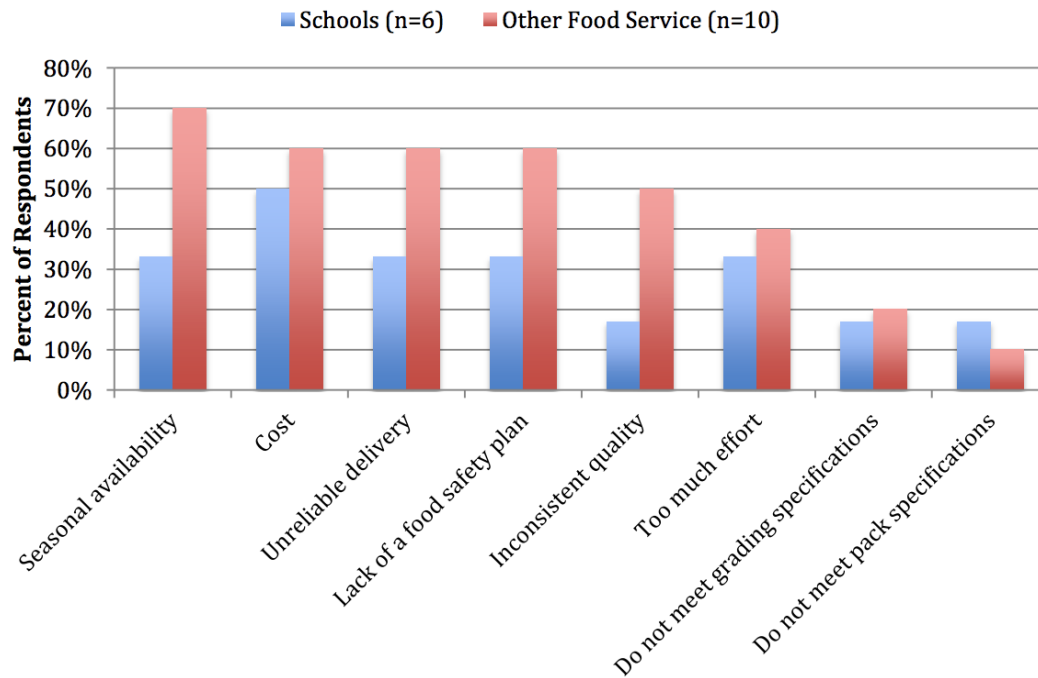
Small-scale producers and distributors face many challenges in accessing the efficiencies, and therefore profitability, of businesses that operate at larger scales. Urban farms face these challenges and then some. High land prices, small plots, soil quality and safety concerns, water access, and zoning restrictions are just a few challenges that are unique to agriculture in urban settings. To combat these, urban farms must invest in ingenuity to reach higher yields, access efficiencies, and become profitable. Urban food production is also challenged by a lack of research and technical assistance geared toward urban farming systems. A 2011 publication assessed the existing need for technical assistance in Alameda County among urban agriculture practitioners, and recommended strategies for expanding that support (4). Some of those recommendations have been implemented, such as additional hiring of agricultural extension officers focused on urban farming, however more assistance is needed to help urban producers develop high-yield, profitable systems of production (29). Continued increases in technical assistance tailored to the unique needs of commercial urban farms could help alleviate some of the barriers urban farms face in reaching economies of scale.

Costs of Expanding Local, Sustainable Food Purchasing

Each type of anchor institution has its own set of food service structures and constraints. In hospitals, for example, patient meals are budgeted at an extremely low cost. A 2007 review of farm to institution efforts in Northern California, for example, found that patient meal budgets were often between \$2.00 and \$3.00 per meal (19). Since these meals do not generate revenue and providers often do not have the ability to change the price based on input costs, minimizing input expenses is a high priority (19). K-12 schools face similar cost-per meal constraints, with the average prices per meal across the country between \$2.30 and \$2.70 (30, 31). The UC system and other colleges and universities are somewhat less constrained compared to K-12 schools and hospitals, with meal prices at UCLA, for example between \$11 and \$18 (32).

Local food is sometimes, but not always more expensive than non-local food, especially in the case of dairy products and seasonal produce (19). However, the *perception* that local food costs more is widespread, in some part due to the economy of scale phenomenon influencing food prices (34, 6). Institutional buyers often list the higher cost of local food among the top reasons they hesitate to purchase more sustainable, local products, as shown in Figure 3 (34, 6).

Figure 3: Barriers to Purchasing San Mateo County Products



Source: 6

treatments, packing and any other procedure that can bring the produce into a ready-to-cook or ready-to-eat form without changing its essential nature or nutritional quality (33). Minimally processed produce accounts for about 15% of all produce sales in North American food service and retail markets, and is particularly important for institutional food service operations, which often have large-volume streamlined processes that require minimal labor of their internal teams (34). Since minimal processing involves processes that have unique food safety and quality concerns, operations that perform minimal processing are often subject to higher levels of regulation and higher costs of compliance (34, 35, 36.) Products such as meat, dairy, and sauces also require high-tech processing, such as pasteurization and packaging. Facilities must be specially equipped and regulated for such procedures, which often entail high levels of energy use. Notably, California's average industrial electricity price was 80% higher than the U.S. average in 2016, a year when several food processing companies, such as Nestle and Heinz, opted to move their facilities out of state (37). These challenges are among the reasons that local supply chains lack adequate processing infrastructure.

The California League of Food Producers is a statewide trade association that represents at least 50 members in the food-processing sector, including Del Monte, Hilmar Cheese, Pacific Coast Producers, and Del Mar Food Products (17). Rob Neenan, the

Beyond the direct prices of local and sustainable foods, institutions face additional costs associated with increasing local and sustainable purchasing, in the form of labor expenses for staff to make menu changes, find suppliers, and adapt billing procedures and production practices (19). ARC and other non-profit intermediaries can offset some of these associated costs by assisting institutional buyers with local supplier identification, producer outreach, and implementation of best practices gleaned from other farm to institution case studies around the region.

Processing Constraints

Minimal processing of fresh fruits and vegetables is critical to most institutions' ability to utilize fresh, local produce. Such processing can include washing, sorting, trimming, peeling, slicing, chopping, anti-oxidants or preservative

League's President, explained in June of 2018 that the steel and aluminum tariffs proposed at the federal level are poised to significantly negatively impact the remaining food processors in California, who rely on those raw materials for cans, aluminum foil, equipment, and some packaging (17). It will be critical for regional food system stakeholders to find opportunities to rebuild food-processing infrastructure that can meet the needs of local producers and buyers.

Distribution and Aggregation Constraints

The Bay Area region is home to countless food distribution operations, and many have at least some locally produced inventory. Even during peak growing season, however, buying from a locally based distributor does not guarantee local product. Many local growers interested in wholesale markets sell product at the San Francisco Terminal Market, where distributors buy produce for packing, marketing, and resale (5). Distributors at the Terminal Market have been hesitant to purchase from small, local growers based on quality, consistency, and dependability concerns (5). Among the distributors that *do* purchase and sell local products, few have effective mechanisms for maintaining source-identification, which many institutions desire and/or require (5). Tracing products to their farm of origin may require that a distributor develop costly new systems for tracking, storage, packaging, ordering and invoicing, and training for workers. Expanding local food purchasing rarely translates into higher profits for these distributors, so enlisting their cooperation could be a major obstacle (19).

Purchasing directly from the farm gate is one option that may alleviate some of the transparency and traceability challenges, however, there are cost and safety concerns involved in such an exchange. It can cost a distributor \$80 to \$100 in fuel and labor to stop their truck, so farmers may need to supply large volumes to make a pick-up worthwhile for a distributor (20).

Food hubs are attempting to solve and/or circumvent some of the challenges traditional distributors have in bringing transparent local products to wholesale markets. Such operations, however, face their own set of challenges. Food hubs in the UC Food Hub Network pilot listed their main challenges (in order), as:

- Food safety compliance;
- Increasing supply chain efficiency (due to diseconomies of scale);
- Supplier/grower support, especially as it relates to getting reliable, consistent, and diverse enough supply;
- Having enough funds to retain quality staff;
- Lack of buyer knowledge about local, small-scale production (38).

Aggregators and food hubs interviewed for this assessment echoed many of these challenges. The Food Hub Network pilot report highlights the desire among existing food hubs to facilitate transactions among them to smooth out supply gaps, and our interviews with Aggregator revealed that they are actively seeking such partnerships with food hubs around the state. But there is

concern among food hub operators about the profitability of those transactions and the clear communication and boundary setting necessary to facilitate effective partnerships of that nature (38)

Organic products need their own distribution system to prevent commingling, but organic distribution infrastructure is even more concentrated than conventional agriculture, so there are fewer options for organic farmers to get their products into large markets via existing distribution infrastructure (39).

