

# EATING OUR PEAS & CARROTS:

Strategies for Expanding K-12 Access to Fruits and Vegetables  
Through Supply Chain Innovation and Investment



By JoAnne Berkenkamp



# ABOUT

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## School Food FOCUS

Launched in 2008, School Food FOCUS is a national collaborative that leverages the knowledge and procurement power of large school districts to make school meals nationwide more healthful, regionally sourced, and sustainably produced. FOCUS works with 36 of the nation's largest districts, representing over 4.2 million students.

Signature initiatives include FOCUS Learning Labs that support procurement innovation at district and regional levels; the National Procurement Initiative which aims to shift large-scale national supply chains and investigate opportunities for regionalizing food systems; peer-to-peer learning opportunities for school food professionals and their partners; and targeted policy and regulatory work with government officials. School Food FOCUS is a program of Public Health Solutions and is headquartered in New York City.

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Only **15%** of school age children eat the recommended servings of **vegetables** each day and less than one-third eat the recommended servings of **fruit**.<sup>1</sup>

**32%** of children and adolescents are **overweight or obese**.<sup>2</sup>

**1** in **3** children born in 2000 will become **diabetic**; **1** in **2** in the case of **children of color**.<sup>3</sup>

**1** in **5** Americans now **die from obesity-related factors**.<sup>4</sup>

Today's children may be the first generation in American history to have a **shorter life expectancy** than their parents due to obesity, unhealthy eating habits and physical inactivity.<sup>5</sup>

# EXECUTIVE SUMMARY

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The research captured in this report sought to illuminate the dynamics that influence the use of fruits and vegetables in K-12 settings and the nature of supply chains that currently provide produce to selected large urban school districts in the Upper Midwest. This analysis and related market research then provided the platform to identify strategies that could expand these districts' access to affordable, quality produce. We also identified opportunities for investment (particularly through program-related investments) that can address key gaps in produce supply chains that serve these districts.

The context for this research is the School Food FOCUS Upper Midwest Regional Learning Lab (RLL). Participating districts are working together to support supply chain innovation in the priority food categories of produce, chicken, turkey, and beans. For produce, the Lab prioritized fresh and frozen produce grown in the vicinity of the eight-state Learning Lab region, including both Grade A product and cosmetically imperfect seconds (produce that is fresh and wholesome but does not meet prevailing market standards for cosmetic reasons).

## Key Findings

As we explored supply chains that serve the seven districts in the Regional Learning Lab, the following insights emerged about the fresh and frozen produce that is currently available, or unavailable, through those chains:

- **Cost barriers:** K-12 schools face vexing budgetary challenges as they strive to provide fresh and frozen processed produce to their students: while the real cost of fresh produce has nearly tripled over the past three decades, increases in the federal per-lunch reimbursement have risen roughly 2% per year. The cost of other foods, non-food supplies and labor has also risen, making the quest for affordable, quality produce all the more timely.
- **Conventional supply chains:** Districts in the RLL have ready access to a nationally and globally sourced supply of fresh, pre-cut produce and frozen produce through their existing supply chains. However, information about who grew the food and how it was grown tends to be very limited for the vast majority of these products, particularly for produce purchased through large suppliers.
- **Desire for regionally grown produce:** Participating districts have a strong desire to expand fruit and vegetable (F&V) procurement from farms in their region (which they view as within 200 – 400 miles of their district). A wide variety of vegetables commonly used in school meal programs are grown across the Upper Midwest. Regionally grown apples and melons are widely available, although production of many other fruits is limited outside of Michigan. The Midwest has a relatively short growing season, making seasonality a challenge.

- **Pre-cut and regionally grown:** Most RLL districts can purchase a variety of pre-cut regionally grown fresh vegetable items in season, typically through a produce distributor. Transparency in these supply chains varies from one distribution partner to another. Not all regionally grown crops (and cut sizes) are available to all districts, reflecting differences in priorities, grower relationships and cutting equipment among suppliers around the region.
- **Volume needs:** The large urban districts in the RLL typically require large volumes and prefer to receive produce in pre-cut form. This makes it more challenging for them to access produce from smaller and more diverse farms or to purchase from emerging food hubs that aggregate, process and/or distribute locally grown foods.
- **Pricing:** Pricing for regionally grown fresh produce tends to be similar to or somewhat more expensive than non-regional product, although direct price comparisons are difficult given fluctuating market conditions.
- **Regionally grown, frozen produce:** Sources of frozen produce that are readily identifiable to districts as having been grown within the region were found to be limited, although the region produces significant quantities of some frozen vegetables. (One exception is produce grown and processed in Michigan, which has both a highly diverse agricultural base and a strong processing industry.)
- **Sustainable agricultural practices:** Options for produce that have met verified sustainability practices are generally confined to certified organic product which can be price-prohibitive.

In terms of strategies for connecting K-12 districts with more affordable sources of produce, we found that cosmetically imperfect (CI) seconds hold considerable promise that merits deeper exploration. While more research is needed, it appears that pre-cut, regionally grown CI seconds could yield savings of 15% – 30% for K-12 buyers relative to alternate product. CI seconds, however, are largely absent from supply chains that serve RLL districts. Clear expressions of K-12 demand and close collaboration with distribution partners and farmers could help make CI seconds more accessible to districts in the region.

## Investment Opportunities

Supply chain-related investment opportunities that emerged from the research include the following:

**Cosmetically imperfect seconds:** Investments in additional research, partnership development and pilot projects would be instrumental in more fully testing the potential for CI seconds to provide a cost-effective option for K-12 buyers. In particular,

- Conduct more research with F&V growers to clarify the nature and scale of product supply, potential cost dynamics, operational concerns and priority crops.
- Educate and engage distributors and cut-fresh operators on issues such as market potential for CI seconds, equipment and facility issues, product specifications, and pricing.
- Support on-the-ground pilot efforts with K-12 procurement of seconds to test models, identify success factors, build supply chain pathways with distributors, and assess CI products in school settings.

**Food enterprise development and collaboration:** While existing mainstream supply chains now connect K-12 districts with a nationally and globally sourced supply of produce, they are less adept at:

- providing high levels of transparency about farms of origin and agricultural practices (beyond food safety);
- aggregating produce from smaller and more diverse farms; and
- enabling districts to channel more of their food dollar to the local economy in a verifiable manner.

A rising number of nascent “food hubs” are working to address these and related challenges. Such businesses will need additional investment if they are to reach the scale needed to supply large urban districts. Investments could also be used to advance strategic collaborations with larger existing food businesses to identify and address key bottlenecks and gaps in regional supply chains that serve the K-12 marketplace.

**Expanding the supply of regionally grown produce:** Inadequate supply is a major growth barrier for nascent food hubs in the region. Expanding that supply and increasing the efficiency with which it is grown and brought to market could be instrumental for K-12 buyers interested in regionally grown product. This could involve strategies like helping smaller farms expand to the point that they can effectively supply institutional markets and encouraging more diverse product offerings to better address K-12 demand. Working through regionally-based financial intermediaries, useful investments would include:

- Improved food safety systems that enable farms to come into compliance with Good

Agricultural Practices (GAP) as required by most wholesale supply chains.

- Improved post-harvest handling systems and storage facilities.
- Installation of hoop houses and other growing techniques that address seasonality challenges in the Midwest.
- Investment vehicles that enable farmers to purchase or obtain secure access to farmland.
- Business development services that position farms to collaboratively develop and share infrastructure such as produce aggregation and storage facilities, processing capacity, trucking and marketing support, and to collaborate with existing distribution and processing businesses that can help channel their products into K-12 markets.

The above strategies could be pursued through a combination of grants, program-related investments and funding for cooperative agreements between K-12 catalysts, allied food businesses and farmer-based organizations.

**Expanding schools’ capacity to use minimally processed produce:** Investing in schools themselves is also key for making expanded use of minimally processed fruits and vegetables possible. Grants can play a pivotal role in funding:

- Facilities and equipment that better enable schools to use fresh and frozen produce.
- Relationship building and planning among school districts, food businesses, the agricultural community and allied organizations to expand procurement of regionally grown and minimally processed produce.

- Staff training.
- The development of additional strategies to cultivate creative leadership among K-12 foodservice professionals.

## Making the Most of Program-Related Investments (PRI)

We found that PRIs have the potential to help meet the financing gaps often experienced by nascent and small food enterprises. Although food hubs tend to be risky investments, hubs that aggregate, process, distribute and/or market produce may have the potential over time to make regionally grown, minimally processed produce more available to schools in the Midwest. While interest among foundations is strong, PRI financing in the emerging food sector has been limited to date.

To enhance the effectiveness of PRIs in financing such enterprises, we encourage strategies such as the following:

- Cultivate a cadre of financial intermediaries in the Midwest, such as community development finance institutions, that can work effectively in the food finance space. This would include building intermediaries' ability to provide financial resources and business development services that are appropriate to the food enterprise sector, fostering relationship building with food system stakeholders, and enhancing intermediaries' outreach capacity and accessibility among food entrepreneurs.
- Fund connectivity in the Midwest food system and empower financial intermediaries to take a holistic, place-appropriate, systems approach in the emerging food space. Investment strategies should prioritize businesses and supply chain initiatives that address critical bottlenecks in the production, aggregation, processing and distribution of regionally grown produce in the Midwest.
- Incentivize existing supply chain players through cooperative agreements that support sustained collaboration between K-12 catalysts and established industry partners to research and develop new initiatives, such as expanding availability of cosmetically imperfect seconds.
- Fund the provision of technical assistance to food entrepreneurs to help build the pipeline of capital-ready enterprises.
- Prioritize investment strategies that maximize participation by complementary sources of patient capital.
- Strive for investment tools and metrics that value both social impacts and financial returns.
- Collaborate with food financing experts to craft new financing instruments that creatively bridge the gap between grants and PRI to better meet the needs of emerging food enterprises.



