Food Recovery and Nutrition Education in Food Banks
Executive Summary

California is home to some of the richest agricultural land in the United States and houses a food industry worth billions of dollars. Yet there are 5.4 million Californians who do not have a secure access to food.

The advent of sustainable food systems calls for progressive management solutions for agricultural food loss. However, there are still many avenues through which farm-level food loss can be acquired by charitable food organizations, such as food banks. This report describes the farm-to-retail supply chain and the potential sources of produce for food banks. It summarizes the current state of produce acquisition amongst California food banks and their increasing need for more produce. It highlights how reallocation to food banks of edible crops that would otherwise be lost presents opportunities for collaboration, as we see with the successful work of the California Association of Food Banks’ Farm to Family program and some of their most committed partners, like Ag Against Hunger and Keystone Fruit. This report also articulates the barriers that food banks face in acquiring farm-fresh produce, such as funding, lack of refrigerated space, and limited staff capacity to build the relationships with the agricultural community necessary to create mutually-beneficial partnerships. This report recommends the following avenues to expand produce acquisition and distribution by food banks:

- Support the work of successful farm to food bank programs
- Develop meaningful, sustainable relationships with the agriculture community
- Dedicate personnel at food banks to liaise with partners in agriculture
- Utilize the services of agricultural non-profits and for-profit organizations
- Foster real-time supply chain strategies
- Develop value-added components for food bank operations
- Develop gleaning teams

Additionally, this report outlines best practices in nutrition education and outreach by food banks and local health departments that help to address complex stressors from food insecurity and hunger. Food bank best practices for nutrition education are:

- Pair mobile nutrition education with produce distributions
- Address complex stressors resulting from food insecurity
- Invest in child nutrition programs

Finally, the recommendations for increasing nutrition education resources in food banks include:

- Incorporate more food demonstrations and hands-on practice in curricula
- Promote local environmental changes by health departments
- Adapt nutrition lessons to combine education with peer support
- Develop technology-based interventions in the form of texts, social media and apps.
Introduction

In 2015, 5.4 million Californians were food insecure[1], meaning that they did not always have a reliable source of nutritious, healthy food without the assistance of a charitable food agency (CFA). The number of food insecure individuals in California and across the United States has risen steadily over the past two decades due to an increasing number of families struggling to make ends meet.

As the need for recurrent food bank services grows, a shift can be seen in the services that food banks provide. Historically, food banks were established to provide emergency food provisions for families facing temporary economic hardship, so their most needed food items were non-perishable, calorie-dense foods such as breads, pastas and processed foods rich with oils and refined sugars. In recent years, food banks have seen an increasing number of families that rely on a food bank as part of their households’ longer-term strategies to supplement monthly shortfalls in food. As the foods that food banks have historically provided are calorie, but not nutrient-dense, they are inadequate staples for the dietary supplementation clients seek. Reliance on such foods over time increases the risk of chronic disease, which research confirms is prevalent amongst food insecure individuals[2].

Now more than ever there is a need for CFAs to deliver fresh, nutritious food to food insecure Californians. Food banks in our state are at a unique advantage in that they are located in proximity to some of the most productive agricultural lands in the United States. Each stage along the post-harvest supply chain for a crop has some loss associated with it. This provides food banks with an opportunity to acquire edible produce that would otherwise not be sold to a primary market. The repurposing of what might have been food loss is beneficial to whole communities as it contributes to higher efficiency and productivity of resources and leads to more environmentally sustainable agricultural production and consumption systems[3].

This report describes the farm-to-retail supply chain and potential sources of produce for food banks, as well as the barriers associated with accessing them. It also outlines best practices for fresh produce acquisition by food banks. Finally, this report gives an overview of best current nutrition education initiatives in food banks, barriers to this work, and recommendations for increasing efficacy in outreach.

Figure 1. Impacts of Food Loss and Waste Reduction.[3]
Food Loss in the Farm-to-Retail Supply Chain

Food loss is an unavoidable consequence of food production. The Food and Agriculture Organization of the United Nations (FAO) defines food loss as “wholesome edible material intended for human consumption, arising at any point in the food supply chain that is instead discarded, lost, degraded or consumed by pests.”[4] As losses are an expected result of production they are accounted for when planning the seeding and harvest of a commodity.

Table 1. Summary of farm to retail food loss.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Harvest</th>
<th>Storage</th>
<th>Packing/Processing</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease in market cost</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Submarket product</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Biologic pest, disease</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Weather damage</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drought</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improper storage or handling</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Surpassed shelf life</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 1 summarizes common causes of farm-to-retail food loss that can be expected at each segment of the supply chain. Some estimates of loss, called shrink, are available for use when planning a crop and vary by commodity. Shrink can range from 2 to 23 percent with some of this loss representing produce that is unfit for human consumption[5]. It is outside of the scope of this report to define where the farm-to-retail supply chain food loss is greatest or most easily rerouted, or to discuss the loss that occurs at the retail or consumer levels. This report does, however, include anecdotal descriptions of farm-level loss.