Lack of Clarity and Consistency on Institutional Requirements & Demand

The entire food supply chain is adjusting to the roll out of FSMA regulations. FDA received inadequate funds to implement effective training and technical assistance for farmers and food facilities (40). Agricultural extension programs and community-based organizations are providing much of this support in its place, but their capacity is limited. These efforts are further challenged by the lack of clarity in the regulations themselves about specific aspects of compliance, particularly related to agricultural water testing and the applicability of the Preventive Controls Rule to food hubs and other mixed/non-traditional operations. These uncertainties and lack of adequate technical support create a greater sense of risk for anchor institutions interested in direct food purchasing, slowing their progress on outreach and procurement decisions. CAFF is developing plans to convene anchor institutions around setting up shared food safety and procurement policies and procedures that meet all regulations and are conducive to on-boarding small and mid-scale regional producers. ARC can support CAFF in this effort by encouraging anchor institutions to participate, and by communicating the outcomes of the effort to regional food system producers and intermediaries.

Many institutions will need to shift internal purchasing policies and processes to buy more directly from local, sustainable suppliers. Food service staff within institutions may need to coordinate an internal team to identify priority sustainable/local products, and adapt or design on boarding, delivery, and billing strategies. HCWH continues to serve a critical role in the demand articulation and aggregation element, and ARC team members have been instrumental in connecting institutional food service staff with technical assistance to develop the internal systems needed to accommodate these shifts. However, these decisions will take considerable coordination, and may not align with farmers' production timelines. The sooner that farmers can get clarity on which products institutions desire and the hoops they will need to jump through to become suppliers, the sooner the network of support can mobilize around farmers to build their capacity to meet those parameters.

High Costs of Food Safety Compliance

One of the ways that farmers commonly need to grow capacity before they can sell to institutions is to demonstrate their systems of safe food production and handling. Added costs associated with improving food safety systems are inevitable, but they are very difficult for farmers to measure and therefore offset. A recent USDA ERS study documented the costs associated with

implementing a robust microbial food safety program within the leafy green industry in order to estimate how the FSMA Produce Rule may affect produce growers more broadly (41)⁷. Only some food safety practice costs were measured, including those for food safety staff, harvest foremen, third-party audits, product loss due to animal intrusion, and water testing (41). Of those five costs, the largest share was accounted for by the costs of workers implementing the food safety plan, including 38% for the food safety staff (field and clerical) and 32% for the time that harvest foreman spent on food safety related tasks (41). Third-party audits were another major expense, accounting for between 11 – 17% of total measured costs (41). While FSMA does not require third-party audits, many major buyers, especially institutions, are asking for them (41). Overall, the study’s findings suggest that produce growers who implement these higher food safety standards can expect to **increase production costs by between 6% and 19%** (41)⁸. Another study focused on leafy green growers found that their food safety costs **more than doubled** after implementation of their crop’s food safety requirements (42), increasing to more than \$54 per acre (42)⁹. **Small and mid-sized farms had the highest modification costs per acre** (42). Growers with revenues between \$1 million and \$10 million had the highest modification costs per acre (\$18.05), followed by growers with revenues under \$1 million (\$14.82) and, lastly, growers with revenues over \$10 million (\$8.29) (42).

Few growers are being offered higher prices to recoup these added costs (42). Institutional buyers that value the preservation of a safe, sustainable food supply should consider how their buying practices can facilitate growers’ compliance with food safety standards while paying them prices that allow them to remain profitable. This may be through anticipating higher prices for produce, especially from small and mid-sized growers and/or through subsidizing on-farm modifications to allow farms to come into compliance more affordably.

Potential Regulatory Constraints Associated with Scale/Capacity Growth

Increased capacity and commercial activities on urban farms may make them subject to different zoning, permitting, or regulatory restrictions. For example, food policy advocates in Richmond, Oakland, and San Francisco have supported the adoption of zoning language that distinguished commercial and noncommercial urban agricultural activities (43). Even within these model policies, the size, intensity, and purpose of cultivation can change the designation of the operation, and therefore nudge it into a new

⁷ The study interviewed leafy green growers in California that are members of the California Leafy Greens Marketing Agreement (LGMA). LGMA is a voluntary program that facilitates growers’ implementation and independent verification of robust food safety practices that, like FSMA, are focused on microbial hazard reduction. While the practices the growers in the study were implementing are not exactly aligned with FSMA, they are a close approximation and allow for estimation of what large-scale food safety costs might look like for a single commodity (41).

⁸ Overall costs for LGMA growers appeared to increase 6%, but harvest loss due to animal intrusion accounted for another 11% of measured costs. Those losses may be smaller under FSMA, since LGMA has harsher requirements for the area around which crops should not be harvested when intrusion is detected (41). Water testing accounted for another 2% of costs, which may be more or less, depending on the specific crop and buyer demands in future scenarios (41).

⁹ Due to apparent costs excluded by growers during reporting, the authors estimated that per acre costs may be closer to \$100 per acre (42).

regulatory category (43). If operations are not able to weather those changes, efforts to grow their capacity may be stalled or infeasible. Commercial farms may face similar barriers as they grow their washing, processing, and packing activities in order to access institutional markets, as FSMA requirements are more strict for operations that incorporate such activities.

Opportunities

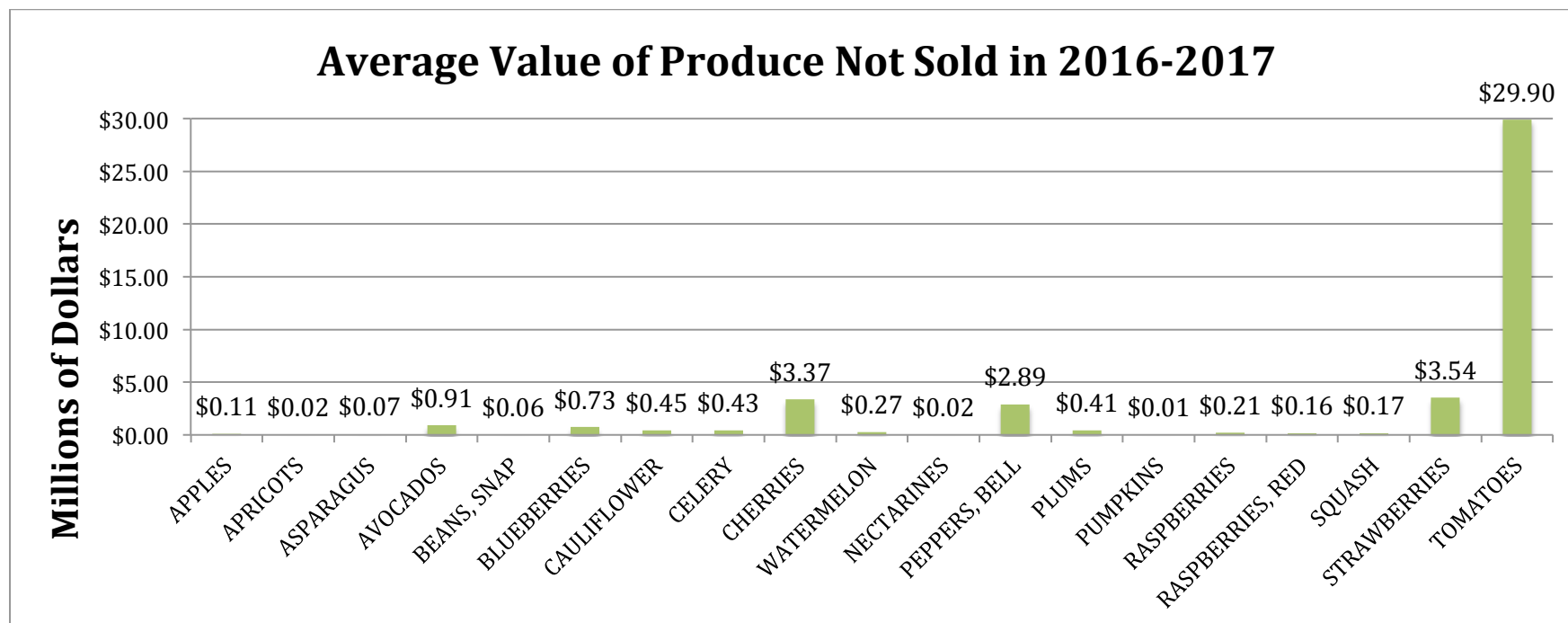
The following section describes some of the most promising opportunities that this assessment revealed for addressing the needs and challenges laid out above.