# 1) INTRODUCTION

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## A) The School Food FOCUS Upper Midwest Regional Learning Lab

School Food FOCUS is a national collaborative that leverages the knowledge and procurement power of large school districts to make school meals nationwide more healthful, regionally sourced, and sustainably produced. FOCUS works with 36 of the nation's largest districts, representing over 4.2 million students.

FOCUS' Learning Lab model engages school districts in redirecting purchasing practices to access more wholesome food. Procurement change spans issues including budgeting, menuing, food specification development, food safety, operations and staffing, kitchen facilities, as well as supplier/vendor development, contracting and management.

*The Lab connects a broad cross-section of stakeholders in the food system and K-12 regulatory environment to engage in collaborative, hands-on change efforts.*

Building upon the successes of three earlier, single-district Labs in Saint Paul, Denver and Chicago, FOCUS began to develop the Regional Learning Lab (RLL) concept in 2011. The Lab connects a broad cross-section of stakeholders in the food system (see Appendix A for a list of District Partners) and K-12 regulatory environment to engage in collaborative, hands-on change efforts. FOCUS' multi-year RLL venture leverages the knowledge and procurement power of seven school districts:

Chicago, Cleveland, Des Moines, Detroit, Omaha, Minneapolis, and Saint Paul.

In particular, the Learning Lab seeks to:

1. Establish productive, integrated relationships along various supply chains so the school districts can affordably access more healthful, regional and sustainable priority foods.
2. Implement food procurement changes that:
  - are 100% compliant with the 2012 USDA Nutrition Standards in the National School Lunch and Breakfast Programs;
  - are measurably higher in whole or minimal processing attributes;
  - move districts toward the sustainability criteria stated in the HHS/GSA Health and Sustainability Guidelines for Federal Concessions and Vending Operations<sup>6</sup>; and
  - re-allocate at least 10% of procurement of priority foods to products that are measurably more healthful, regionally sourced and/or sustainably produced.
3. Initiate analysis of environmental and economic impacts of the RLL procurement changes within school food supply chains.

The long-term aim is to transform regional food systems and school food procurement to support students' academic achievement and lifelong health, while directly benefiting farmers, regional economies and the environment.

## B) Participating School Districts

The public school districts participating in the FOCUS Upper Midwest Regional Learning Lab are a diverse group and span a geographic region nearly 800 miles wide.

### Regional Learning Lab Participating Partners



**Student Enrollment:** The RLL school district partners have a total student population of 690,000 students. The Chicago Public School district is by far the largest with 407,000 students enrolled, followed by Detroit at about 77,000. The remaining five districts range between 32,000 and 48,000 students.

**Obesity Rates:** Childhood obesity rates in the region are as follows<sup>7</sup>:

<b>Iowa:</b>	11.2%
<b>Illinois:</b>	20.7%
<b>Indiana:</b>	14.6%
<b>Michigan:</b>	12.4%
<b>Minnesota:</b>	11.1%
<b>Nebraska:</b>	15.8%
<b>Ohio:</b>	18.5%
<b>Wisconsin:</b>	13.1%

**Ethnic diversity:** Participating districts also have a highly diverse population, with children in these large urban schools districts representing a majority minority population. Nearly 48% of students in the Lab districts are African-American, with Hispanics representing 32% and Caucasians 14%. While nearly one-third of children in the US are overweight or obese, children of color are disproportionately affected: 38% of Hispanic children and almost 35% of percent of African-American children, compared with 31% of white children.<sup>8</sup>

**Free & Reduced:** Districts participating in the RLL have free and reduced rates ranging from 63% to 83%, with an average of 74%, compared to a national rate of 49%.<sup>9</sup>

**Primarily Self-Operated:** All but one of the Lab districts are self-operated and rely on district employees to manage and run their foodservice operations. The exception is Chicago Public Schools, which uses two foodservice management companies. This high rate of self-operation is typical of school districts around the country.

**Meal Programs and Food Budgets:** All seven RLL districts participate in National School Lunch Program (NSLP), School Breakfast and Summer Food Programs, and the USDA Fresh Fruit & Vegetable Program. All but one (Detroit Public Schools) have the NSLP snack programs while Chicago, Detroit and Omaha also have Child Care Food Program (CCFP) dinner programs. Other than Chicago, RLL districts have annual food budgets in the neighborhood of \$15 - \$20 million per year.

**Kitchen Facilities:** Food preparation facilities vary widely among the RLL districts. Typically, district facilities have evolved over decades. They may include a patchwork of one or more central facilities and dozens of school-based kitchens (or hundreds in the case of Chicago) that have varying levels of equipment, staffing and food prep capacity. Some districts run several food prep systems simultaneously. Districts will also adjust their approach over time if schools close, change the grade levels they serve, develop additional food prep capacities and so on.

RLL district facilities fall into several main categories:

- A central commissary that prepares food for schools in bulk (e.g. large quantities of food ready to re-heat, finish and/or serve) or pre-plated (in individual pre-portioned units for re-heating and/or serving). These foods are sent to satellite finishing and/or re-therm kitchens;
  - Central kitchens that prepare food and ship it to satellite kitchens where food preparation is finished and served;
  - Onsite, full production kitchens; or
  - Meals that are prepared outside of the district by a vendor and shipped into the district for re-heating.
- The Lab includes districts that do virtually no production of any foods from scratch and others that engage in semi-scratch or traditional scratch cooking. This makes the Lab a particularly rich “ecosystem” for exploring food procurement innovations that can be effective in widely ranging school environments.

## C) Research Objectives and Methodologies

This research aimed to:

- Document and explain the supply chain pathways by which fresh and frozen produce currently reaches participating K-12 school districts;
- Identify key trends and drivers in the produce industry as well as patterns that typify and influence the use of produce in K-12 environments;
- Conduct and analyze market research on priority foods and explore existing infrastructure in Midwest produce supply chains that can support procurement innovation for fresh and frozen produce by the RLL;
- Identify critical gaps in the infrastructure needed to better connect large urban school districts with minimally processed produce; and

- Provide recommendations on how to begin addressing those gaps as potential investment opportunities through program-related investments and allied strategies.

Research methodologies have included:

- One-on-one interviews with 54 experts in the fields of fruit and vegetable production, processing and distribution; food enterprise development and finance; regional food systems development; school nutrition; and federal food and agriculture policy. A list of interviewees is provided in Appendix B.;
- A Request for Information (RFI) process in conjunction with school districts participating in the Regional Learning Lab to gather and analyze detailed market data from commercial suppliers of fresh-cut and frozen fruits and vegetables in the Midwest;
- Engagement of a team of expert advisors including representatives from the fruit and vegetable processing and distribution industries, University Extension, USDA, food systems development, and social venture finance, as well as school district and RLL district partner representatives from within the RLL's geographic region and around the country;

- Review of various research materials and media coverage related to fruit and vegetable production and processing, state and regional food systems assessment, food enterprise development and finance, food waste and food recovery, school food procurement, and related topics; and
- Interaction with RLL participating school districts, their district partners, FOCUS staff and consultants.

## 2) PRODUCE INDUSTRY OVERVIEW

### A) A Brief Sketch of Fruit and Vegetable Trends in the US

We begin by exploring major trends and realities in the US produce industry. The industry has been revolutionized in recent decades, and the implications for our nation's school districts are many. Below we highlight key trends in fruit and vegetable production, long-term pricing dynamics, social and environmental factors now influencing the industry, and the growth of regional food systems.

This is followed by an analysis of cosmetically imperfect "seconds" – produce that doesn't meet industry standards for appearance, but that may advance the goal of connecting K-12 schools with sources of produce that are both high quality and compatible with tightening school food budgets.

In brief, the predominant system for growing, processing and transporting fruits and vegetables in the US is typified by:

- large volumes of produce that meet specific industry standards;
- availability of a vast, global supply of fruits and vegetables on a year-round basis;
- an emphasis on operational efficiency and low cost;
- adherence to strict food safety protocols;
- limited information for end users about the farms where most produce is; and
- heavy reliance on long-distance transportation.