Table 2. Partners in agriculture interviewed

<table>
<thead>
<tr>
<th>Partners in Agriculture</th>
<th>Type of Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homegrown Organics</td>
<td>Commission Merchant</td>
</tr>
<tr>
<td>Ag Against Hunger</td>
<td>Nonprofit</td>
</tr>
<tr>
<td>Keystone Fruit</td>
<td>Packer</td>
</tr>
<tr>
<td>Westside Produce</td>
<td>Marketing Collective</td>
</tr>
<tr>
<td>AV Thomas</td>
<td>Grower/Shipper</td>
</tr>
<tr>
<td>Foxy Organics</td>
<td>Grower/Shipper</td>
</tr>
<tr>
<td>Sohal Peaches</td>
<td>Single grower</td>
</tr>
<tr>
<td>Anonymous business</td>
<td>Grower/Shipper</td>
</tr>
</tbody>
</table>

Eight partners in agriculture were interviewed for this report (Table 2); one preferred to remain anonymous. Agricultural partners do not always fit into distinct categories. Many fulfill multiple roles that can include growing, packing, shipping and marketing. Partners self-reported their role in the agricultural community and results are listed in Table 2. Partners were asked about common reasons for food loss as well as any practice they have in donating their crop to food banks (See: “Best Practices for Farm Fresh Produce Donations”). Below is a summary of food loss in the harvest and post-harvest supply chain of commodities that has been compiled from these interviews and from the literature.
Harvest

During harvest, growers may decide to leave fruits or vegetables in the field when market values are such that operational costs cannot be recouped, if produce will not meet market standards, or if it has been significantly damaged by pests or adverse weather. Whole orchards or fields left unharvested are called “walk-bys.”

For example, the owner of Sohal Peaches in Sutter County reported several orchards of peaches damaged by severe hail in the spring of 2016. Given the degree of hail damage, he chose to leave those orchards unharvested rather than incur the cost to harvest and transport them at the risk of not getting sufficiently reimbursed. Other growers reported that in row crops such as broccolini, bolted heads are less palatable to eat and are left in the field to be tilled under.

However, some of the unharvested produce still meets food safety and taste standards for consumers. In 2009, the California Department of Food and Agriculture (CDFA) and the California Association of Food Banks (CAFB) assessed a method of concurrent harvesting in specialty row crops, namely in fields of broccoli, cauliflower, and celery[6]. Workers were trained to harvest two grades rather than one of the crop: a market grade and a submarket yet still edible grade. This method yielded an additional 25 million pounds of three crops during the assessment; 4 million pounds of which went to CAFB member food banks.

Recent research by Santa Clara University has identified eight crops in California where greater than 10 percent of the total edible crop was left in the field due to size and maturity[7]. In row crops such as romaine lettuce, approximately 70 percent of the romaine head is left in the field because the outer leaves are considered submarket (Figure 2). Growers continue to implement planting and harvesting technological advancements in order to optimize the harvestable edible portion, in turn reducing food loss.
Packing, Storage and Processing

After harvest, produce is aggregated at the packing house or processor where it is further inspected, cleaned and processed for retail. Using the example of sweet potatoes, post-harvest publications report that 20 to 25 percent of a sweet potato crop can be lost during this stage due to poor handling practices such as improper curing, storage temperature or mechanical damage when packing[8].

Use of Secondary Markets

Some submarket produce can still be sold by packing houses for profit; new markets for this produce have increased donations from food banks. For instance, secondary processing markets, such as juicing, freezing, canning, and pet and livestock feed are avenues for lower grade produce. An increase in demand for extracts of fruits and vegetables from the supplement and juicing industries has increased profit from these products since processors typically pay more than food banks can. Companies such as Imperfect Produce, which sells blemished or oddly-shaped produce subscriptions to individual households, are another example.

Packers and shippers that double as marketing collectives have an obligation to the growers they represent to sort, grade and sell the produce given to them. All packers interviewed stressed that food loss at this level represents an unutilized source of revenue for the business and therefore they strive to always find a use for it. These types of businesses are known to make use of multiple parts of the produce they process.
Current Donation Incentives

There are federal and state incentive programs in agriculture that donate food. These programs aim to bridge gaps between unmarketable food that may go to waste and the provision of nutritious food to those in need. These programs are outlined below.

The PATH Act

The Protecting Americans from Tax Hikes (PATH) Act is a large tax extension act passed by Congress in 2015[9]. It modifies existing IRS tax code to increase tax incentives for donating food from 10 to 15 percent of the fair market value of the commodity for both C and non-C corporations. The fair market value is defined as the price for which the item could have been sold at the time of the donation.

California State Assembly Bill 1577 and Budget Trailer Bill 837

In California in 2016, Assembly Bill (AB) 1577[10] and budget trailer bill Senate Bill (SB) 837[11] were passed; SB 837 expands tax credits from 10 to 15 percent as an incentive to donate fresh fruits and vegetables until 2022. AB 1577 renames the State Emergency Food Assistance Program (SEFAP), managed by the Department of Social Services, to the ‘CalFood’ account, which provides funding for CFAs to purchase food from the agriculture sector.

While agriculture partners that reported having a relationship with CAFB took advantage of these tax credits, other businesses seemed less interested in them. Many agriculture partners stated that they would prefer cash compensation to cover operating costs; the remainder of businesses did not use the tax break because they felt the payoff did not justify the paperwork required.

Food Banks in California

The 41 food banks in the CAFB and Feeding America network are the primary CFAs that distribute food to hundreds of non-profit, non-governmental organization (NGO) and religious partner agencies who feed their communities. Thirteen food banks in California were surveyed regarding current produce acquisition, distribution models, barriers and best practices.

Current Produce Acquisition in California Food Banks

Food banks in California are growing in donation capacity as the need for their services grows. There is a general movement toward increasing fresh produce acquisition by food banks to best serve the diet and health interests of food recipients. Fresh produce represents 20 to 51 percent of total poundage at surveyed food banks and most have a goal of increasing produce to 50 percent of poundage to reflect the USDA’s MyPlate guidelines[12]. There is an impressive variety of seasonal produce in food banks, but produce with long-shelf lives such as potatoes, onions, carrots, apples and cabbage are most frequently available. Figure 3 highlights the various pathways described throughout this report that fresh produce can take to enter the food bank pipeline. All food, and fresh produce in particular, converges upon the food bank before being dispersed to partner
agencies for distribution. Adequately funded and prepared food banks are crucial for the distribution of fresh produce to food-insecure Californians.