Unsold Produce

Beginning with the 2016 crop year, USDA began estimating the quantity of fruits and vegetables that were produced but not sold by farmers each year¹⁰ (44), (45). Figure 4 uses this data to express the average value of the crops produced in California that never reached a buyer in 2016 and 2017. It shows that California farmers lost millions of dollars in recent years due to unsold crops, and that **losses were particularly high for tomatoes, strawberries, cherries, and bell peppers**. While these losses account for between 0.2 – 3% of the total production of each crop in the state, they represent large magnitudes of resources and food wasted, as well as potential farm incomes left on table. Taking these losses into account may provide institutions some guidance on produce varieties to target for purchasing, both to promote sustainable agriculture, boost farm incomes, and to potentially access lower prices for their own procurement.

¹⁰ The estimates represent the difference between Total Production (the amount of the crop harvested from the field) and that same crop's Utilized Production (the amount of the crop that was sold) (27).

Figure 4: Value of Unsold Specialty Crops Produced in California, 2016-2017



Source: USDA, NASS

California tomato farmers have been experiencing particularly difficult conditions in recent years, as shown by the roughly \$30 million in lost sales averaged across 2016 and 2017 (46). Due to the dynamics of international tomato markets, several major tomato processors closed plants in California in 2016, including ConAgra and Heinz (46). Processors have offered lower prices to their contracted farmers and have asked them to scale back volumes (46). These dynamics suggest that institutions may have particularly ripe opportunities in the next few years to capture low prices on tomatoes, if they can develop systems for processing them internally or find alternative processing mechanisms from intermediaries.

Expanded and Improved Urban Farming

A 2010 assessment of the potential for publicly owned lands to be utilized for urban agriculture in Oakland revealed that there are 823 acres of public-resource land suitable for fruit and vegetable cultivation (47). Those acres are spread across hundreds of parcels ranging from less than a quarter acre to more than 5 acres, each owned by public agencies such as the City of Oakland,

Oakland Parks and Recreation Department, or the East Bay Regional Parks District. One third of the sites identified¹¹ are between 1 and 5 acres and would be suitable for development into small market gardens or mini-farms run by commercial farmers or urban agriculture organizations, if the public agency owners were willing to lease the land to those holders (47). Another 45 sites are larger than 5 acres and could be leased to growers for development into small farms more suitable to commercial scale production (47).

Conservative estimates of the yield potential for these parcels suggest that the total publicly owned acreage available in Oakland could produce 8,280 tons of vegetables (9% of the annual vegetable needs of the city) or 4,140 tons of fruit (roughly 6% of the recommended total for the city) (47). Of course, true yields would be impacted by the horticultural practices utilized and the amount of land placed into cultivation, which should arguably not be all of what is available, given congruent needs for public parks, picnic spots, sports fields, and dog parks (47). Further investigation is required to understand the true potential for these sites to be viable for food production, especially to ensure soil quality and safety (47). However, there is great potential for anchor institutions to partner with the public agencies that own suitable parcels¹² to encourage the development of public land for urban food production that could serve institutional markets, thus providing multiple levels of direct and indirect public benefits.

Another 864 acres of potentially suitable land for agriculture are on privately owned vacant land, and there are significantly more opportunities on rooftops throughout the City of Oakland (47). Of the privately owned vacant land, 262 acres of it is spread across 15 parcels that are larger than 5 acres each (47)¹³. To the extent that anchor institutions themselves own vacant land or rooftops suitable for production, ARC project partners may have significant influence over the development of additional areas of cultivation within city limits.

Rooftop farms, such as TopLeaf Farms in Berkeley, and indoor and outdoor hydroponics and aquaponics operations at Planting Justice and the [Perennial Farming Initiative](#) offer innovative models for productive urban agriculture in the East Bay. ARC can help connect these organizations to anchor institutions to explore their potential to meet local food demand.

Models for Cost Savings in Local/Sustainable Food Purchasing

¹¹ While, 88% of those parcels were covered with grass or low vegetation, the remaining were mixed or hard surface, and as such, any development would require infrastructure investment to enable efficient food production (47).

¹² A Land Locator included in the appendices of that report can be used to identify specific parcels and their owners.

¹³ The City of Oakland's Planning and Building Department was tasked with implementing a plan to encourage landowners to lease space for food production by 2020. The ARC team could follow-up with the department to understand how these efforts could be aligned with urban farming and institutional demand priorities. Page 34 of Oakland Energy and Climate Action Plan <http://www2.oaklandnet.com/oakca1/groups/pwa/documents/policy/oak069942.pdf>

Case studies from around the state and country show that many strategies can enable institutions to maintain profitability while increasing local, sustainable purchasing. Many of these strategies also reduce greenhouse gas emissions. A few of the most successful strategies include:

- **Reduce food waste** – Strategically buying only what you need and finding ways to reduce waste during food preparation (precise cutting, etc.) can reduce long-term costs (48). Local produce purchased during peak season also has longer shelf life and yields less waste, thus reducing costs per serving (49).
- **Use all parts and pieces** – Buy whole foods and use all parts (i.e. buy whole chickens and use bones for stock; buy whole vegetables and use stems and roots for recipes, rather than discarding) (50).
- **Manage portion sizes** – Reduce portion sizes of expensive items such as meat. Make vegetables, rather than meat, the center of the plate, and use smaller serving plates/trays to make portions look more appealing.
- **Create flexible menus** – Allow product substitutions so that buyers can take advantage of bulk pricing during peak seasons (50).
- **Seek “seconds” products** – Pursue opportunities to purchase whole animals or produce for reduced prices that farmers have difficulty selling in other contexts (50, 48).
- **Communicate local purchasing efforts and impacts to the consumer** – Signage, newsletters, farm tours, farmer visits to the cafeteria can help consumers appreciate the positive impacts of changes being made, and may alleviate push-back on any potential price increases they might absorb.
- **Smooth out supply chain logistics** – More reliable supply chains reduce transaction costs. Creating buying contracts with growers can help them reduce risk, lower costs, and plan production according to institutional volume demands. Software, regional distribution networks, and strong relationships with supply chain partners can enable greater efficiencies (50, 48).

Hospitals in California have utilized some of these cost-saving strategies and others as they have increased local food purchasing over the years. Dominican Hospital in Santa Cruz, for example, found that developing purchasing agreements with ALBA Organics allowed them to access lower prices from farmers, and the increased shelf life of the produce reduced waste, improving savings (19). In another example, Santa Rosa Memorial Hospital’s nutrition director utilized internal grant funds to offset the costs of launching a local purchasing program that substituted fresh, local produce for frozen versions in side dishes (19). After improved customer feedback and successful meal price restructuring, the administration ultimately increased the nutrition department’s budget by \$90,000 in the next fiscal year (19). Each institution’s unique structural arrangements will determine which of these strategies is applicable, but there are countless case studies to reference while developing effective cost-saving strategies. Appendix 7 highlights a few of the most recent case studies of farm to institution projects in the Bay Area. Interested parties can contact the project conveners and institutions to glean more strategies for addressing cost savings and other challenges.

Best-Practices in Regional Food Systems Logistics

The lack of adequate logistics infrastructure has been a major barrier to regional food system growth and success (51). Regional food hubs have the potential to help producers scale up their operations and distribute to larger institutional and retail markets. However, most food hubs do not have robust systems in place to support large-scale processing, aggregation, and distribution, and they often lack the necessary expertise, capital, and access to credit to implement these systems (51). This section discusses a few strategies that can enable food hubs to surmount these barriers. More strategies with detailed explanations and examples of their implementation in regional food hubs across the country can be found in source 22, Mittal et al, 2018.

Logistics Technology and Third-Party Logistics Providers

The UC SAREP Small Farm Program's Food Hub Network recently surveyed its membership on the software platforms that have helped members navigate some of the logistics challenges they face. Appendix 5 lists the platforms that food hubs are using nationally and in California, as well as users' comments on each platform's utility. Optimizing and expanding these technologies could produce critical gains for regional supply chains. Organizations unable to invest in their own software and systems updates can outsource those tasks to third-party logistics operators, such as Kimberly-Clark, which can improve load rates and enable product traceability using sophisticated software (51). Utilizing the efficiencies these systems entail can allow food hubs to satisfy buyers' delivery frequency requirements while significantly reducing distribution costs (51).