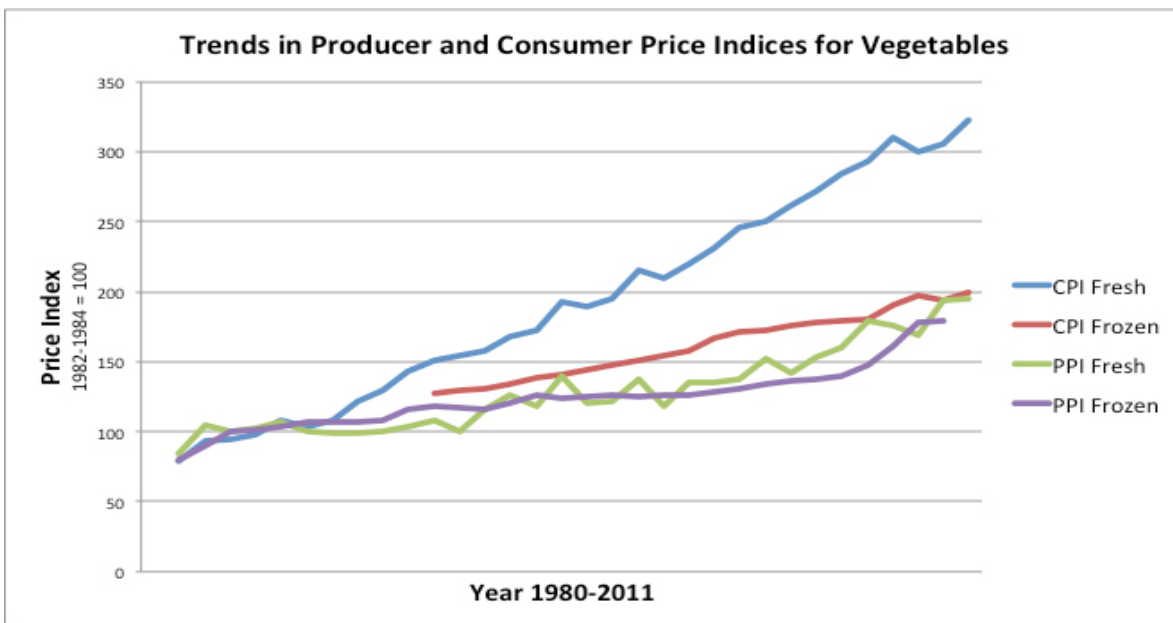
#### Highlights

- **Fresh and Processed:** Fifty-six percent of the vegetables and melons harvested in the US are grown for the fresh market.<sup>10</sup> The remaining 46% is used for processing purposes such as canning, freezing and dehydrating.
- **Fruit Imports:** About 30% of the total US supply of fruit is imported. Domestic production of fruit has been relatively flat since the early 1980s.
- **Vegetable Imports:** The value of fresh vegetables imported to the US has risen six-fold since 1980. This has fueled the availability of a global, year-round vegetable supply. Imports now represent about 23% of total US supplies for the fresh vegetable market.<sup>11</sup> At the same time, domestic vegetable production more than doubled between 1970 and 2000.
- **Geography:** California leads the country in fruit and vegetable production, growing 50% of domestic vegetables for the fresh market<sup>12</sup> and 60% of domestic non-citrus fruits.<sup>13</sup> Washington, Idaho, Michigan, Wisconsin, and Florida are other major producers.

#### Rising Produce Costs

For several decades, the price of fruits and vegetables has been rising, particularly in fresh form. This trend is reflected in Figure 1. Prices are indexed to levels in the early 1980s using constant dollars (which exclude the impact of inflation). The red line shows the Consumer Price Index for frozen vegetables. The purple

Figure 1: Vegetable Price Trends<sup>14</sup>



line below it shows the Producer Price Index, or compensation to suppliers for produce to be frozen. Over time, these lines have risen steadily, although generally in parallel, to approximately double their level in the early 1980s.

By contrast, the Consumer Price Index for fresh vegetables (shown in blue) has more than tripled since the early 1980s. Meanwhile, the prices received by fresh market vegetable growers (shown in green) has roughly doubled. This suggests that the cost of the produce at the farm gate is only part of the story behind rising prices for fresh produce. Much of the increase stems from added costs and profit margins in the fresh market supply chain between the farm and the consumer.

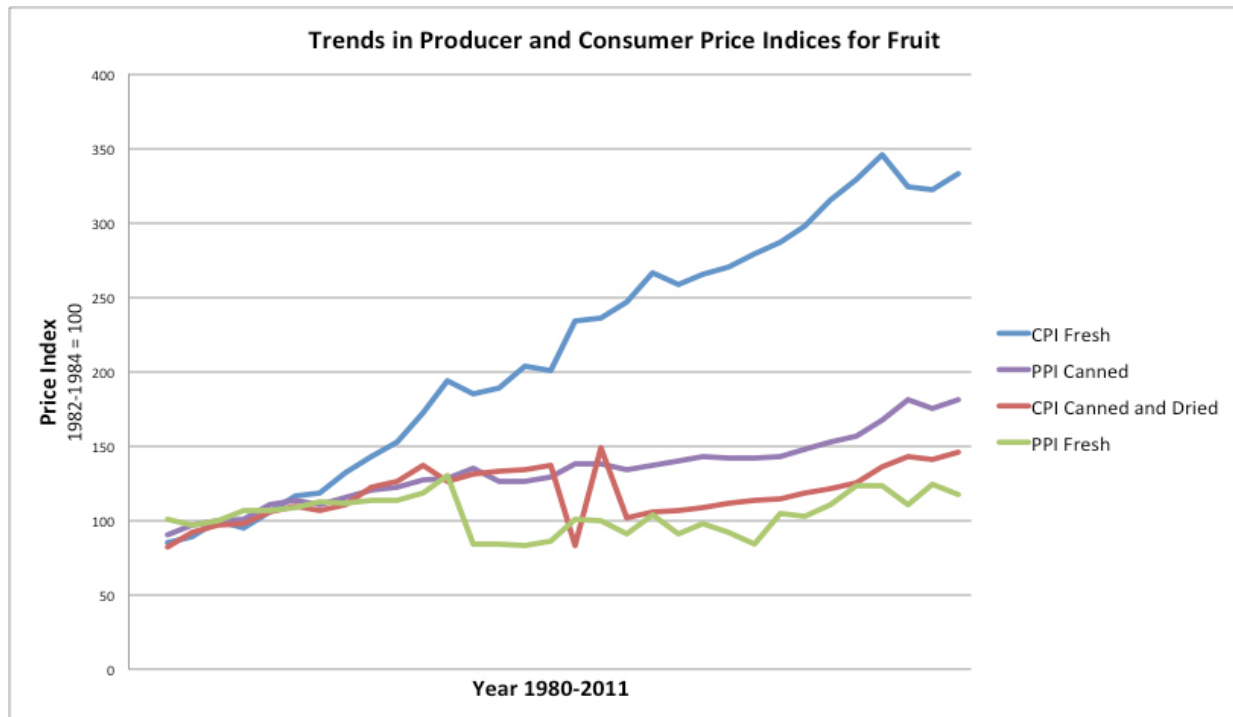
Contributing factors include increased branding and promotions, more packaging, pre-cutting to make produce more convenient (such as retail packages of shredded cabbage and pre-cut mushrooms), more value-added processing (such as frozen bagged vegetables that include added butter or other flavorings), rising reliance on long-distance (and often international)

transportation of fresh vegetables, as well as handling by myriad businesses in the middle of the chain, such as brokers, processors and distributors.

Rising requirements for food safety and traceability have also added costs all along the supply chain. And as discussed later in the report, an overriding emphasis on cosmetically perfect fresh produce also leads to high rates of waste that ultimately add to costs borne by the end user.

These trends are even more pronounced for fresh fruit. As shown in Figure 2, price increases for canned and dried fruit have been relatively moderate, both at the consumer and producer levels. However, the picture is very different for fresh fruit, where the Consumer Price Index has risen from roughly 100 to roughly 333 since the early 1980s. Cost increases for non-citrus, fresh fruit have been particularly pronounced.<sup>15</sup> Meanwhile, prices paid to producers of fresh fruits (shown in purple) have remained largely flat for the past 30 years. Overall, domestic production of fruit has also largely been stagnant over the past three decades.

Figure 2: Fruit Price Trends<sup>16</sup>



These data reflect several key themes:

- The price of fresh produce has roughly tripled in the past 30 years (excluding inflation).
- The price of fresh produce is rising much faster than the price of produce in various processed forms.
- Much of the rise in fresh produce prices is not a result of increasing compensation to growers but of rising costs and profits that are incurred between the farm and the end user.

These increases are even more striking when viewed in the context of K-12 school districts. While the real cost of fresh produce has nearly tripled over the past three decades, increases in the federal per-lunch reimbursement have risen roughly 2% per year.

### Increasing Farm Consolidation

Since World War II, agriculture in the US has gone through a period of intense consolidation: the number of farms has fallen overall while average farm size has increased substantially. While the US has more than 2.2 million farms in operation, just 125,000 of them (or less than 6%) produced 75% of the total value of US agricultural production in 2007. Agriculture is dominated by farms with more than \$1 million in annual sales, which generate 59% of total production.



At the other end of the spectrum, small farms with less than \$100,000 in sales constitute about 84% of US farms. They generate less than 10% of total production. These farms are more likely to sell directly to consumers, although a growing number sell to nearby school districts, small groceries, restaurants and other commercial accounts. After many years of decline, the number of very small farms increased slightly from 2002 to 2007. The number of women-owned and immigrant-owned farms has also increased in recent years.



*Photo Courtesy of Minnesota Department of Agriculture and Pepin Heights Orchard.*

In between is a cadre of farms often referred to as the “Agriculture of the Middle.”<sup>17</sup> Such farms are typically too large to sell through direct-to-consumer channels like farmers markets but may not be large enough to compete effectively in commodity-oriented markets that focus on high volume and low price. The number of such mid-size farms have declined sharply over several decades as agriculture has become more consolidated.

Nevertheless, these farms are often the backbone of regionally oriented food systems. They are a chief source of supply for large school districts that are seeking locally or

regionally grown produce through a distributor or fresh-cut processor.

### Growing Attention to Labor Considerations

Labor conditions in our country’s food system have, until recent years, been largely absent from public consciousness. In the fruit and vegetable sector, concerns primarily lie with working conditions for immigrant and often undocumented field workers.

Fortunately, increasingly visible efforts by farm workers (such as the Coalition of Immokalee Workers) and other advocates have shed more light on labor conditions for farm workers including occupational hazards, low rates of pay and many other issues. This has fostered a growing consciousness not only about where our food is produced, but by whom and under what conditions.