Figure 3. Flow of commodities as it pertains to CAFB member food banks.
Sources of Produce for California Food Banks

Produce is sourced by food banks in multiple ways. Figure 4 shows the top sources of produce from surveyed CAFB food banks overall; some individual food banks ranked sources differently.

The Farm to Family Program and other NGOs

The largest donation program in California is offered through CAFB, a membership organization of 41 food banks throughout the state. In 2016, the Farm to Family program accepted and distributed 164 million pounds of produce, nuts, dairy, and other products from California farms and packers[13]. The program attracts agricultural partners because it minimizes financial loss from surplus or submarket produce and provides a convenient and sustainable means of reallocating it. 135 growers and packers currently participate in the program not only because of the tax credit, but because of a commitment to social responsibility.

Food banks located in rich agricultural regions have the advantage of working with nonprofit groups that facilitate donations. Organizations such as Ag Against Hunger and Keystone Fruit are valuable partners in this effort. Second Harvest of San Mateo and Santa Clara, for example, receive a large portion of their produce from Ag Against Hunger.
Growers/Shippers and Other Agriculture Partners

Four of the six agricultural partners interviewed currently donate to California food banks. Those who did not donate had done so in the past but the practice proved too time-consuming to maintain.

Other Sources

Other sources of produce vary by region. Urban food banks such as the Los Angeles Regional Food Bank rely heavily on retail and wholesale donations since there are few local agricultural partners in the area. Rather than working with Farm to Family, North County Food Bank in Butte County receives much of its produce from the local Feeding America hub, which is part of a national network of 200 foodbanks. Other sources of produce include gleaning, food drives and private donations.

Funding for Produce Procurement and Operations

Whether produce was procured or donated depends on the county. Table 3 lists approximate budgets for produce acquisition for surveyed food banks. Occasionally, food banks will use general funds to acquire produce but the values were difficult to ascertain. The source of funds vary and include corporate and private donors, USDA, and Feeding America.

<table>
<thead>
<tr>
<th>County</th>
<th>Food Bank</th>
<th>Unduplicated number of clients served, monthly</th>
<th>Food Insecurity Rate in service area[14]</th>
<th>Produce distributed, millions of pounds annually</th>
<th>Percentage of food distributed that is produce</th>
<th>Reported produce budget, annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butte</td>
<td>North State Food Bank</td>
<td>50,000</td>
<td>18.0%</td>
<td>.265+</td>
<td>30%</td>
<td>$70,000</td>
</tr>
<tr>
<td>Imperial</td>
<td>Imperial Food Bank</td>
<td>20,000</td>
<td>16.6%</td>
<td>1.3</td>
<td>31%</td>
<td>$0</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>Los Angeles Regional Food Bank</td>
<td>320,000</td>
<td>15.4%</td>
<td>12.4</td>
<td>20%</td>
<td>--</td>
</tr>
<tr>
<td>Orange</td>
<td>Orange County Food Bank</td>
<td>300,000</td>
<td>10.9%</td>
<td>4.7</td>
<td>22%</td>
<td>$500,000</td>
</tr>
<tr>
<td>Sacramento</td>
<td>Sacramento Food Bank and Family Services</td>
<td>130,000</td>
<td>16.7%</td>
<td>5</td>
<td>40%</td>
<td>$370,000</td>
</tr>
<tr>
<td>San Diego</td>
<td>San Diego Food Bank</td>
<td>370,000</td>
<td>13.3%</td>
<td>7.06</td>
<td>32%</td>
<td>$550,000</td>
</tr>
<tr>
<td></td>
<td>Food Bank</td>
<td>Servings</td>
<td>Percent</td>
<td>Partner Agencies</td>
<td>Direct Service Models</td>
<td>Operations Cost</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------------------------</td>
<td>----------</td>
<td>---------</td>
<td>------------------</td>
<td>-----------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>San Luis Obispo</td>
<td>Coalition of San Luis Obispo</td>
<td>46,000</td>
<td>13.8%</td>
<td>3</td>
<td>50%</td>
<td>$250,000</td>
</tr>
<tr>
<td>San Mateo and Santa Clara</td>
<td>Second Harvest of San Mateo</td>
<td>252,000</td>
<td>10.7%</td>
<td>33.4</td>
<td>51%</td>
<td>$3.3 mil</td>
</tr>
<tr>
<td>Siskiyou</td>
<td>Siskiyou Community Food Bank</td>
<td>1,900</td>
<td>20.0%</td>
<td>N/A</td>
<td>&lt;5%</td>
<td>$0</td>
</tr>
<tr>
<td>Sonoma</td>
<td>Redwood Empire Food Bank</td>
<td>7,000</td>
<td>14.4%</td>
<td>7.5</td>
<td>55%</td>
<td>$1.0 mil</td>
</tr>
<tr>
<td>Ventura</td>
<td>FoodShare</td>
<td>66,000</td>
<td>9.4%</td>
<td>4</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

**Food Bank Operations and Distribution Models**

Food Banks operate as standardized businesses with relatively uniform distribution models nationwide. A food bank manages a warehouse where produce and other food is stored until it can be distributed to partner agencies. Partner agencies commonly include but are not limited to: food pantries, religious organizations, and elementary schools. Some food banks also use direct service models where food is distributed directly to members of the community.

Both food banks and partner agencies have the freedom to choose the distribution model that works best in their community. These different styles can be found in Table 4 and are described below.

<table>
<thead>
<tr>
<th></th>
<th>Service to Partner Agencies</th>
<th>Direct Service Models</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Push models</td>
<td>Box-distributions</td>
</tr>
<tr>
<td></td>
<td>Food hub model</td>
<td>Market-style/ client choice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mobile food pantries</td>
</tr>
</tbody>
</table>

**Push Models**

Push models are the common distribution system for large food banks and partner agencies. Partner agencies – such as food pantries, etc. – pick up food from the food bank’s warehouse provided they have the resources to do so. This model requires fewer resources from the food bank and best serves partners with transportation resources that are reasonably close to the food bank.
Hub Models

Hubs are sites created in the community by food banks that are easily accessible to partner agencies and clients. The hub aims to serve areas such as food deserts or areas that have fragmented access to healthy food. They have the means to distribute food to partner agencies or directly to the community. Farmers’ market-style distribution is a popular method of food distribution used by food banks and partner agencies to reach clients using this model.