Backhauling

Using existing distribution infrastructure is key to finding financially and environmentally sustainable solutions to logistics challenges. One such method is known as backhauling. For example, if a farm or distributor wishes to get a volume of product to a buyer but does not have the proper truck or delivery route to do it on their own, they might ask distributors with those capabilities to pick up the order while coming back from a delivery to one of their usual clients. The feasibility of this option depends on a number of factors including the:

- proximity of the farm or food hub to the distributor's normal route;
- nature of the product and the distributor's ability to meet that product's regulatory needs (i.e. refrigeration, Organic certification, etc.);
- volume of the order;
- price the producer will receive from the end-buyer; and
- farmer or food hub's ability to reduce pick-up delays, which can extend the drive times beyond what the Department of Transportation allows for delivery drivers (and cause companies to pay overtime).

Fees for this type of service vary by volume and company policy. FreshPoint is one produce distributor in California that offers backhauling for local farmers. Its average price for backhauling is \$1.50 per case of produce, with cases ranging from 10 – 50 lbs. (52). This is for produce that the distributor resells through their own clients, which do include Northern California hospitals and schools (52). For larger volumes, the distributor would likely charge a pallet fee, which can range from \$100-150 per pallet, and would require that the farm or food hub have its own capability to pack product securely in a pallet (52). Stakeholders interested in exploring backhauling can ask distributors for a freight quote once the factors listed above are determined.

GroupGAP, Producer Cooperatives, and other Farmer Collaboration Strategies

Unlike GAP Certification, which requires individual farmers to receive a costly third-party audit of their on-farm food safety practices, the USDA GroupGAP audit program allows producers to partner with trusted growers and technical assistance providers to collectively develop and demonstrate food safety compliance directly to buyers (53). This USDA-approved food safety audit system is applicable only to specialty crop growers (mostly fruits, vegetables, and nuts). It requires that the group of farmers form one legal entity, which they can use to aggregate and sell one product to larger buyers following the approval of their systems. Under GroupGAP, a group of farmers coordinates the design, implementation, and monitoring of a quality management system to assess food safety hazards and mitigate potential risks in accordance with federal food safety regulations. Once the farmers have developed their systems and made capital improvements to come into compliance, USDA conducts a desk audit of the group's system and provides certification that the farms under that entity are adhering to GAPs and at least the baseline requirements in FSMA (53).

Only one group of farmers in California, the Agriculture and Land Based Training Association (ALBA) program, has achieved this certification. Around the country, a handful of farmer groups have partnered with quality assurance experts and non-profit partners to develop these systems, and their experiences offer best practices that the ARC team might consider for potentially facilitating GroupGAP certification among another group of farmers. More information and resources on the GroupGAP process is contained in [this presentation](#), geared toward farmers interested in growing their capacity to sell to institutional markets.

Potential Role of Anchor Institutions

The anchor institutions engaged in the ARC table are poised to build the capacity of the local food supply chain to meet their demand and foster health and wealth in their communities, in alignment with their missions. They can influence the system in three ways, in particular: 1) Internal Policies and Processes; 2) Food Procurement; and 3) Investments in Systems Change and Supply Chain Capacity Building. The following section highlights strategies within these categories that have emerged through this assessment.

Policies and Processes

Strategies for Farmer Capacity Building

Small and mid-sized farmers often need to take on additional risk and/or cost in order to develop sales within institutional markets. Anchor institutions can reduce those burdens on the farmer, and thus increase local purchasing, by:

- Developing a reusable box system or make packing requirements more amenable to small, mid-scale farmers' capacity;
- When possible, allowing FSMA-aligned, farm-generated food safety plans to serve as a safety verification tool, rather than requiring third-party audits or certifications, such as GAP;
- Articulating clear and consistent policies on food safety requirements across institutions; and
- Articulating clear product specifications and volume demands in farmer-friendly language. Make this information available to farmers during the off-season to allow for advanced production planning.

Procurement

Buyer Collaboration & Demand Aggregation

HCWH, CAFF, and others have been engaged in identifying and aggregating demand from institutions in the Bay Area for years. As part of its EdMed Collaboration, for example, HCWH worked with School Food Focus, Real Food Challenge, and others in 2015 to quantify the collective demand for sustainably produced food products within a subset of key educational and health care institutions in California (54)¹⁴. It found that, combined, these institutions spend \$108,315,045 on their overall food purchasing, of which \$19,015,708 goes to sustainable purchases, \$13,464,931 goes to produce, and \$8,681,642 goes to poultry (54). Figure 5 shows a detailed breakdown of this spending by institution and indicates the percentage of total purchasing that each represents.

¹⁴ The participating institutions in the assessment included: **Hospitals** - California Pacific Medical Center (CPMC), Sutter Health Sacramento Sierra Region (including 8 Sutter Health facilities: Sutter Amador, Sutter Auburn Faith, Sutter Roseville, Sutter Memorial, Sutter General, Sutter Center for Psychiatry, Sutter Davis, and Sutter Solano Medical Center), UC Davis Medical Center o UCSF Medical Center & Campus, Washington Hospital; **K-12 School Districts** - Oakland Unified School District (OUSD) , Sacramento City Unified School District (SCUSD); **University of California Campuses** - Berkeley (UCB) – Cal Dining, Davis (UCD) , Merced (UCM) , Riverside (UCR) , San Diego (UCSD) , Santa Barbara (UCSB), Santa Cruz (UCSC)

Figure 5: Bay Area Institutions' Food Purchase Spending Data

HCWH Cross-Sector Analysis: Food Purchasing Data in Select Institutions

Participating Facilities	Overall food purchasing spend	Sustainable spend		Overall produce spend	Strawberry spend			Poultry spend	
		Overall	%		Overall	Local	Organic	Overall	Sustainable
Hospitals:									
California Pacific Medical Center (CPMC) Sutter Health Sacramento Sierra Region* UC Davis Medical Center UCSF Medical Center & Campus Washington Hospital									
TOTAL	\$ 21,382,584	\$ 2,655,167	12.4%	\$ 3,259,446	\$ 39,726	\$ 1,830	\$ 2,178	\$ 1,443,731	\$ 68,425
K-12 School Districts:									
Oakland Unified School District (OUSD) Sacramento City Unified School District (SCUSD)									
TOTAL	\$ 17,451,406	\$ 1,186,524	6.8%	\$ 3,056,907	\$ 41,232	\$ 27,269	\$ -	\$ 1,743,965	\$ 15,547
University of California Campuses:									
Berkeley (UCB) - Cal Dining Davis (UCD) Merced (UCM) Riverside (UCR) Santa Barbara (UCSB) Santa Cruz (UCSC)									
TOTAL	\$ 69,481,054	\$ 15,174,017	21.8%	\$ 7,148,578	\$ 348,117	\$ 75,025	\$ 27,499	\$ 5,493,946	\$ 560,398
COMBINED TOTAL	\$ 108,315,045	\$ 19,015,708	17.6%	\$ 13,464,931	\$ 429,075	\$ 104,124	\$ 29,677	\$ 8,681,642	\$ 644,370

Source: (54)

Currently, ongoing efforts to identify and aggregate demand are being spearheaded by ProCureWorks, a project of HCWH that is also partnering with ARC, CAFF, Community Health Improvement Partners, area anchor institutions, and more. ProCureWorks is leading a Market Assessment Taskforce and Purchasing Standards Taskforce to help clarify institutions' demand for local food and create a list of the most promising producers in the region that can help meet their demand. ProCureWorks is specifically focused on connecting institutions with sources of local and sustainable beef, poultry, and grains, while several other projects, such as CAFF's

Farm to Cafeteria program are focused on getting local and sustainable produce into institutions. HCWH also coordinates the Bay Area Hospital Leadership Team to identify collective demand for local food and reach economies of scale through aggregated purchasing. CAFF's Farm to Cafeteria program is particularly focused on helping K-12 schools improve and expand their local, sustainable purchasing. Though institutions' priorities change often based on pricing, availability, and satisfaction with vendor relationships, products such as asparagus, apples, pre-cut butternut squash, stonefruits, de-stemmed grape tomatoes, poultry, beef, dairy, eggs, seafood, and baked goods have been in-demand in recent years (13, 16, 25). By documenting which products have been successfully procured locally in the past, as well as any future demands, institutions and supporting organizations can help farmers plan production accordingly. Anchor institutions should participate in as many of these efforts as possible to continue the momentum built thus far.