The lack of effective, comprehensive immigration policy continues to leave undocumented workers at risk and to destabilize the agricultural labor market. Growers in many areas of the country experience significant labor shortages, particularly at key times like harvest. An insufficient labor pool can sometimes lead growers to leave whole fields unharvested.

Efforts to reduce cost and limit the impact of labor shortages are leading to major investments in development of mechanized harvesting for fruits and vegetables. Increasingly sophisticated and costly equipment is replacing human labor for a growing range of crops, particularly on larger farms.



### Increasing Weather Volatility

Another factor affecting the produce industry is the increasing volatility of the weather in the US and around the world. The produce industry has always been extremely volatile, with wholesale prices fluctuating on a daily basis and weather events altering supply and product quality on a moment's notice. However, a changing global climate is likely to take that volatility to a whole new level in the decades ahead.

According to a 2012 poll by the Dutch bank Rabobank, 68% of corporate food and agriculture industry executives indicate that weather extremes/volatility will be the "single biggest factor affecting North American food and agribusiness in 2013."<sup>18</sup> Recent examples of such volatility include the snap freezes that hit major growing regions of both Mexico and Florida within days of each other in 2011 and the severe drought that affected much of the US in 2012.

Such events have led to the short-term doubling or tripling of produce prices for a wide variety of common crops. In response, many produce distributors are working to insulate themselves from adverse weather events by lining up multiple sources of supply from growers in geographically dispersed states or countries.

As the climate changes, increasingly volatile weather is likely to lead to long-term increases in the price for fruits and vegetables and greater supply fluctuations that will affect buyers large and small.<sup>19</sup>

### The Growth of Local and Regionally Oriented Food Systems

Rising demand for locally grown foods is another important development to note. Across the country, a growing cadre of consumers, retailers and institutional buyers are building demand for foods that have been grown close to where they are consumed. This demand typically reflects a constellation of consumer values that include but go well beyond concerns about where food is produced.

Other aspirations that often underlie the growing demand for "local" include supporting the local economy and local farm ownership, knowing one's farmer personally, being able to obtain clear and accurate information about growing practices and treatment of workers and animals, and a desire to foster a sense of place and community.

As a result, definitions of "local" vary by the eater or institution involved. The 2008 Food,



*Photo Courtesy of Detroit Public Schools.*

Conservation, and Energy Act defines a “locally or regionally produced agricultural food product” as one marketed less than 400 miles from where it is grown. However, under the 2011 USDA rule on geographic preference for unprocessed or minimally processed foods, authority to define “local” rests with the school district. Many school districts choose to define “local” using a narrower mileage radius or a different geographic definition (such as within their state).<sup>20</sup>

By 2008, local food sales in the US had reached \$4.8 billion. Over half of these sales were made through “intermediated” marketing channels (such as through grocers, restaurants and regional distributors). The balance is made up of direct-to-consumer sales.<sup>21</sup> These sales represent about 0.4% of the \$1.1 trillion US market for foods eaten at and away from home.<sup>22</sup> The development of regionally oriented food systems continues to be challenged by myriad factors including:

- an insufficient supply of regionally grown foods to meet burgeoning demand;
- low farm profitability;
- inadequate infrastructure in the “middle” of the supply chain to aggregate, distribute and process regionally grown foods, particularly from small and mid-size farms;
- limited farmer access to land, capital and business development services;
- an aging farm population; and
- federal policies that largely work counter to the goals of expanding the regional production of fruits and vegetables on moderate scales and the use of environmentally sustainable farming methods.<sup>23</sup>

The challenges faced by emerging food enterprises that supply minimally processed fruits and vegetables are discussed at greater length in Section 4 of this report.

### Food Waste

The enormous rate at which food is wasted is another issue that is gaining visibility. According to a recent report by the Natural Resources Defense Council: “Getting food to our tables eats up 10% of the total US energy budget, uses 50% of US land, and swallows 80% of freshwater consumed in the United States. Yet, 40% of food in the US today goes uneaten... Not only does this mean that Americans are throwing out the equivalent of \$165 billion each year, but also 25% of all freshwater (that is used) and huge amounts of unnecessary chemicals, energy and land. Moreover, almost all of that uneaten food ends up rotting in landfills where organic matter accounts for 16% of US methane emissions... Food saved by reducing losses by just 15% could feed more than 25 million Americans every year at a time when one in six Americans lack a secure supply of food to their tables.”<sup>24</sup>

Of the food that is being wasted in the US, about 22% is fresh produce.<sup>25</sup> In fact, NRDC reports that 52% of all fruits and vegetables grown go to waste, while only 48% are actually eaten. Losses are particularly high at the consumer level and on the farm (with much smaller losses occurring in the supply chains in between). Large volumes of produce that are grown but go unsold depress farm profitability and ultimately contribute to high prices for consumers and institutional buyers alike.

Given that inadequate fruit and vegetable intake and the relatively high cost of fresh produce are major contributors to limited access and America’s health crisis, the irony imbedded in the systemic waste of fresh produce could

not be greater. However, there is a silver lining: schools have the potential to be both a catalyst and a beneficiary of innovations that could change this picture. We delve into that opportunity below.

### **B) The Good, the Bad, and the Ugly: Cosmetically Imperfect Seconds**

As just discussed, more than 50% of the fruits and vegetables grown in the US go to waste.<sup>26</sup> Now we explore how some of those losses could be prevented and how schools could help drive, and benefit from, that change.

With produce, nearly half of food waste that occurs takes place close to where the food is grown and is referred to as “crop shrink” or “crop loss.” Crop shrink can take several forms including:

- whole fields that go unharvested;
- edible crops that are left behind during the harvest; or
- produce that is harvested but culled out before entering commerce (such as in the packing shed when crops are sorted, graded and washed).

Such losses are enormous. For instance, loss rates in Minnesota can be as high as 50% of the crop for broccoli and tomatoes, 40% for cucumbers and carrots, and 30% for hard squash.<sup>27</sup> A recent study of crop shrink in California estimated losses ranging from less than 5% to over 30% for a variety of common fruits and vegetables.<sup>28</sup>

A number of factors contribute to these losses including weather volatility, incentives for farmers to over-plant (to avoid coming up short on contracted amounts), situations where the market price drops below the cost that the growers would incur to bring the product to market, and labor shortages at harvest time. Another key factor, and the one we seek to leverage here, is our food system’s fixation on cosmetic perfection.

In the US, fruits and vegetables are graded using standards established by USDA that focus on qualities like size, color, shape and the presence of cosmetic imperfections.<sup>29</sup> Qualities like taste and nutritional value are not expressly addressed in these standards. In many consumers’ minds, visual perfection is equated with quality and freshness.

Procurement standards throughout the food system are largely driven by consumer expectations for product that is sold in retail grocery settings – thus the overflowing banks of cosmetically perfect, glossy produce that abounds in mid- and upper-scale grocery stores across the country.

Zucchini and cucumbers that have grown too large will not make it to the nation’s grocery stores. Nor will apples that are too small or carrots that are not straight enough. Also cast aside are melons and hard squash that are thought to be too oddly shaped or that have too much scarring on their rind. In general, cosmetic imperfections are likely to be more prevalent in the Midwest where growing conditions are more volatile than major growing areas like California.<sup>30</sup>

The irony is that today’s expectations for cosmetic perfection in the grocery store also drive the product that is available in mainstream foodservice channels. This is true even for fruits and vegetables used in foodservice



Highland Valley Farm. Photo courtesy of H. Brooks & Co.

environments, like K-12 schools, that are likely to cut the produce before they serve it, making retail standards for size, color and shape much less important.

As one senior executive at a well-known international food manufacturer put it, “We’re on this perfection treadmill. It gets worse every day. You have to hunt to find the dent in the peaches that we can’t use.” These dynamics contribute directly to the enormous volume of cosmetically imperfect “seconds” (or more technically, “unsized non-Grade A” products) that never make it into the hands of eaters.

Such “cosmetically challenged” produce generally meets one of several fates: it is left in the field unharvested, composted on the farm, driven to a landfill or sold as animal feed. In some cases, growers can sell it to a food processor for uses like apple cider or as ingredients for stir-fry mix, soups, baby food, or sauces. Compensation for growers who sell such

product as animal feed or on the spot-market to processors tends to be low, and such markets are not available to farmers of all sizes or in all parts of the country.

Regions like the West Coast have extensive processing infrastructure for a variety of crops. Growers there, particularly larger ones, are more likely to have the relationships and infrastructure that would allow them to sell product grown for the fresh market to processors when needed.

In the Midwest, Michigan has made concerted efforts to build bridges between growers and food processors who will purchase cosmetically imperfect seconds and surplus produce.<sup>31, 32</sup> But such opportunities do not exist for many small and mid-size farmers who grow for the fresh market in other parts of the Midwest. For such farmers, product that doesn’t meet grade largely goes to waste and, financially, is a total loss.

The consequences for farmers are grave. As AJ Bussan of University of Wisconsin Extension puts it, “Seconds are where the money is made. You cover your costs with your #1 product, but it’s the #2 that provide the profit potential. Innovative farmers who market their seconds are the most successful, but there are few opportunities here for farmers to get that product to market. Our farmers who grow for the fresh market would probably like to talk about it, but there isn’t much activity happening.”<sup>33</sup> Difficulty generating a return from their seconds is one of many factors that contribute to low profitability among America’s small and mid-size growers.



Fairview Farm. Photo courtesy of Minneapolis Public Schools.