Direct Service Models

Most food banks distribute some of their produce directly to clients in their community, although partner agencies are primarily responsible for serving the community directly. The distribution model used fits the service area’s best interests. Direct service models can be divided into two categories: box-distribution or client-choice. Box-distributions involve pre-sorting boxes to have specific ratios of produce, proteins/dairy and non-perishables. They are favored in schools and amongst seniors but often do not address dietary restrictions, cultural preferences or preparation limitations clients may have. As a result, many food banks favor client-choice or market-style distributions, where clients have the choice of what food they take. Client-choice models aim to reduce food waste that results from clients not eating foods chosen for them, and to provide a more supermarket-like experience that mitigates the social stigma attached to using food bank services.

Mobile Food Pantries

Mobile pantries are also gaining in popularity. In this model, either distribution-box or client-choice models are used to distribute food via a food truck. It is a crucial method for distributions in food deserts and rural areas. Resources such as refrigerated trucks with pleasing display cases are required, along with additional trained staff or volunteers. Hub and mobile style distributions can be coupled with other interventions, such as nutrition education (recipe handouts, taste-testing or food demonstrations) that serve both as a health-intervention and community event.

Barriers to Fresh Produce Acquisition

Produce acquisition in food banks has gained recent attention and many resources are now allocated toward it. Still, food banks identified barriers that prevent otherwise edible produce from finding its way into a food bank.

<table>
<thead>
<tr>
<th>Table 5. Barriers to produce acquisition in food banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Financial barriers</td>
</tr>
<tr>
<td>• Lack of refrigeration</td>
</tr>
<tr>
<td>• Lack of transportation resources</td>
</tr>
<tr>
<td>• Decreased produce donations geographically</td>
</tr>
<tr>
<td>• Decreased donations in winter</td>
</tr>
</tbody>
</table>
Financial Barriers

Food banks are businesses and incur expenses. The largest source of produce for CAFB food banks—the Farm to Family Program—costs money (including staff, harvest and packing costs, and transportation costs). Food banks, especially those with no specified produce budget, benefit from only covering the cost of their own operation and not incurring additional costs with procurement. The percent of donated produce ranged from half to nearly all of the produce acquired by food banks. Food banks with produce amounting to less than half of their total poundage tended to have a smaller or no budget allocated to procurement. For example, Orange County Food Bank feeds about 50,000 people more per month than Second Harvest of San Mateo, yet their produce budget is only 16 percent of San Mateo’s. Consequently, their total produce poundage is far less (see Table 3).

Lack of Refrigeration Space

Food banks are limited in what they can accept if a warehouse is full or weather conditions are not agreeable to storing highly perishable produce. Lack of air-conditioned warehouse space or walk-in coolers, particularly in warmer parts of California, can make storing highly perishable produce challenging. When donations have to be turned down, it is typically because they are too large for the food bank to accommodate or consist of too much of a single commodity. Five food banks reported turning away donations because they lacked the cooler space to store it before it could be distributed. One food bank described the need for refrigeration as the “chicken and egg” problem: at current levels of produce acquisition, they have sufficient storage, but if they were to meet projected goals of increased produce, they would no longer have sufficient space.

Lack of Transportation Resources

The need for reliable and sufficient transportation for produce is another barrier to acquisition. To highlight one example, Imperial Food Bank services remote desert communities in California. A refrigerated truck is crucial to their operation, but it is something they lack, greatly impeding their ability to provide these communities with fresh produce. Additionally, agricultural partners reported costs associated with freight, such as trucks and fuel, were among the highest in their operation.

Decreased Donations Due to Geographic and Seasonal Limitations

Time and place are important when it comes to fresh produce donations. Food banks reported seasonal donation lulls during the winter, which paradoxically is their busiest time given the Thanksgiving and winter holiday season. Food banks that are remote or in extremely urban
counties, such as Imperial and Los Angeles Counties, report a lower percentage of produce poundage and difficulties obtaining produce.

Lack of strategic partnerships between the agricultural community and food banks

Agricultural partners that did not have a current donation practice reported difficulty donating in the past. They remarked that the process of donating was opaque and the responsibility for moving product fell on them. Partners emphasized the need for non-sellable produce to be moved fast and that the amount of excess cannot always be forecast. For these agricultural partners, typically they do not think to contact a food bank because they do not have an existing partnership. Important points were raised about the need for dedicated donor-relation staff to work with the agricultural community.

Food safety

The only concern brought up about the safety of fresh produce was its shelf life. If produce is old, it spoils quickly and cannot get to clients. Food banks reported that 5 to 12 percent of produce spoils before it can be distributed. A few partners in agriculture expressed concern over bad press if a foodborne illness were to occur because of donated food. They understood that there would be no legal responsibility because of the Bill Emerson Good Samaritan Donation Act of 1996, but still feared that it would not stop press coverage from potentially harming their reputation.

Best Practices for Farm Fresh Produce Donations

Agricultural partners interviewed were most concerned about the time and finances it would take to harvest, pack, and transport commodities for which they would not be able to recuperate costs. In spite of the barriers identified, food banks still have some effective practices for acquiring fresh produce from the agricultural supply chain. Below are case studies that illustrate such practices.