Strategies for Distributor and Aggregator Capacity Building

Institutions' procurement contracts may limit the amount they can purchase from vendors other than their broadline distributor, but there are a number of ways that institutions can leverage change in their conventional supply chain while developing new relationships with vendors motivated to meet their demand for local and sustainable food. The list below illustrates a few examples:

- Establish Intent-to-Purchase Agreements between distributors and buyers to facilitate distributors' access to federal funding for aggregation and volume capacity expansion.
- Continue to encourage broadline distributors to develop systems for transparent local and sustainable food purchasing.
- Educate distributors already serving institutional supply chains on best-practices of regional food systems logistics, transparency, and cost-savings gleaned from reports such as this and associated case studies from around the country.

Investment

Hospital Community Benefit Programs

In order to maintain their tax-exempt status, private, non-profit hospitals must provide demonstrable benefits to their local communities, through a program known as Community Benefit (CB). The principal form of this public benefit historically has been—and continues to be—the provision of free or reduced-cost care to patients unable to pay for health care services (56). To qualify as an IRS-reportable CB activity, a program or activity must respond to a demonstrated community health need and seek to achieve at least one of the following community benefit objectives:

1. Improve access to health services;
2. Enhance public health;
3. Advance knowledge through education or research;

4. Reduce health burden borne by government

The Affordable Care Act (ACA) established additional community benefit [requirements](#) that tax-exempt hospitals must meet, including conducting community health needs assessments (CHNAs) every three years (55). CHNAs often occur with community-based partnership and include both secondary and primary data collection (55). Their results determine priority health needs and are the impetus for the development of implementation strategies aligned with addressing those priorities.

Additionally, changes under the ACA and IRS regulations for CB programs encouraged hospitals to focus more on community engagement and a population health and prevention orientation in CB practices (55, 56). As a result, hospitals are increasingly collaborating with broad community stakeholders to implement community health improvement plans that address social and environmental determinants of health, such as access to healthy, affordable food (55, 56). For example, new language states that hospitals should look beyond a narrow focus on access to care to “the need to prevent illness, ensure adequate nutrition, or to address social, behavioral, and environmental factors that influence health in the community” (55). However, awareness of food systems and their connection to diet related disease prevention varies widely across institutions’ among their CB staff, and CB support initiatives reflect that spectrum (55). One role that ARC and its partners can play is in clarifying those connections between food systems and disease prevention and estimating the potential health impacts of closer hospital engagement with the supply chain from farm to fork.

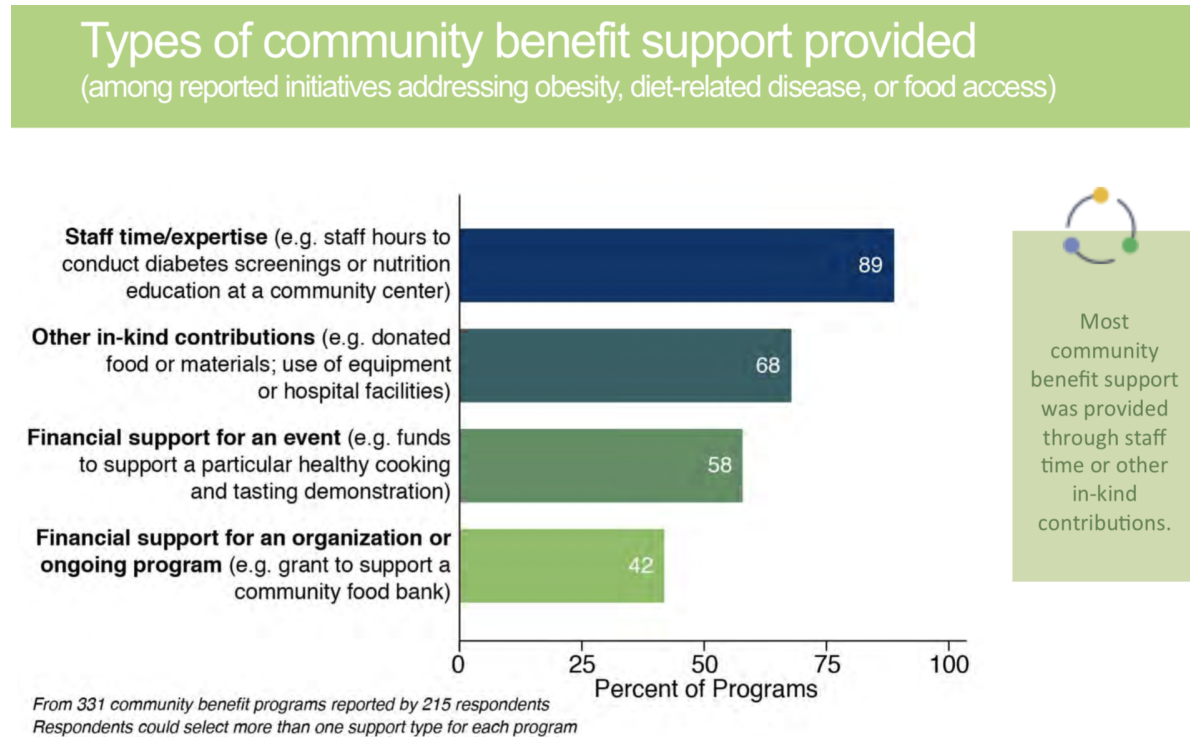
The IRS does not mandate hospitals to spend a particular portion of their revenues on community benefit activities (55). However, a study in the NEJM found that hospitals spend an average of about 7.5% of their operating expenses on all reported CB activities, a small percentage of which is directed to health promotion and prevention activities in the community, either through actions undertaken by the hospital itself (0.4 % TOE) or through cash or in-kind contributions to community groups (0.2 % of TOE) (55).

HCWH recently conducted a nationally representative survey of hospital community benefit programs to understand how CBs are functioning and to what extent they are supporting food system interventions (57). It found that 40% of Community Health Needs Assessments (CHNAs) utilized data on diet-related behaviors, such as fruit and vegetable consumption, and 45% of hospitals included at least one food-related organization on their CHNA committee (57). Just 15% of those were from a food system advocacy group, while emergency food organizations were the most commonly involved organizations, followed by supplemental meal programs, such as summer meals (57). Across the U.S., 71% of hospitals’ CHNAs identified obesity as a health need, while food insecurity or healthy food access was identified as a health need in 13% of CHNAs (57). Among the community benefit interventions aimed at preventing or treating obesity and diet-related health conditions, the majority centered around nutrition education and exercise promotion, while far fewer focused on increasing access to healthy foods or addressing broader food system constraints that contribute to obesity and

food insecurity (56). Understandably, having a food-related organization on the CHNA committee was strongly correlated with having a community benefit program that targeted healthy food access or food insecurity (57).

Each hospital has a unique organizational structure and decision-making framework around their CBs programming, and the wide variety of CBs initiatives reflects this variability. At a majority of hospitals, senior management staff (CFO, CEO, or VP) rather than the Community Benefit/Community Health Director, have ultimate authority over most key decisions about CB programming, including health needs identification and selecting initiatives to support with hospital resources (57). Figure 6 shows that CBs initiatives take many forms, but the majority are provided in the form of hospital staff time dedicated to community-oriented health screenings or in-kind contributions, such as the use of hospital facilities or donated items (57).