Such crop losses not only affect the financial viability of growers, they also bring significant environmental impacts. Enormous quantities of water, fuel and agricultural chemicals are used to grow fruits and vegetables that are never eaten. In a study of broccoli produced in just one county in a state increasingly known for water scarcity (Monterey County, CA), it was estimated that 2.5 billion gallons of water were used to grow broccoli that never made it to market.<sup>34</sup>

Crops left in the field will return nutrients to the soil, but product that is harvested and then landfilled doesn’t. Instead, it racks up transportation costs and disposal fees, and landfilling leads to the emission of methane, a powerful greenhouse gas.

Meanwhile, buyers like schools that are likely to use produce in a cut form are paying for Grade A product even though cosmetic perfection, within certain parameters, is not always essential to overall quality, nutrition, taste or attractiveness of the finished menu item. Schools are thus paying for Grade A product when fresh, wholesome produce that doesn’t meet market standards for cosmetic reasons could potentially meet their needs – and offer significant cost savings.

Our market research shed considerable light on the potential benefits and likely challenges of connecting schools with cosmetically imperfect seconds. We return to that topic in Section 4 of this report.

### 3) FRUITS AND VEGETABLES IN PUBLIC SCHOOLS

In this section of the report, we delve into some of the broader trends and drivers that influence the use of fruits and vegetables in public schools. This is followed by an in-depth exploration of the supply chain pathways by which produce moves from farms to our nation's public school systems.

#### A) Key Drivers and Trends in K-12 Produce Use

##### School Meal Funding and Federal Meal Requirements

The National School Lunch Program (NSLP) is the main channel through which the federal government supports the provision of meals to K-12 students in the United States. At the local level, a School Food Authority (SFA) is the governing body responsible for the operation of these programs in each school district. (Note that throughout this report, we will be using the term SFA when referring to school districts.)



Photo Courtesy of Healthy Schools Campaign

The use of produce in schools is, at its root, driven by two critical underlying factors: the financing of school meals and federal regulation. We look at financing first. For school year (SY) 2013-14, SFAs can anticipate revenues of

roughly \$3.24 per lunch. While the numbers will vary somewhat given the SFA's circumstances, revenues per lunch are typically composed of the following elements:

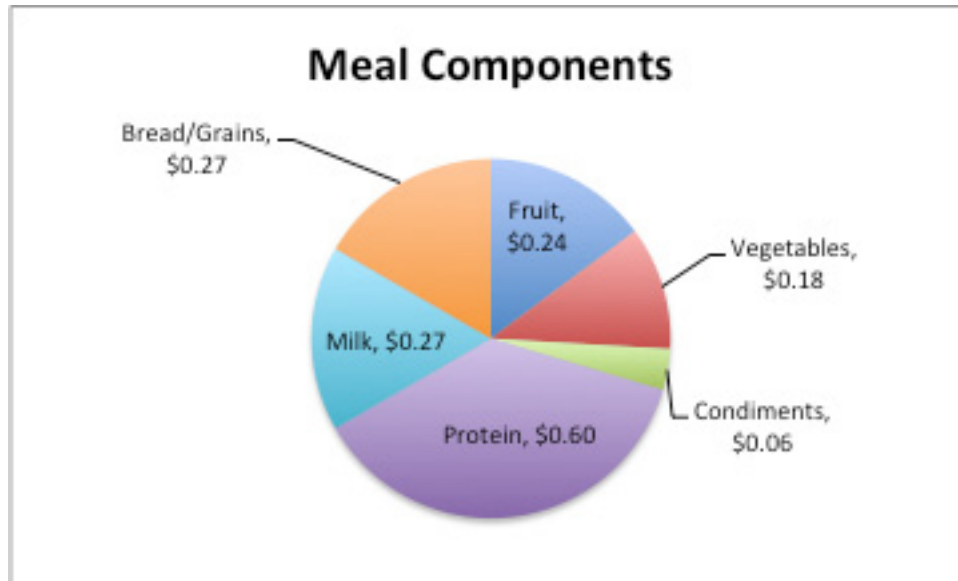
- **Federal per-lunch reimbursements:** For districts that have 60% or more students eligible for free and reduced priced lunches, the federal reimbursement rates for the 2013-14 school year are \$2.95 for free, \$2.55 for reduced price and \$0.30 per paid lunch.
- **Commodity entitlement:** During SY 2013-14, SFAs will receive an average of 23.25 cents per eligible lunch (with some variation by state).<sup>35</sup> Schools can use their commodity entitlement dollars to order a variety of items through USDA Foods.
- **HHFKA reimbursement:** Districts that have been certified as meeting the new standards under the Healthy Hunger Free Kids Act (HHFKA) are eligible for an additional six-cent reimbursement per meal. According to USDA, 80% of SFAs have been certified as meeting the new meal pattern and are receiving the 6 cents reimbursement as of September 2013.<sup>36</sup>
- **Student payments** for paid and reduced price lunches.

In some states, these components are supplemented by an additional state per-meal reimbursement. Some districts may also earn revenue from a la carte sales or other sources.

While it varies, SFAs typically allocate about 50% of their per-meal budget for food procurement (or roughly \$1.62 using the revenue streams described above), with approximately 41% covering labor, and about 9% going to supplies, indirect costs and other charges.<sup>37</sup> Of that \$1.62 in food value, schools would spend roughly

24 cents for fruit and 18 cents for vegetables per meal, on average. As shown below, the balance would be allocated across protein, grain and milk components of the meal:

**Figure 3: Relative Spending on Meal Components**



In SY 2009-10, total purchases for all foods in school nutrition programs (including breakfast programs) was valued at more than \$8.5 billion per year. Of this, fruits and vegetables (F&V) represented \$1.9 billion or 22%.<sup>38</sup>

From a regulatory standpoint, the HHFKA reflects the first major overhaul of school meal standards in decades. Beginning with the 2012-13 school year, federal requirements for fruits and vegetables increased substantially, both in

terms of the overall amount of produce to be offered and specific types that must be offered. Under HHFKA, schools will need to offer 1¼ to 2 cups of fruits and vegetables (combined) per lunch, up markedly from a total of 1/2 to 3/4 of a cup under the previous standards.

The table below compares HHFKA requirements to the standards that they replaced. Ranges are shown where serving sizes differ by students' grade level.

Food Groups	Previous Requirements	New Requirements under HHFKA
Fruits and Vegetables	½ - ¾ cup of fruits and vegetables combined per day	¾ - 1 cup vegetables ½ - 1 cup fruit per day
Vegetables	No specifications by vegetable subgroup	Weekly minimums for: <ul style="list-style-type: none"> <li>• Dark green vegetables</li> <li>• Red/orange vegetables</li> <li>• Legumes</li> </ul> Limits on starchy vegetables such as potatoes, corn, and peas

Source: USDA Food and Nutrition Service

In August 2013, USDA's Economic Research Service released a study that found that adherence to the new standards appears to be associated with positive impacts on student consumption patterns.<sup>39</sup> Researchers used 2005 data to determine which schools already met the 2012 standards for fruits and vegetables at that time and to investigate whether students who attended those schools ate more fruits and vegetables. ERS found that:

- Most schools in 2005 met the new weekly standards for total fruits and vegetables, suggesting that schools were closer to meeting most of the new standards than many analysts had expected.
- Students in schools that offered greater quantities of fruits and vegetables consumed more of these foods by most measures. Younger students, female students, black students, Hispanic students, and those from a Spanish-speaking home were all more likely to eat fruit and specific types of vegetables, particularly dark green and orange vegetables.
- Indicators of financial hardship or food insecurity were not significantly linked to higher levels of fruit and vegetable consumption, contrary to expectations.
- Students at schools that had no a la carte options or only healthy a la carte options had higher intakes of dark green vegetables.

### Growing Budgetary Challenges

While positive impacts on students are beginning to emerge, the changes associated with HHFKA are also creating significant budgetary challenges for many schools. Schools are also grappling with long-term price increases for produce (and other foods) as highlighted earlier, with fresh prices roughly



*Nutrition Center. Photo courtesy of Minneapolis Public Schools.*

tripling since the early 1980s and frozen prices doubling over that period. According to the School Nutrition Association (SNA), 54% of the respondents to their 2013 Back to School Trends Survey anticipate that the NSLP reimbursement rates will not be sufficient to cover the cost of producing a lunch in the coming school year.<sup>40</sup> SNA also found that:

- Nearly half of the responding districts indicated that their overall foodservice revenue declined during the 2012-13 school year as schools struggled to address declining lunch participation and rising costs.
- More than nine of every ten districts said that food costs increased in the 2012-13 school year.
- A significant majority reported that their non-food supply costs and labor costs increased as well.
- Nearly 90% anticipate that food costs will continue to rise next year.

These realities make the quest for ways to connect schools with affordable, high quality produce all the more timely.



## Usage Trends

When looking at the use of vegetables by SFAs nationwide, we find that volumes have been relatively constant in recent years. For instance, vegetable purchases (in all forms from all sources) increased only moderately from 890,000 pounds in SY 1996-97 to 942,000 pounds by SY 2009-10. By contrast, purchases of fruit have increased sharply from slightly under one million pounds to 1.5 million pounds over the same time period.<sup>41</sup> This is likely due in part to the expansion of school breakfast programs where fruits, such as bananas, oranges, apples and fruit juices, are more commonly featured than vegetables (other than potatoes).

The use of fresh, frozen and canned options also continues to evolve. Overall, we are seeing a trend toward greater use of fresh produce and a moderation of canned usage. While comprehensive national data is not available, purchase data from five FOCUS RLL districts shed light on usage patterns with fresh, frozen and canned options:

	2012-2013
Fresh	52%
Canned	28%
Frozen	18%
Dry	1%

A range of factors comes into play as food-service professionals mix and match the options available to them:

**Canned:** Canned produce offers a shelf-stable option that doesn't take up limited refrigerator and freezer space. Purchasing canned products also requires less detailed planning than more perishable options and can provide a safety net if perishable items are not on hand when needed.