Laying the Foundation for Consistent Donation Practices

AV Thomas Produce, Livingston, CA

This sweet potato producer is one of the largest in California and also one of the 135 partners who donate produce to the Farm to Family program. The relationship with CAFB started when one of the founders decided to donate excess sweet potatoes and yams. As a result, nearly weekly loads of produce have been picked up by CAFB for the past 13 years. In the last harvest season, 7.65 million pounds of sweet potatoes were donated to CAFB.

AV Thomas credits the success of this relationship with the willingness of CAFB to maintain a meaningful and long-lasting relationship with them. The agricultural community, they observed, is
generally cautious about forming new partnerships, especially if there is some perceived risk. The regular pick-ups of produce have become habitual and are therefore an easy practice for the partners to maintain.

Finally, AV Thomas recognizes that socially responsible business practices are equally as important as financial gains. An employee concluded his interview by saying: “We all have to go home at the end of the day and look our neighbors in the eye... [and] some of them can’t eat. It happens in our community and it’s the least we can do.”

Strategic Partnerships with Agriculture Liaisons

Keystone Fruit, Fresno, CA

Keystone Fruit is a packing house in Fresno that houses for-profit and non-profit operations. Fresno is in the heart of the highly productive agricultural region of San Joaquin Valley. For years, they have been packing mostly stonefruit, grapefruit, and pomegranates. They estimate that about 25 percent of their fruit has cosmetic defects that render them unfit to be sold as whole fruit. Keystone Fruit currently packs about 60,000 pounds of “imperfect produce” a day to ship to food banks. Most of this produce is only one or two days off of the tree so food banks often receive fresher fruit than retailers.

The owner credits the success of this partnership on the relationships he built with the growers that make it easy for a grower to pick up the phone and let him know they have extra or imperfect produce on their hands. Furthermore, he already has the staffing and equipment required to pack fruit so he does not incur further costs to process food for donation. While Keystone is not a 501(c)(3) and cannot provide producers with a receipt, they connect agricultural partners with food banks directly to receive documentation for their donations.

One grower who works with Keystone was touched when the food bank contacted him after he made his first donation. He never knew the impact he could make or the simplicity of the donation process. Working through Keystone provided relief from an otherwise burdensome load of produce that many growers are more concerned with getting it off the lot than getting paid for it.

Ag Against Hunger, Santa Cruz, CA

Ag Against Hunger started when growers in the area saw that retailer’s contract specifications left viable produce in the field. At the same time, the Second Harvest Food Bank of San Mateo and Santa Clara counties needed fresh, reliable produce. Founded by growers and staffed by people who have worked in agriculture, Ag Against Hunger is able to forge strong relationships with other partners in agriculture. With just two part-time drivers, three trailers and 5000 cubic feet of cooler space, Ag Against Hunger moves food fast, facilitating the delivery of 12-13 million pounds of produce to 37 food banks annually.
The staff has seen the impact of food insecurity in their communities and are proud to contribute to wellness in their communities every day. “Fresh food is hope,” said Lynn Figone, Ag Against Hunger’s Executive Director, when asked about the impact of their work.

Gleaning Programs

GleanSLO Program, San Luis Obispo

The GleanSLO Program began as an independent organization before becoming a program of the Food Bank Coalition of San Luis Obispo. While most gleaning takes place on farms, it is not restricted to commercial growers and some gleans happen on residential properties. By not ignoring smaller operations, more fresh food can be acquired; the organization gleaned 240,000 pounds of rescued produce last year.

When asked what made GleanSLO so successful, the food bank replied that the volunteers made the program. They rely on well-trained volunteers that make growers comfortable having them on their property, arriving with equipment they own and are familiar with, and taking on work for which the grower would otherwise be responsible. Harvest work is physically demanding so shifts are limited to two hours.

Many people in the volunteer core have been around for 10-15 years and some are trained to glean specific crops. Gleaning teams encourage food banks and volunteers alike to gain a better understanding of the agricultural community and an appreciation for the work it takes to grow our food.

Recommendations for Increasing Food Bank Acquisition of Fresh Produce

1. Support the work of successful farm-to-food bank programs

   Programs like Farm to Family have learned to address the complex barriers that food banks face in acquiring farm-fresh food. Food banks throughout the state are already benefitting from the expertise and relationships that the Farm to Family program offers. Expanding this program and providing it with further resources and personnel will help to benefit more food bank clients.

2. Develop meaningful, sustainable relationships with the agricultural community

   Those agricultural partners with the best donation practices, such as AV Thomas, had longstanding relationships with CAFB. The best way to ensure donations is to cultivate relationships with potential donors. Food banks need to be visible to partners in agriculture and partners need to understand their options. Food banks should be easy to communicate with. This could mean anything from well-designed websites with transparent donation instructions to advertisements in agriculture publications such as The Packer.
3. Dedicate personnel at food banks to liaise with partners in agriculture

Many food banks have donor relations staff but do not work exclusively with the agricultural community. Creating a staff position dedicated specifically to working with agricultural partners would greatly aid in the development of long-term and fruitful partnerships between food banks and agricultural partners.

4. Foster real-time supply chain strategies

One agricultural partner without a practice of donating stated they would be more inclined to donate food if they had access to real-time information about food bank inventory. For example, if zucchini was low at a food bank, then zucchini growers might get an electronic notice asking for zucchini. Growers able to donate could respond with the amount they could donate and the food bank would deploy a pre-arranged pick-up system to collect the zucchini. This solution not only moves a burdensome commodity for the grower, but also prevents a food bank from having to turn away donations they cannot accommodate.

5. Support the work of, and employ the use of, agricultural non-profits and for-profits

In addition to the Farm to Family Program, operations like Ag Against Hunger and the donation operations of Keystone Fruit are invaluable in securing fresh produce for food banks. Because of their size and proximity to other agricultural partners, these entities are more approachable for these partners than food banks. They run as small operations with little overhead but need financial support to stay in operation since neither run their donation services for-profit.