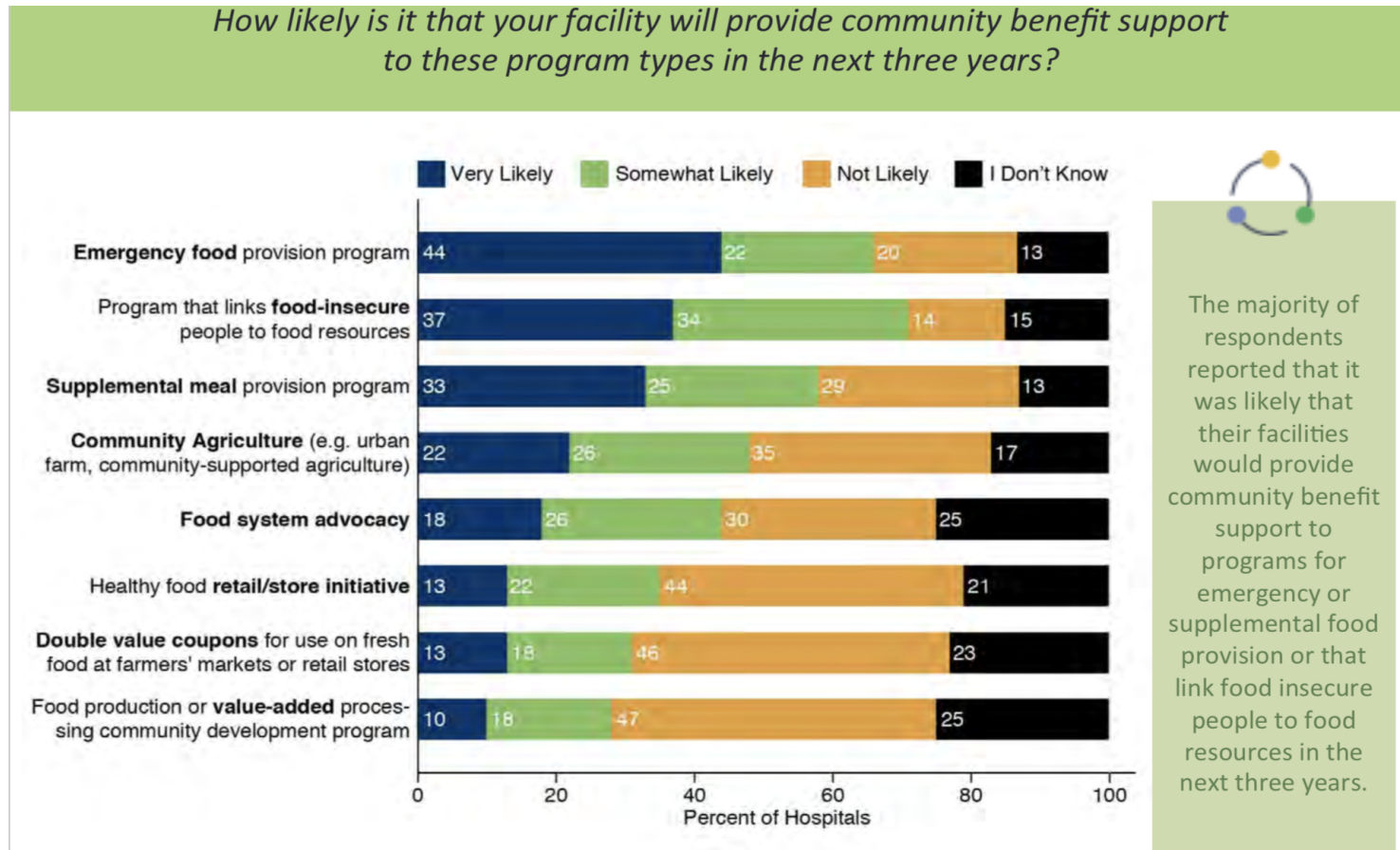
Figure 6: Forms of Community Benefit Support



Source: 57

48% of all respondents said that it was very or somewhat likely that their facility would provide community benefit support in the next 3 years to an initiative involving community agriculture (e.g. urban farm or community supported agriculture) (57). However, as Figure 7 shows, emergency food programs, food insecurity, and supplemental meal programs are still more likely to receive support (57).

Figure 7: Types of Programs Most Likely to Receive CB Support



The section below highlights ways that investment could be directed to improve the regional food supply chain's capacity to provide healthy food to institutions. The trends indicated above suggest that ARC's success in leveraging community benefit support around these strategies will be improved by 1) demonstrating the connections between supply chain investments and community health outcomes, and 2) fostering partnerships between community benefit decision makers at Bay Area hospitals and local food systems advocates and community representatives poised to benefit from the proposed strategies.

Strategies for Farmer Capacity Building

- Invest in hiring additional technical assistance advisors with FSMA, GAP, and Quality Assurance expertise who can help farmers answer detailed questions about food safety compliance.
- Facilitate Technical Assistance and micro-finance opportunities for farmer cooperative development and/or GroupGAP certification.

Strategies for Distributor and Aggregator Capacity Building

- Facilitate Technical Assistance and micro-finance opportunities for food hubs to develop minimal processing, aggregation, storage, or distribution equipment.

Role of ARC Team

ARC has a small staff tasked with setting the foundation for broader collaboration across multiple entities. One of the goals of this assessment was to identify specific ways that this small team could take action to enable broader engagement with the tasks of the ARC Regional Food Systems Project. The recommended strategies revealed by this assessment fit into two broad categories: 1) Research and Education and 2) Partnership Coordination. The section below details specific actions that the ARC team can consider within these buckets, organized based on how they might address the needs of particular stakeholders in the ecosystem.

Research and Education

Strategies for Supply Assessment

- Partner with ProCureWorks' Market Assessment Taskforce to document the willingness and capacity of area producers to sell to institutional markets. Distribute assessment outcomes to anchor institutions to enable them to develop relationships with promising suppliers.

- Form a Regional Food Value Chain Working Group with diverse membership to continue assessing the potential for historically underrepresented producers to sell to institutional markets.
- Stay informed of the latest findings on local food supply chains produced by both grassroots and academic research. This can be done by subscribing to updates from (and participating in) groups such as the UC SAREP Food Hub Network, Bay Area Food Economy Working Group, CAFF Farm to Cafeteria Program, ProCureWorks, and others.

Strategies for Farmer Capacity Building

- Develop a database of buyers interested in local/direct purchasing and distribute to farmers.
- Produce and share list of food safety trainings and opportunities for subsidies to support farmers in attending.
- Produce and share list of Third Party Verifiers with good reputations and reasonable costs.
- Distribute the resources compiled during this assessment on institutional marketing, and the lists of technical assistance providers (especially those serving underrepresented farmers) to farmers via the ARC website, email newsletters, and/or online forums that farmers utilize.
- Facilitate community-based marketing opportunities for farmers (via blog posts, farm visits, articles in local media, and/or in-person meet-the-farmer events).

Strategies for Distributor and Aggregator Capacity Building

- Highlight models for success by making food hub-related reports compiled during this assessment available online and/or through in-person collaborations with key stakeholders.
- Research innovative technological solutions to local/regional food systems logistics challenges, and share promising tools with UC SAREP Food Hub Network.

Strategies for Anchor Institution Capacity Building

- Support HCWH's efforts to foster cross-sector collaboration across institutions and to develop standardized local food purchasing requirements/policy language through existing programs such as the Bay Area Leadership Team, ProCureWorks, and the Farm Fresh Health Care Project (in collaboration with CAFF).
- Follow-up with CAFF regarding their Specialty Crop Block grant application to support institutional buyers with the development of legally-vetted purchasing policies aligned with food safety regulations.

Strategies for Leveraging Anchor Investment

- Obtain results of hospital Community Health Needs Assessments and highlight connections between food supply chain and priority community health outcomes in order to drive investment in regional food systems capacity building (i.e. how might investment in supply chain affect fruit and vegetable consumption, food environments, healthy food access, etc.)
- Hire a contractor to conduct an in-depth assessment of grant making, investment, and other financial support mechanisms available within the various anchor institutions within ARC. Distribute a report of the findings to enable ARC working groups to formulate strategic relationships with potential investment partners.
- Once specific regional food system investments are enumerated, assess the best candidates using standardized frameworks for equitable investment, such as the “Disadvantaged Community Benefits Framework” outlined in [this paper](#) produced by the UC Berkeley Planning Journal.

Partnership Coordination

The success of ARC’s Regional Food Systems project will hinge on its ability to develop strategic, cross-sector partnerships. Appendix 8 lists the many partner organizations and experts that may be leveraged for implementing the strategies suggested above and below.

Strategies for Farmer Capacity Building

- Facilitate a Regional Food Value Chain Working Group dedicated to fostering collaboration among farmers around the development of aggregation systems and/or a producer cooperative. This group may also continue the collaboration with the ProCureWorks Market Assessment Taskforce to aid in identifying producers that are poised to meet anchor institution demand.

Strategies for Distributor and Aggregator Capacity Building

- Coordinate ongoing conversation and collaboration between key buyers and regional aggregators/distributors. Maintain momentum of partnerships generated thus far between institutional buyers and the local distributor/food hubs interested in growing their capacity to supply. In particular, coordinate quarterly phone or in-person check-ins between Mandela Marketplace and Food Service Partners to ensure the two parties continue their relationship-building.
- Engage with UC SAREP Food Hub Network by participating in quarterly calls and/or attending in-person events.
- Encourage members of the forthcoming Regional Food Value Chain Working Group to explore innovative financing strategies to expand the capacity of regional food aggregators, distributors, and food hubs. In particular, focus on exploring opportunities for existing aggregators to add minimal processing infrastructure to their operations.

Conclusion

Our community's leaders and institutions have the moral and economic imperative and opportunity to reinvest in our neighborhoods so that all residents can reach their potential and live a full life. As this report highlights, there are many opportunities in the Bay Area for anchor institutions to increase the economic opportunity among the communities they serve while meeting their goals for more sustainable, healthy food offerings. Anchor institutions that apply their economic power in partnership with their communities are investing in the longevity of their institutions and the wellbeing of the people they serve, thus enabling a more just and prosperous future for all. The ARC collaborative has the potential to prove that a different reality is possible when business is done differently. When our policy decisions, investments and development align with strong values, a healthy, just and inclusive society is possible.