In some districts, the process of opening cans can present worker safety concerns and increased labor costs (even with labor-saving can opening machines). The use of canned fruits and vegetables has also been impacted by concerns about perceived quality, and fiber content that is generally lower than frozen and fresh items. However, canned options with very low sodium and added sugars are increasingly available, and canned items like corn, green beans, applesauce, pears and peaches remain popular with students.

**Frozen:** Frozen products are gaining ground among K-12 schools as they are easy to prepare, typically have minimal additives, and have packaging that is easy to open and handle. Frozen products can be a helpful strategy for keeping fruits and vegetables on the tray after the fresh season has ended. Blended frozen products (that include several kinds of vegetables) are also an attractive option that add variety to menus with minimal added prep time.

The greatest challenge schools typically face with frozen products is the lack of financial resources to purchase freezers. Limited floor space within K-12 nutrition facilities to install freezer capacity is another key factor. In many districts, freezer space is even more limited than refrigeration space for fresh produce.

**Fresh:** As reflected in the chart above, fresh fruits and vegetables represent a significant portion of produce usage in the FOCUS RLL districts. Expanded use of salad bars and the HHFKA requirements for green and red/orange vegetables are spurring greater demand for fresh options like romaine lettuce and cherry tomatoes, in particular. Ongoing facility limitations and the need for greater staff training limit the ability of some districts to use fresh, whole produce.

### Regional Sourcing

Farm to School and related initiatives that stress local and regional food procurement are also a growing influence on produce sourcing. Fresh produce has been the bedrock of Farm to School programming, offering more transparent and geographically shorter supply chains, collaborative relationships with farmers and opportunities for student education and community engagement. Particularly for larger districts, opportunities to buy local produce through distributors and fresh-cut companies has been critical to their Farm to School programming.

By contrast, frozen and canned produce options that are a good fit for Farm to School programming have generally been very limited given long-running consolidation in the processing industry, limited supply chain transparency and other factors.



*Farmer Greg Reynolds and district staff. Photo courtesy of Hopkins (MN) Public Schools.*

In late 2013, USDA FNS released the results of first-ever national Farm to School Census. FNS found that:



*Photo courtesy of St. Paul Public Schools.*

- 43% of public school districts across the country are buying local food products (using each district’s own definition of “local”) and teaching children where their food comes from. Participating districts have nearly 39,000 schools and serve more than 21 million students.
- Another 13% of school districts surveyed are committed to launching a Farm to School program in the near future.
- Fruit and vegetables are the most widely used local foods.
- Farm to School participation is highest (i.e. with at least 51% of districts involved) in California, Washington, Minnesota, Wisconsin and Eastern seaboard states running from Florida through Maine.

In Minnesota, where Farm to School procurement has been documented in detail, it is estimated that about 3.5% of all fruit and vegetable purchases made by participating school districts are for fresh produce that is grown in Minnesota or western Wisconsin.<sup>42</sup>

The trend toward continued growth of Farm to School appears solid. According to “School Nutrition: Back to School Trends Survey 2013” from the School Nutrition Association, 33%

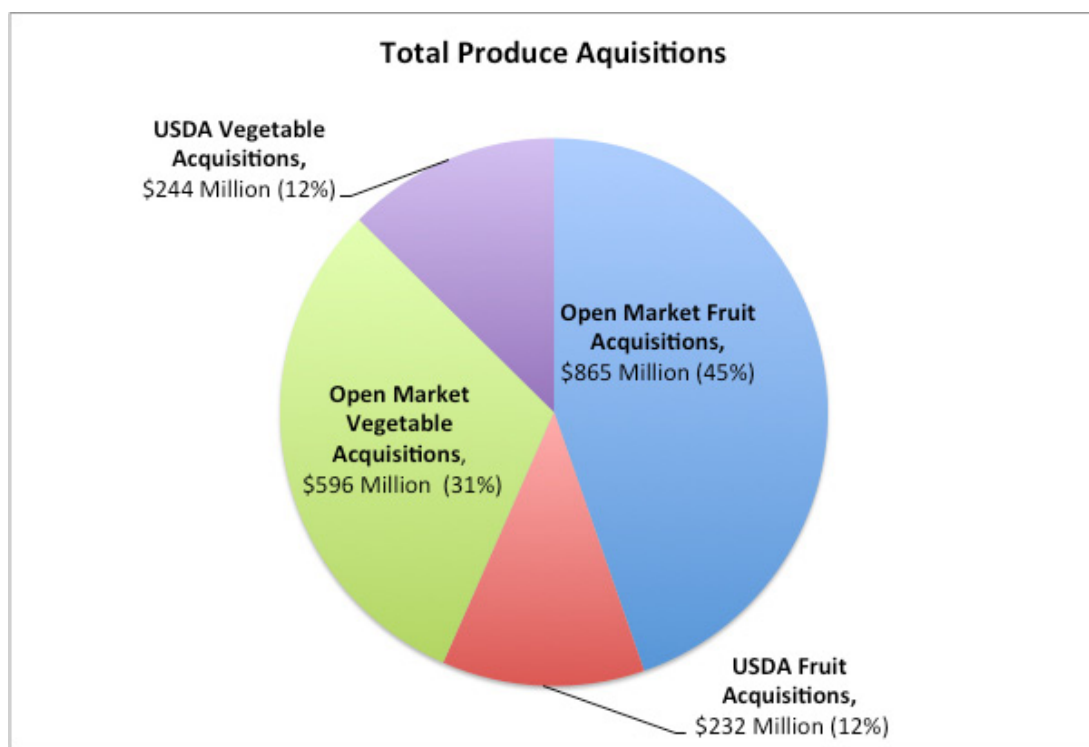
of the foodservice directors polled say they plan to increase the amount of local foods they use in School Year 2013-14, while 48% expect to use about the same amount as last year. Only 1% indicated an intention to purchase fewer locally grown foods. That said, locally grown foods remain a small portion of K-12 food procurement.

## B) Produce Sourcing and Supply Chain Pathways

In this section of the report, we turn our attention to the question of how produce moves from where it is grown to the trays of America’s school children. We trace the two main pathways: “open market” commercial channels and federal procurement programs.

Of all the foods used by SFAs, approximately 81% is purchased on the open market.<sup>43</sup> The remaining 19% is obtained through USDA programs (namely USDA Foods and the Department of Defense Fresh Program). The chart below highlights the significant role that open-market sourcing plays in the procurement of both fruits and vegetables.

**Figure 4: Total Produce Acquisitions (SY 2009-10)<sup>44</sup>**



- Of the fruit acquisitions by school districts in SY 2009-10, \$865 million were purchased on the open market and \$232 million were purchased through the USDA programs referenced above.
- Of the vegetable acquisitions by school districts in SY 2009-10, \$596 million were purchased on the open market while \$244 million was purchased through USDA programs.<sup>45</sup>

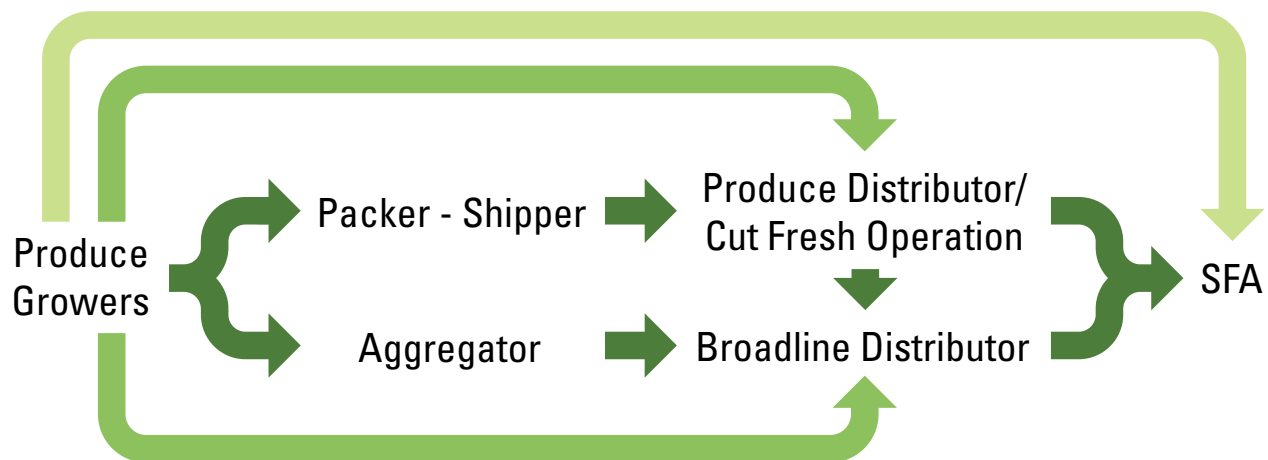
## i) Open Market Sourcing

Given that the vast majority of school foods are purchased on the open market, we turn our attention to the open market first.

### Fresh Produce

The schematic below depicts typical pathways by which fresh produce physically moves from where it is grown to the SFA where it is used. Readers should note that the supply chain schematics presented in this report are greatly simplified for purposes of illustration. In reality, many different permutations can occur. These depictions also focus on domestically grown produce (which USDA requires schools to use unless domestically grown options are unavailable).