6. Develop value-added components for food bank operations

Especially in the summer, some food banks have had to turn away donations because they lacked room or received too much of one commodity. The Sacramento Food Bank has the goal of adding a food processing center to their facility that could make value-added foods (e.g. sauces and jams) with produce that would otherwise take up cold storage space and might be turned away. The center could also include a certified culinary program through the food bank and provide on-the-job training. This concept offers sustainable solutions to food loss as well as food and job insecurity.

7. Develop gleaning programs

Gleaning programs can provide significant quantities of fresh fruits and vegetables for food banks. They also encourage food banks and volunteers alike to gain a better understanding of the agricultural community. This model should be used more widely to help food bank clients and volunteers benefit from this under-utilized resource.
**Nutrition Education in Food Banks**

In addition to food banks shifting resources to acquire fresh produce, many have begun to develop nutrition education and outreach programs to educate clients about the healthy food they are receiving. Along with the produce acquisition assessment, food banks and local health departments were surveyed for this report about current nutrition education and outreach programs. Health educators reported that many people have the desire to eat healthy, but even when given healthy food, they still struggle. Providing fresh and nutritious food enables food bank clients to have healthier diets, but reinforcing healthy behaviors related to food is also necessary for sustainable change to happen.

**Common Curricula and Tools for Nutrition Education in Food Banks**

Because most nutrition educators receive SNAP-Ed funding, many of the curricula and tools they use are similar. Common resources are listed below.

**Champions for Change (CDPH)[15]**
- Supports community members who advocate for change by linking them to organizations and helping them come up with action plans
- Participants are encouraged to be role models of health and wellness within their community
- Participants’ stories are highlighted in health education materials and presentations
- Some participants become educators themselves

**Rethink your Drink (CDPH)[16]**
- Helps low-income Californians identify sugar-sweetened beverages (SSB) and healthy alternatives
- Aims to help individuals make the connection between sugar consumption and the resulting health risks
- Includes materials for classrooms, retail and public events

**MyPlate (USDA)[12]**
- Federal resource that reinforces the 2015 Dietary Guidelines put out by the USDA and Health and Human Services
- Materials encourage making small changes toward healthier choices and eating patterns
- Recommends that individuals promote change in their community

**Food Smart (Leah’s Pantry)[17]**
- Developed by NGO Leah’s Pantry
- Curriculum aims to make lasting behavioral changes in individuals based on integrating concepts from many behavior change theories into a comprehensive theory of change that can be applied to a variety of behaviors, populations, and settings
- Encourages individuals to make healthier choices
• Incorporates technological interventions to teach individuals how to navigate the myriad of nutrition information online

Rate the Taste (CDPH)[18]
• Part of the Power Play School Idea and Resource Kit
• Activities have children taste test, rate, and describe seasonal produce

Recipe and Produce Cards
• Handed out at food distributions
• Gives clients options for ingredients with which they are unfamiliar

Taste Testing
• Allows people to taste different ingredients and recipes with which they are unfamiliar
• Taste testing is a fun way to familiarize people whose self-efficacy in preparing new foods is low and who feel intimidated by unfamiliar ingredients
• Food banks typically have ServSafe certifications and are therefore perfect partners for offsite food tastings

Barriers to Nutrition Education

Demographic Competencies of Educational Resources
California is a state with diverse communities that are proud of their culture and identity. An individual’s culture influences their attitudes and beliefs about food. Programs that are one-size-fits-all inevitably do not have a lasting impact in communities. Curriculum developers must understand the different cultures of food. The best way to ensure this is to have developers that belong to a community demographic or understand it very well.

Working with populations with fixed preconceptions about food can be challenging. For example, it is difficult to convince seniors to take food they may not finish. If an individual feels food may be wasted there is a tendency for them not to take any at all. This leaves an at-risk population without some of the healthy foods provided at senior distribution sites. Educating seniors on how to use preservation techniques such as proper storage, freezing, and new recipes can encourage them to take more perishable items from food distribution events.

Staffing
Nutrition programs, particularly at their inception, tend to be understaffed because funds do not allow for the creation of full-time staff positions within food banks. Much of the outreach is limited by the number of trained volunteers or interns available. Furthermore, effective volunteers require a fair amount of training to ensure that they are received well by the communities in which they work.
Limitation of Using SNAP-Ed Funding

The process to obtain approval for SNAP-Ed funded resources such as curricula and toolkits is lengthy and curricula that are preferred by educators may not be eligible for SNAP-Ed funds. Appropriate and effective curricula is particularly limited for certain demographic populations. Educators described, for example, how some curricula used in hard-to-reach demographics like high school-age young adults and rural Latino populations are needed to include more relevant topics.

Best Practices in Nutrition Education

Below are best practices for nutrition education programs in food banks.

Mobile Nutrition Education Paired with Food Distributions

The use of mobile food delivery systems (FDS) has become increasingly popular in recent years as efforts grow to get fresh and healthy food to low income areas and food deserts. In addition, the popularity of “food trucks” has grown quickly, making mobile FDS an inclusive way to reach food insecure Californians and to enhance the appeal of distributed food. Both low-cost and charitable mobile FDS exist. An assessment of low-cost mobile FDS found that community members who used mobile markets ate more fresh produce than their neighbors who did not, but both groups often were confused by how much fresh produce they should be eating (what constitutes a serving), and lacked the skills and motivation to cook more for themselves[19]. Mobile FDS not only enable communities to eat fresh produce, but also provide an opportunity for food distribution agencies to collaborate with community health educators and provide the necessary nutrition education and general health outreach to food distribution recipients at a single venue.

CAFB has found that even brief nutrition education efforts at food distribution sites help clients to recall nutrition facts and attempt new recipes at home according to a 2012 study from CAFB assessing the impact of two brief interactive nutrition lessons on recipients of produce at food distribution sites[20]. Techniques employed by food banks throughout the state for nutrition education are described below.