Appendices

Appendix 1: Food System Maps

Appendix 2: Potential Institutional Vendors

Appendix 3: Technical Assistance Advisors and Organizations Serving Historically Underrepresented Farmers

Appendix 3B: [AB 1348 – The Farmer Equity Act](#)

Appendix 4: Food Hubs within 200 miles of 94610

Appendix 5: Software for Food Hubs and Regional Food Systems Logistics

Appendix 6: [Food Safety Compliance Resources](#)

Appendix 7: Bay Area Farm to Institution Case Studies

Appendix 8: [Potential Partners](#)

Acknowledgements

This report was produced in 2018 by Caitlin Joseph, an independent consultant for Emerald Cities Collaborative on behalf of Anchors in Resilient Communities (ARC). Critical research, writing, and editing support was provided by Lucia Sayre, Lauren Poor, and Courtney Crenshaw at HCWH. The team would like to thank Ben Thomas, Michelle Wyler, and Kali Feiereisel at Community Alliance with Family Farmers, Meghan Whirley at Food Service Partners, Mariela Cedeño at Mandela Marketplace, Gwenaël Engelskirchen and Li Schmidt at UC SAREP - Agricultural Sustainability Institute at UC Davis, Kyle Tsukahira at Asian Pacific Islander Forward Movement/Food Roots Food Hub, and Brandi Mack at The Butterfly Project for their valuable input and support. Questions on the report or associated resources can be directed to lsayre@hcwh.org, tmarchant@emeraldcities.org, or caitlin.e.joseph@gmail.com.

Works Cited

- 1 "Food Value Chains." U.S. Department of Agriculture, Agricultural Marketing Service. Accessed June 25, 2018. <https://www.ams.usda.gov/services/local-regional/food-value-chain>
- 2 "Good Agricultural Practices (GAP) & Good Handling Practices (GHP)." U.S. Department of Agriculture, Agricultural Marketing Service. Accessed June 25, 2018. <https://www.ams.usda.gov/services/auditing/gap-ghp>
- 3 Companies That Meet USDA GAP & GHP Acceptance Criteria (database). U.S. Department of Agriculture, Agricultural Marketing Service. Accessed August 09, 2018. <https://apps.ams.usda.gov/GAPGHP/reportG05.aspx>
- 4 Reynolds, Kristin A. "Expanding Technical Assistance for Urban Agriculture: Best Practices for Extension Services in California and Beyond." *Journal of Agriculture, Food Systems, and Community Development* 1, no. 3 (2011): 197-216. Accessed May 2, 2018. doi:10.5304/jafscd.2011.013.013.
- 5 "Establishing an Aggregation & Marketing Center for California's North Coast: A USDA Rural Development Feasibility Study." Community Alliance with Family Farmers (CAFF). 2011. Accessed February 29, 2018. http://caff.org/wp-content/uploads/2011/08/CAFF_Study.pdf
- 6 "Aggregating, Distributing, and Marketing Local Foods in San Mateo County, California Analysis and Recommendations for Enhancing a Local Food Economy." Community Alliance with Family Farmers (CAFF). 2014. Accessed February 29, 2018. http://www.aginnovations.org/uploads/result/1431289420-5a8596847ea474143/SMFSA_Feasibility_Study.pdf
- 7 "Who We Work With." Kitchen Table Advisors. Accessed February 29, 2018. <http://www.kitchentableadvisors.org/who-we-work-with/>

- 8 "2017 Cohort." Kitchen Table Advisors. Accessed June 25, 2018. <http://www.kitchentableadvisors.org/2017-cohort/>
- 9 "2012 Census of Agriculture - Race, Ethnicity, Gender Profile - California." USDA. 2012. Accessed June 5, 2018. https://www.agcensus.usda.gov/Publications/2012/Online_Resources/Race_Ethnicity_and_Gender_Profiles/California/cpd06000.pdf
- 10 "Building a Future With Farmers II: Results and Recommendations from the National Young Farmer Survey." National Young Farmer Coalition (NYFC). 2017. Accessed July 3, 2018. <http://www.youngfarmers.org/survey2017/>
- 11 Feder Jody and Tadlock Cowan. "Garcia v. Vilsack: A Policy and Legal Analysis of a USDA Discrimination Case." USDA. 2013. Accessed March 3, 2018. <http://nationalaglawcenter.org/wp-content/uploads/assets/crs/R40988.pdf>
- 12 Gilbert, Jess and Gwen Sharp. "The Loss and Persistence of Black-Owned Farms and Farmland: A Review of the Research Literature and Its Implications." *Southern Rural Sociology*, Vol 18(2), 2002, pp 1-30. Accessed February 13, 2018. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.548.5378&rep=rep1&type=pdf>
- 13 Guel, Anel and Rich Pirog. "An Annotated Bibliography on Structural Racism Present in the U.S. Food System." Michigan State University (MSU) Center for Regional Food Systems. 2015. Accessed September 15, 2016. https://www.canr.msu.edu/resources/structural_racism_in_us_food_system
- 14 "Getting to Scale with Regional Food Hubs." USDA. Accessed July 18, 2018. <https://www.usda.gov/media/blog/2010/12/14/getting-scale-regional-food-hubs>
- 15 Gwenaél Engelskirchen (Sustainable Supply Chain Analyst at UC SAREP, Agricultural Sustainability Institute at UC Davis) in conversation with author on January 5, 2018.
- 16 Mariela Cedeño (Director of Business Development & Lending at Mandela Marketplace) in conversation with author on June 27, 2018.
- 17 Cavanaugh, Patrick. "California Food Processing: \$200 Billion in Value." *California Ag Today*. June 4, 2018. Accessed July 31, 2018. <https://californiaagtoday.com/california-food-processing-200-billion-value/>
- 18 Klein, Kendra, and Ariane Michas. "The Farm Fresh Healthcare Project: Analysis of a hybrid values-based supply chain." *Journal of Agriculture, Food Systems, and Community Development*, 5(1), 57–74. 2014. Accessed February 5, 2018. <http://dx.doi.org/10.5304/jafscd.2014.051.003>
- 19 Sachs, Elizabeth and Gail Feenstra. "Emerging Local Food Purchasing Initiatives in Northern California Hospitals." UC Sustainable Agriculture Research & Education Program Agricultural Sustainability Institute, UC Davis. 2007. Accessed April 9, 2018. <http://asi.ucdavis.edu/programs/sarep/publications/food-and-society/farmtohospitalinitiativesweb.pdf>
- 20 Klein, Kendra. "Farm Fresh Healthcare Project How-to Guide." 2014. Accessed February 13, 2018. <https://noharm-uscanada.org/documents/farm-fresh-healthcare-project-how-guide>
- 21 Wyler, Michelle, and Ben Thomas. "Farm to Health Care: A Comprehensive Review of Applicable Rules and Regulations Guiding