## A) OPEN MARKET: FRESH PRODUCE



Starting to the left, the supply chain begins with the farms where fruits and vegetables are grown. Farms that sell into wholesale supply chains are typically mid-size or larger. (For reference, USDA considers mid-size growers to have gross annual farm revenues of \$350,000 or above.<sup>46</sup>) Once harvested, product is typically moved to a packing shed where it is sorted, washed and packed. (Cosmetically imperfect seconds that have been harvested are generally culled out in the packing shed and either returned to farm fields or landfilled.)

“Packer-shippers” are produce companies that contract with farm operators to grow products,

typically in larger volumes, to meet certain specifications. Some packer-shippers also grow produce on farms that they own. Nationally known examples include companies like Dole, Chiquita and Bolthouse Farms. Major packer-shippers commonly have year-long contracts with broadline and produce distributors that set the parameters for expected volumes and prices. Most fresh produce that moves through larger foodservice or retail channels in the United States is handled through such contracts.

In some cases (as shown with the dark green arrow in the lower part of the schematic), some other type of aggregation company will combine

the supply from numerous farms and prepare it to be moved further down the supply chain. The produce in larger supply chains is then delivered to distributors and other large customers across the country. Produce is primarily transported in refrigerated trucks, although rail transit is now experiencing a resurgence.<sup>47</sup> Produce grown in California typically spends about 5 days in transit to reach a distributor located in the Midwest. An additional 2 days is required to reach the East Coast.

In many cases, an SFA will purchase fresh produce from its broadline distributor, who purchases it directly from packer-shippers and/or from one or more produce distributors or other aggregator. In other cases, an SFA will purchase its produce directly from a produce distributor. (For instance, six of seven districts in the Regional Learning Lab purchase some or all of their fresh produce from produce distributors.) In addition to selling produce in whole form by the case, many distributors have “cut fresh” operations where they will wash and cut produce into slices, wedges and other forms prior to sale.

In some cases, brokers will be involved. Brokers don’t take ownership or possession of the product but can be called on by supply chain participants to facilitate the buying and selling of product.

Typically, an SFA will coordinate closely with their distributor(s) on issues of product availability, pricing and other terms. In these cases, districts typically don’t “see” up the supply chain beyond the distributor and may receive little information about where and how the produce was grown.

That said, highly visible food safety crises over the past five to ten years have spurred massive industry-led efforts to restore public confidence in the food system and led to newly expanded



*Making brown rice. Photo Courtesy of Minneapolis Public Schools.*

federal food safety standards. As a result of rising requirements about the “traceability” of produce, many distributors and allied businesses can trace produce now back to the farm and field of origin in the case of a food safety problem (for some, within 20 minutes of a product recall announcement).

*Traceability is important, but it does not necessarily meet buyers’ desires for transparency.*

However, in practical terms, rising traceability has not necessarily translated into greater transparency for institutional buyers about the farms where their produce is actually grown. The fact that a supplier can trace a product back to the place of origin does not generally mean that buyers receive clear information about the origins of the food as they are making procurement decisions. In short, traceability is not the same thing as transparency when looked at through the buyer’s eyes.

When fresh produce is purchased more regionally, the pathways from farm to fork will be different (as shown by the arrows at the top and bottom of Schematic A), with product flowing more directly from farms to distributors and/or directly to SFA.

Aggregators can play a variety of roles. These include providing a physical location where product from disparate farms is brought together and sorted, stored and packed. Others focus on marketing to prospective buyers, branding and/or delivery. Aggregators can also serve as a conduit for market information to flow between buyers and growers, enabling groups of growers to plan what and how much they grow in synch with the needs of specific markets.

In other cases (and particularly with mid-size farms that primarily sell on a wholesale basis), growers will sell directly to produce distributors or fresh-cut companies. These transactions are often rooted in informal, long-running relationships (sometimes spanning generations). Written contracts that would specify the price to be paid to the grower are more the exception than the norm (in contrast to purchases by distributors from national suppliers, which are often contracted well in advance).

The lack of contracts can leave local growers subject to wide swings in price and demand depending on market conditions at the time of harvest. In the worst case scenario, there is a glut of product from large suppliers at the time of local harvest, forcing prices down to rock-bottom levels and leaving local farmers unable to sell at a price above their cost of production. The lack of secure markets is a major operational and financial challenge for many small and mid-size farmers.

In other cases, particularly where districts are engaged in Farm to School efforts, growers will sell their produce directly to the SFA rather than moving it through a distributor or other aggregator. This approach enables closer relationships with farmers but takes K-12 staff time to arrange and generally involves uncut produce that needs more handling by foodservice staff.

Planning discussions with growers are generally an informal process, although some innovative districts have begun to contract with farmers to have them grow products specifically for their schools. This provides additional certainty for both the district and the growers about volumes, product specifications, prices, delivery dates and other terms.

### **The Fresh Fruit & Vegetable Program (FFVP):**

The federal FFVP was established in 2008 following a successful pilot begun in 2002. The program currently operates in all 50 states with funding of \$150 million in SY 2013-14.<sup>48</sup> FFVP aims to increase fruit and vegetable consumption among lower socio-economic students by providing free fresh F&V snacks during the school day outside of regular school meals.

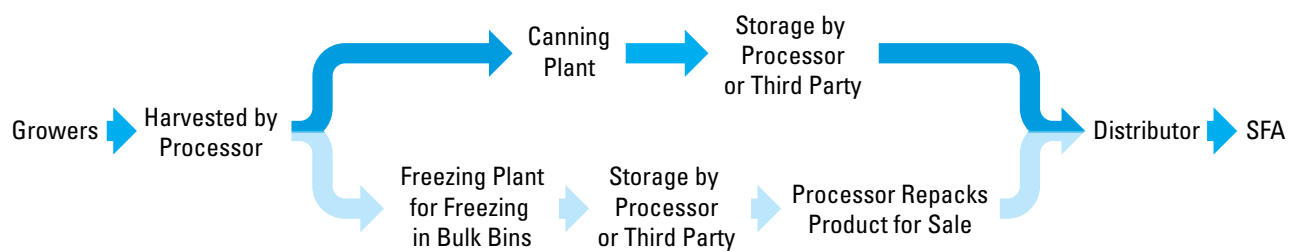
The program is limited to K-8 students in schools with free & reduced rates at or above 50%. Funds may only be used for purchases of fresh produce that will be served raw (such as carrot sticks or green pepper strips). Under the FFVP, procurement takes place through the various open market pathways depicted above.

FFVP has been instrumental in enabling participating SFAs to explore new produce items and introduce their students to a greater variety of fresh fruits and vegetables. By purchasing in greater volumes (e.g. by combining FFVP purchases with other purchases), some SFA have been able to obtain lower prices and incorporate these items more fully into their menus.<sup>49</sup> FFVP has also enabled some schools to buy locally grown produce, given the additional funding made available to the SFA through the program. Also, if a district chooses to purchase FFVP produce separately from their general produce procurement, the modest volumes typically involved do not require formal bidding.

## Frozen and Canned

We now turn our attention to the open market for frozen and canned produce. The schematic below depicts typical (if simplified) supply chain pathways for fruit and vegetables that are grown in the US for the canning market (shown at the top) or for freezing (on the bottom). The pathways shown focus on single item products or blends of various produce items grown domestically. (Other steps would be involved for multi-ingredient, manufactured foods and produce that is imported).

### B) OPEN MARKET: FROZEN & CANNED



The growing of fruits and vegetables for the processing market is generally conducted through contracts between processing companies and growers. Effectively, companies contract for a given number of acres of production. They will specify the seed varieties and growing practices to be used with the goal of maximizing product uniformity and yield. Planting schedules are carefully coordinated so that harvesting across a large number of farms is synchronized and the crop moves into and through processing plants with maximum efficiency.

Processing facilities are located in the heart of the growing region to minimize the time elapsed between harvest and processing. For instance, sweet peas grown in the Upper Midwest are typically processed within three hours of harvest. For corn and green beans, 8-12 hours is typical. Product is harvested by the processing company (not the grower) and is shipped to processing plants by the semi-truck load (weighing roughly 40,000 pounds each). Wisconsin and Minnesota are national leaders

in growing frozen and canned vegetables widely used in K-12 contexts, like corn, peas, green beans and carrots. Farms in the area that sell to processing companies commonly have 100 – 200 acres in production. Particularly on the West Coast, farms that grow for the processing market may be as large as several thousand acres.

Prices paid to growers are typically much lower than the per-pound prices received by farmers who grow for the fresh market. However, growing for the processing market enables farmers to produce large volumes under contracts that provide them with an assured market, a more predictable income and essentially no marketing costs.

Freezing companies will commonly freeze produce in bulk bins (e.g. 300 – 1500 pound units), store them until needed, and then re-pack the food into pack sizes that are needed by a particular customer (such as 20 pound bags for foodservice use or one-pound bags for retail).

Districts will usually buy their frozen and canned foods from their broadline distributor and generally do not “see” further back up the supply chain beyond the distributor. While codes on the packaging may enable large processors to trace product to the field of origin, buyers typically know little about where the product they received was actually grown. In some cases (for instance, where the broadliner sells the product under their own “house” label), even the identity of the processing company may be unclear to the buyer.



Harvesting peas. Photo courtesy of Wikimedia Commons.

## ii) Procurement Regulations for Open Market Purchases

### Competitive Bidding Requirements

School Food Authorities live in a world of complex regulations that set the parameters for their procurement activities. When SFAs purchase food on the open market, they must do so in compliance with a variety of federal, state and local regulations. Generally speaking, these regulations authorize two procurement methods – formal and informal – both of which steer them toward selection of the lowest price product.