Butte County

North State Food Bank in Butte County has experimented with mobile food distribution that resembles large community events. Their tailgate distribution is accompanied by other organizations at a central site and deliver an estimated 170,000 pounds of produce to 3,500 families each year. Local businesses such as Edible Pedal, a bicycle-based food delivery service, hand out food samples while people are waiting in line for food distribution. The tailgate distributions initially were covered by private donations but high demand for them left a partner agency, the Center for Healthy Communities, covering additional funding needs. The local health department is rarely at these events, while local news stations seem to like them and have covered them. With a food insecurity rate of 18 percent[14], Butte County has the second highest rate of food insecurity in the state.
**Fresno County**

The Community Food Bank in Fresno County also employs the use of mobile food nutrition and was one of the first mobile units in the state. The truck they have is operated by a food bank staff member who is supported by nutrition interns from CSU Fresno. They employ techniques such as taste testing and distribution of recipe cards.

**Addressing Complex Stressors**

More researchers are recognizing a need for education and outreach programs that not only teach nutrition but also address empowerment over one’s diet and lifestyle decisions. Furthermore, the availability and distribution of education is not currently sufficient to facilitate healthy behavioral change goals. These programs are rooted in developing personal connections and encouraging clients to build on their own abilities, instead of getting them to conform to a curriculum that does not suit them personally or culturally.

**Imperial County**

Imperial County is one of the most rural counties in California with a high proportion of immigrant residents. As a county with low population density, nutrition education efforts are on a small scale. The Imperial County Food Bank takes a personal approach to educating their community, believing that large classroom-style presentations would be less effective with their clients. Their messages are client-driven and focus on their clients’ needs and resources, with particular attention to the health of clients’ families. Educators make a point to speak about health challenges of the community, including food insecurity, obesity, and diabetes, ensuring its relevance to clients.

**Sacramento County**

The Sacramento Food Bank and Family Services uses Leah’s Pantry Food Smart curriculum for nutrition education classes open to people over 18 years of age. Educators used to conduct PowerPoint-based classes with an emphasis on didactic learning, but have transitioned away from this model to build in more time for discussion in classes, including activities like “check-ins.” Per the Leah’s Pantry’s website, the curriculum “encourages people to start from where they are” by having clients build healthy behaviors from their existing skill sets. This means that changes can be made slowly and are set by the individual. Many modules are available including basic meal planning, basic cooking skills, and food budgeting. Community health educators that were once clients that experienced the curriculum themselves do extremely well in this environment and like to speak about what they themselves have learned.

**Children’s Programs**

Reaching children at critical learning points is vital. Children are at higher risk for adverse health effects due to food insecurity and lack of proper nutrition because of their life stage. Most food banks run or support children’s nutrition education and food distribution in their community.
San Luis Obispo County

The Food Bank Coalition of San Luis Obispo organizes monthly Children’s Farmers’ Markets at after school programs as part of their overall nutrition education programming. Instead of being handed produce at these farmers’ markets, children are given “food bank bucks” and are given the power to “buy” produce from any number of stands. The program has been a huge success and is implemented at 19 sites around the county. Children can practice self-sufficiency in making healthy choices. Another unique part of this program is that when the volunteers needed to run the markets became scarce, the food bank decided to enlist the help of older children in the program to help set up and run the booths for younger children.

Nutrition Education Recommendations

1. **Incorporate more food demonstrations and hands-on practice in curricula**
   Individuals are reported to prefer hands-on learning to didactic programs. It could be they are more likely to attend classes and retain knowledge by practicing the techniques they learn about. Even small demonstrations, such as making cold salads with fresh produce and homemade dressing, can be influential.

2. **Promote environmental changes by local health departments**
   Environmental changes help to permanently alter aspects of the community that influence members’ health. Local health departments can support their local food bank by reinforcing their nutrition education programs elsewhere in the community. Examples include healthy retail, workplace wellness, and other models of community change.

3. **Adapt nutrition lessons to combine education with peer support**
   These courses require more resources and time but can address stressors from food-insecurity and help make lasting changes.

4. **Develop technology-based interventions in the form of texts, social media and apps**
   Technology-based interventions provide a platform to reach many people at once, including many who utilize food bank services; 79 percent of Americans who make less than $30,000 per year are online, according to the Pew Research Center[21].

Conclusion and Final Recommendations

The ability of food banks to distribute fresh produce and provide nutrition education to food-insecure Californians is essential to promoting wellness in our communities. Despite barriers, such as funding, a lack of clarity in donation procedures, and refrigeration space, food banks in California have made it a priority to secure and distribute more fresh produce each year. Food banks can follow the best practices highlighted in this report to increase access to fresh fruits and vegetables and support their clients’ healthy behaviors:
• Lay the Foundation for Consistent Donation Practices

CAFB’s initial and ongoing investment in meaningful and long-lasting relationships with agricultural partners has resulted in consistent and reliable sources of fresh produce. Laying this groundwork enables produce deliveries to become easy to maintain. Programs like Farm to Family, which have successfully built upon these relationships should be expanded or replicated throughout the state.

• Develop Strategic Partnerships with Agriculture Liaisons

Some agricultural partners, such as Keystone Fruit, already have established relationships with growers. These partnerships are extremely successful because they provide relief for farmers when they have excess or unmarketable produce. These agricultural liaisons have the infrastructure necessary to easily process excess produce, and they possess a working knowledge of agricultural systems that make donations simple and rewarding for growers and food banks.

• Establish Gleaning Programs

Gleaning programs rely on well-trained volunteers that make growers comfortable having them on their property. The most successful gleaning crews come with their own equipment, taking risk and work away from growers. Gleaning teams encourage food banks and volunteers alike to gain a better understanding of the agriculture community and an appreciation for the work it takes to grow our food. This model should be used more widely.