- Hospital Procurement from Local Farms and Community Food Producers." Community Alliance with Family Farmers (CAFF). September, 2017. Accessed February 12, 2018. http://www.caff.org/wp-content/uploads/2011/08/Farm-to-Health-Care_Regulations_Review.pdf
- 22 "California Schools and Universities: Procurement of Locally Grown Produce." Office of Farm to Fork California Department of Food and Agriculture. September, 2014. Accessed February 12, 2018. <http://cafarmtofork.com/files/CASchoolProduceProcurement.pdf>
 - 23 "California Legislative Information: California Law Codes and Bill Search." 2017. Accessed February 12, 2018. <http://leginfo.legislature.ca.gov/>
 - 24 "Sustainability & Energy Report: Food." UC Berkeley. Accessed July 31, 2018. <https://sustainability.berkeley.edu/food>.
 - 25 Courtney Crenshaw (California Regional Coordinator at Health Care Without Harm) in conversation with author via email on May 17, 2018
 - 26 "Incubator Map." Culinary Incubator.com. Accessed February 12, 2018. <http://www.culinaryincubator.com/maps.php>
 - 27 Nembhard, Jessica Gordon. "Black Cooperatives in the United States: An Excerpted History from Research." Excerpt from *Collective Courage: A History of African American Cooperative Economic Thought and Practice*, The Pennsylvania State University Press. 2014. Accessed February 12, 2018. <http://www.federationsoutherncoop.com/coopinfo/Black%20co-ops.pdf>. Full book accessible at <https://muse.jhu.edu/book/31238>
 - 28 McFadden, Dawn Thilmany, Allie Bauman, Becca B.R. Jablonski, Blake Angelo, and Dave Shideler. "Expanding The Farmer's Share of the Food Dollar: Exploring the Potential Effects of Emerging Food Supply Chain Models." Colorado State University. 2015. Accessed August 7, 2018. <https://localfoodeconomics.com/wp-content/uploads/2016/01/Dollar-bill-july-fact-sheet.pdf>
 - 29 "County Director in Alameda/Contra Costa and Bay Area Urban Agriculture Advisor." UC Cooperative Extension. Accessed February 12, 2018. http://cealameda.ucanr.edu/about/STAFF_LIST/?facultyid=24164
 - 30 "School Meal Trends & Stats." School Nutrition Association. Accessed July 31, 2018. <https://schoolnutrition.org/AboutSchoolMeals/SchoolMealTrendsStats/>
 - 31 "School Food101." School Food Focus. Accessed July 31, 2018. <http://www.canr.msu.edu/foodsystems/uploads/files/cost-of-school-lunch.pdf>
 - 32 "Meal Prices." UCLA Housing. Accessed July 31, 2018. <https://housing.ucla.edu/dining-services/meal-prices>
 - 33 Garande, Vishnu K, and R. S. Patil. "Technology of minimally processed fruits & vegetables." *Agrotechnol*, 2:4 . 2014. Accessed July 31, 2018. <https://www.omicsonline.org/2168-9881/2168-9881.S1.11-051.pdf>. <http://dx.doi.org/10.4172/2168-9881.S1.011>
 - 34 Gorny, J.R. A Summary of CA and MA Requirements and Recommendations for Fresh Cut (minimally processed) Fruits and Vegetables. *Acta Horticulturae*. 2003. 600, 609-614

Accessed July 31, 2018. <https://doi.org/10.17660/ActaHortic.2003.600.92>

- 35 "Understanding FDA's FSMA Rule for Produce Farms." National Sustainable Agriculture Coalition. August 1, 2016. Accessed March 3, 2018. <http://sustainableagriculture.net/wp-content/uploads/2008/08/FSMA-PRODUCE-RULE-FINAL.pdf>
- 36 "Who is Subject to FDA's New FSMA Food Facilities Rule? - Part 2." National Sustainable Agriculture Coalition. September 22, 2015. Accessed July 31, 2018. <http://sustainableagriculture.net/blog/pc-rule-analysis-part-2/>
- 37 Vranich, Joseph. "The overlooked reason Nestle (and other food processors) are moving out of California." L.A. Biz. February 8, 2018. Accessed July 31, 2018. <https://www.bizjournals.com/losangeles/news/2017/02/08/overlooked-reason-nestle-moving-from-california.html>
- 38 Feenstra, Gail and Gwenaël Engelskirchen. "Lessons Learned from a CA Food Hub Network Pilot: Role of UC in Nurturing Success for Food Hubs in California Project of the UC Global Food Initiative 2015-2017." University of California Davis. May, 2017. Accessed January 6, 2018. <http://asi.ucdavis.edu/programs/sarep/publications/food-and-society/foodhublessons/view>
- 39 Cantor, Alida and Ron Strohlic. "Breaking Down Market Barriers for Small and Mid-Sized Organic Growers." California Institute for Rural Studies. November 2009. Accessed March 3, 2018. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.546.7043&rep=rep1&type=pdf>
- 40 "FDA Talks to Congress About FSMA Implementation." National Sustainable Agriculture Coalition. February 7, 2014. Accessed July 31, 2018. <http://sustainableagriculture.net/blog/fsma-implementation-dialogue/>
- 41 Calvin, Linda, Helen Jensen, Karen Klonsky, and Roberta Cook. "Food Safety Practices and Costs Under the California Leafy Greens Marketing Agreement, EIB-173." U.S. Department of Agriculture, Economic Research Service. June 2017. Accessed May 29, 2018. <https://www.ers.usda.gov/webdocs/publications/83771/eib-173.pdf?v=42893>
- 42 Hardesty, Shermain D. and Yoko Kusunose. "Growers' Compliance Costs for the Leafy Greens Marketing Agreement and Other Food Safety Programs." UC Small Farm Program. 2009. Accessed May 29, 2018. <http://sfp.ucdavis.edu/files/143911.pdf>
- 43 "City of Richmond Urban Agriculture Assessment." MIG, Inc. 2011. Accessed January 10, 2018. <https://www.ci.richmond.ca.us/DocumentCenter/Home/View/8291>
- 44 "National Agricultural Statistics Service Report to Office of Budget and Program Analysis." U.S. Department of Agriculture, National Agricultural Statistics Service. 2018. Accessed June 21, 2018. <https://www.obpa.usda.gov/17nass2019notes.pdf>
- 45 "Press Release." U.S. Department of Agriculture, National Agricultural Statistics Service. July 21, 2017. Accessed June 21, 2018. https://www.nass.usda.gov/Statistics_by_State/Idaho/Publications/Crops_Press_Releases/2017/Veg_ann.pdf
- 46 Daniels, Jeff. "California's tomato business is rotten — and farmers are seeing red." CNBC. July 28, 2016. Accessed July 31, 2018. <https://www.cnbc.com/2016/07/28/californias-tomato-business-is-rotten--and-farmers-are-seeing-red.html>
- 47 McClintock, Nathan and Jenny Cooper. "Cultivating the Commons An Assessment of the Potential for Urban Agriculture on

- Oakland's Public Land." 2010. Accessed January 10, 2018. www.urbanfood.org. <https://core.ac.uk/download/pdf/37767687.pdf>
- 48 Megens, Sarah, Raili Roy, Don Murray, and Harry Cummings and Associates. "Institutional Local Food Procurement: A field guide for manager and cooks." 2014. Accessed August 6, 2018. https://tbfoodstrategy.ca/files/3614/4975/7251/Appendix_B_-_Thunder_Bay_Local_Food_Procurement_Field_Guide_for_Managers_and_Cooks_Feb_2015.pdf
 - 49 George, Val, Colleen Matts, and Susan Schmidt. "Institutional Food Purchasing: Michigan Good Food Work Group Report No. 3 of 5." 2010. C.S. Mott Group for Sustainable Food Systems at Michigan State University. Accessed August 6, 2018. http://www.canr.msu.edu/michiganfood/uploads/files/inst_food_purchasing_report.pdf. www.michiganfood.org.
 - 50 Harris, Diane, Megan Lott, Velma Lakins, Brian Bowden, and Joel Kimmons. "Farm to Institution: Creating Access to Healthy Local and Regional Foods." *Advances in Nutrition*. May 4, 2012; 3(3): 343–349. Accessed August 6, 2018. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3649468/>. DOI:10.3945/an.111.001677
 - 51 Mittal, Anuj, Caroline C. Krejci, and Teri J. Craven. "Logistics Best Practices for Regional Food Systems: A Review." *Sustainability*; 10(1), 168. 2018. Accessed May 22, 2018. <http://www.mdpi.com/2071-1050/10/1/168>. <https://doi.org/10.3390/su10010168>
 - 52 Lauren Horning, Local and Organic Specialist at FreshPoint, via email with the National Good Food Network's Food Hub Collaboration Discussion Group. Posted June 21, 2018. Accessed June 25, 2018. Discussion saved by author, available via email at caitlin.e.joseph@gmail.com
 - 53 "GroupGAP Offers Affordable Certification Option for Small and Mid-Sized Farms." National Sustainable Agriculture Coalition. April 5, 2016 Accessed May 29, 2018. <http://sustainableagriculture.net/blog/groupgap-goes-nationwide/>
 - 54 Taylor, Vanessa M. "Leveraging Institutional Purchasing Power to Support Sustainable Food Systems and Healthy Communities." *Health Care Without Harm and UC Berkeley Master of Development Practice*. 2015. Accessible at <https://www.youtube.com/watch?v=VJ7kCQk-GbE>
 - 55 Lauren Poor, California Community Food Systems Coordinator at Health Care Without Harm, in conversation with author via email on April 11, 2018.
 - 56 "Delivering community benefit: Healthy food playbook." *Health Care Without Harm*. March 7, 2018. Accessed March 8, 2018. <https://foodcommunitybenefit.noharm.org/>
 - 57 "Community Benefit Programming to Improve Healthy Food Access and Reduce Risk of Diet-Related Disease: A National Survey of Hospitals." *Health Care Without Harm*. 2017. Accessed April 3, 2018. <https://noharm-uscanada.org/foodaccessCBsurvey>