Food banks can further promote wellness in their communities by adapting these practices for nutrition education:

• Pair Mobile Nutrition Education with Food Distributions

The use of mobile FDS has become increasingly popular in recent years as efforts are growing to get fresh and healthy food to low-income areas. Mobile FDS not only enable communities to eat fresh produce, but also provide an opportunity for food distribution agencies to collaborate with community health educators to provide the necessary nutrition education and general health outreach to food distribution recipients at a single venue. Because we know that even brief nutrition interventions at mobile sites are effective, food banks should direct resources towards establishment or expansion of these programs at mobile FDS.
• **Address Complex Stressors**

Many local health departments and food banks are beginning to employ curricula that aim to achieve long-term behavioral changes by addressing stressors from food-insecurity. These resources are rooted in developing personal relationships and encouraging clients to build on their own toolbox, instead of suggesting that they conform to a curriculum that does not suit them personally or culturally.

• **Invest in Children’s Programs**

Reaching children at critical learning points is vital. Children are at higher risk for adverse health effects due to food insecurity and lack of proper nutrition because of their life stage. Most food banks run or support children’s nutrition education and food distributions in their community and these efforts should be expanded to reach more youth.

As food insecurity rises in California, the need to provide food bank clients with high-quality, healthy food grows and the benefits of working with California’s agricultural partners increases. This report shows that innovative and committed food bank, non-profit, and for-profit programs have already pointed the way to make strategic investments and develop programs that will enable Californians to access the state’s agricultural bounty, regardless of income.

---

**References**


6. *Utilizing New Methods of Crop Harvesting to Introduce Nutrient-Dense Specialty Crops to Low Income Consumers*. December 2011, California Association of Food Banks & California Department of Food and Agriculture.


10. Eggman, Assembly Bill 1577 (Chapter 400), C.S. Assembly, Editor. September 21, 2016, California State Assembly.

11. Senate Bill 837 (Chapter 32), C.S. Senate, Editor. June 27, 2016, California State Senate.


Appendix

A. Survey Questions for Food Banks

1. Can you please provide us with an approximation of the unduplicated number of individuals that rely on your services annually?

2. Is your food bank equipped to accept, store, and distribute fresh produce?
   <if No > 2a. What do you think would need to happen in order for your food bank to begin to accept, store, and distribute fresh produce? Skip to question 24

3. How much is your annual budget for fresh produce purchases?

4. What is the approximate poundage of fresh produce distributed?

5. What percent of your poundage is fresh produce?

6. What percentage of produce is procured and what is donated?

7. What kind of fresh produce is frequently seen in your food bank?

8. For produce donations, where does this produce come from in order of greatest poundage.
   (e.g. Farm to Families, Donate Don’t Dump, growers, shippers, producers, private household donations)
9. How much produce spoils?
10. How do you distribute your fresh produce?
11. What equipment do you have to facilitate the storage and distribution of produce?
12. Does the equipment meet your needs?
   <if No> 12a. What would you need to have, or have happen to meet your equipment needs for produce storage and distribution?
13. Please explain the process of donating produce to your food bank.
14. Do you feel that your food bank receives adequate farm fresh donations?
15. What, in your experience, has been the biggest barrier to getting farm fresh donations to your food bank? What, if anything, would increase the amount of produce donated to your food bank?
16. What, if any, concerns do you have with farm fresh donations?
17. Has your food bank ever been unable to accept a load of fresh produce?
   <If yes> 17a. Please tell us more about that experience.
18. What, if any, are the barriers for purchasing fresh produce?
19. What costs, if any, does your food bank incur in acquiring farm fresh donations? (e.g. paying nominal fee for produce, transport, etc.)
20. Does your agency currently have any other grants other funding sources to support fresh produce distribution?
21. What techniques/marketing/education, if any, are used to influence people’s decision to choose fresh produce at your food bank? (e.g. product placement, nudges, food sampling, marketing, etc.)
22. What can food banks do to encourage fresh produce donations? (identify best practice)
23. What kind of training, resources and/or support could you and your staff use to facilitate fresh produce donations and distribution?
24. Does your food bank have a garden?
25. Anything else that you’d like to share with us?
26. CDFA may be discussing findings of these interviews in a report. Can we recognize your organization as a participant in the acknowledgements section of this report?

B. Survey Questions for Partners of Agriculture

1. What county is your business located in?
2. Would you consider yourself a small, medium, or large operation?
   2a. How would you classify your business?
3. Do you use conventional or organic methods of growing?
4. What are your primary crops?
5. What is the estimated amount of food that does not enter a primary market or secondary market for human consumption?
5a. What are the reasons for this food not entering the food supply?

6. What happens to this food?
Answer the following if your food has been donated or sold to a food bank or food pantry:

7. How often and how much is donated?
   7a. If yes, please tell me about the experience.
   7b. If no, why not?

8. Whether you have or haven’t donated before, how likely are you to donate to a food bank?
   not likely somewhat likely very likely
   8a. What influences your answer/what incentives might influence your likelihood to donate?
   8b. What could happen that currently doesn’t that might make you more likely to donate?

9. If you are interested in donating food, do you already know who to contact and how to donate?

10. Are you aware of the Bill Emerson Good Samaritan Food Donation Act?

11. Is there anything else that you would like to add?

C. Survey Questions for Local Health Departments and Food Bank Nutrition Programs

1. What county are you located in?

2. Do you receive SNAP-Ed funding for nutrition education?

3. Do you work with a local food bank in regards to nutrition education?
   3a. If yes, are they a subcontractor receiving SNAP-Ed funding?
   3b. If no, why not? In what capacity would you like to work with them in the future?

4. Please describe nutrition education curricula and resources you use (what food bank uses; if no relationship with food bank, just in general.)

5. What works about the curricula that you use?

6. What could be better?

7. Anything else that you would like to add?