Under federal law, the formal process is required when the total amount of the purchase is \$150,000 or more. State or local authorities may set the purchase threshold at a lower dollar amount, and the SFA must comply with whichever is more restrictive.

Given the scale of large district procurement activities as well as state and district level purchase thresholds, FOCUS RLL districts use the formal process for most purchases. The steps involved in formal procurement are to: (i) develop specifications, (ii) publicly announce the solicitation, (iii) evaluate the bidders, and (iv) award the bid with the lowest price.<sup>50</sup>

The steps involved in informal procurement include: (i) developing specifications, (ii) identifying and contacting at least three eligible sources of product, (iii) evaluating the sources, and (iv) awarding the bid with the lowest price. With either method, the SFA is obligated to choose the lowest cost bid. However, informal bids tend to be somewhat simpler for both SFAs and vendors because, for instance, quotes can be provided over the phone.

SFAs frequently use a Request for Proposal (RFP) process for produce procurement, which allows a district to select a produce distributor and their services. An RFP allows districts to include selection criteria in combination with price for the final award and can include an opportunity for a structured negotiation of the final contract award. The steps for an RFP are similar to the first three steps for the formal bid process and price is heavily weighted in an evaluation rubric.



### Procurement of Locally Grown Foods: Geographic Preference

Recent federal changes include provisions that encourage institutions operating Child Nutrition Programs to purchase minimally processed locally grown and raised agricultural products. Geographic preference<sup>51</sup> allows SFAs to give preference to products that meet the geographic criteria set by the SFA, enabling them to select products that may not be the lowest bid.<sup>52</sup> Key provisions include the following:

- SFAs can only apply geographic preference to unprocessed or minimally processed foods.<sup>53</sup>
- SFAs must follow federal, state and local procurement requirements when applying geographic preference, including regulations on the use of formal and informal bid processes. SFAs have the authority to define “local” when using geographic preference but may not do so in a way that impedes “full and open competition.”
- Procurement decisions using geographic preference must be based on the origin of the food itself, not on the location of the vendor (such as a distributor) from whom the food is purchased.

The top local products purchased by SFAs are apples, cucumbers, tomatoes, peppers, lettuce, pears, potatoes, watermelon, oranges, and peaches, according to the USDA.<sup>54</sup> While still a small portion of their total food procurement, the growth of the local food movement, clarification of geographic preference rules, and other factors have contributed to the rapid expansion of regional purchasing by K-12 schools across the country.



### USDA Foods

Nineteen percent of the food used by SFAs comes through USDA programs.<sup>55</sup> Of these, the USDA Foods commodity program is by far the largest. As discussed above, SFAs now receive a commodity entitlement averaging 23.25 cents per lunch, with which they can obtain a range of meat, dairy, fruit, vegetable and other commodities through the USDA Foods Program, including fresh produce through the DoD Fresh program.

A range of factors influence the scale and nature of commodity procurement through USDA Foods. For instance, as foodservice budgets have tightened, many districts have utilized their commodity entitlements more fully, contributing to rising overall demand for USDA commodities.

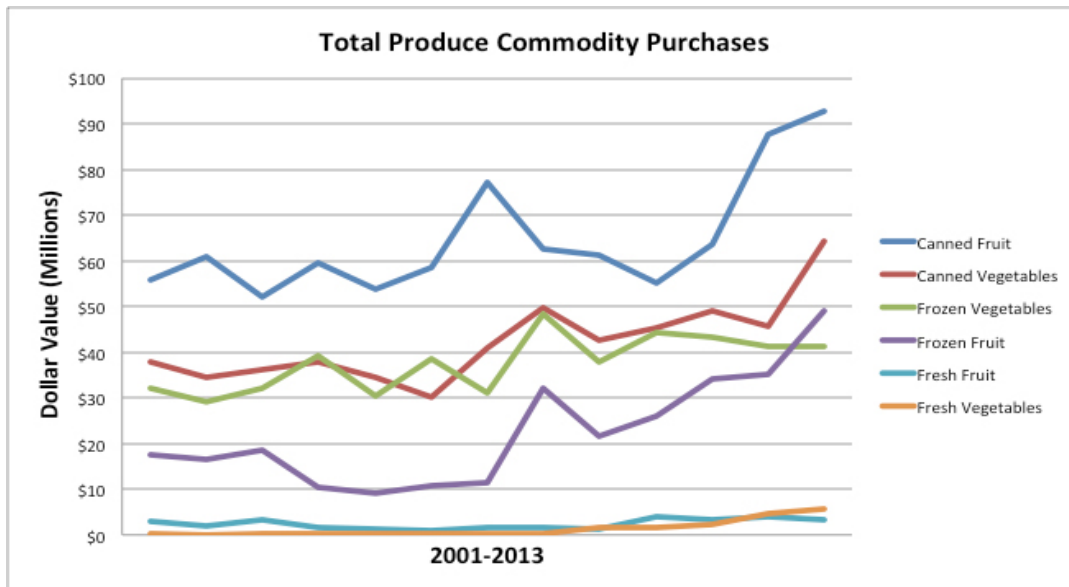
Further, SFAs will often consider price dynamics in the open market when determining which products to obtain with their commodity dollars. For instance, when prices for USDA beef shot up in recent years, some SFAs opted to buy those products on the open market in hopes of obtaining better prices, and steered their commodity dollars instead toward fruits, vegetables and other products.<sup>56</sup>

Fruits and vegetables account for about 24% of the commodities USDA purchases for school meals and other feeding programs.<sup>57</sup> The chart

## FRUITS AND VEGETABLES IN PUBLIC SCHOOLS

below shows the dollar value of USDA produce purchases since 2001 (in current dollars).<sup>58</sup> Of the fruit and vegetable commodity purchases by USDA during the 2012-13 school year, 61% were canned, 35% were frozen, and 4% were fresh.<sup>59</sup> The total dollar value of USDA Foods commodity entitlement purchases have risen sharply in recent years, up from \$166 million in SY 2009-10 to \$256 million in SY 2012-13.

**Figure 5: Fruit and Vegetable Commodity Purchases**



In particular, the value of canned fruit, canned vegetables and frozen fruit have risen sharply in recent years and frozen vegetables are also up. With the advent of HHFKA, USDA has made a particular effort to expand their offerings of lower sodium and no/low added-sugar canned products.

Fresh fruits and vegetables have expanded modestly, remaining a small portion of USDA Foods' offerings. However, USDA has significantly expanded the variety of frozen fruit and vegetables options made available to SFAs. Their frozen offerings for SY 2013-14 are shown below.

### USDA Foods Frozen F&V Offerings<sup>60</sup>

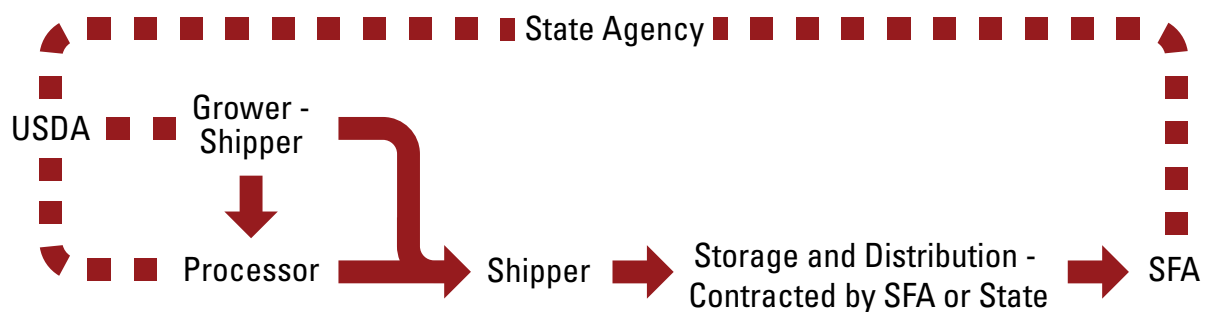
Frozen Vegetables	Frozen Fruits
Broccoli	Apple Slices
Carrots	Apricots
Corn (Cob and Kernel)	Blackberries
Green Beans	Blueberries (Cultivated and wild)
Peas	Cherries
Potatoes	Peaches
Sweet Potatoes	Raspberries
Spinach	Strawberries

Some of these frozen foods are also offered in a variety of cuts and pack sizes, and most are low in sodium and added sugar. In general, frozen options are perceived as being of good quality (with a more favorable perception than some canned options). Availability can be limited, however, as not all products are made available by all state distributing agencies. For instance, of the above items, six frozen fruit and vegetable commodity products are currently made available to SFAs in Iowa, 11 are available in Illinois, and 13 in Michigan. Potatoes, apples, and peaches are typically the highest volume frozen fruit and vegetable commodities.

### Supply Chain Pathways for USDA Foods

Below we explore the pathways by which fruits and vegetables in the USDA Foods Program flow from their place of origin to the SFAs that use them. While there are some distinctions among fresh, frozen, canned, dried and other forms of produce, the schematic below highlights the key steps along typical supply chains. The solid lines reflect the physical movement of food, while the dashed lines show key relationships.

## C) USDA FOODS: FRUITS AND VEGETABLES



Minimally processed fruit and vegetable commodities are purchased by USDA’s Agricultural Marketing Service (AMS) under purchasing contracts with growers and packer-shippers (in the case of whole, fresh produce) and with processors of various sorts (for pre-cut fresh, canned, frozen and dried products). AMS solicits bids for such contracts and chooses the lowest cost bid. Minimum quantities are by the full or quarter semi-truck load. The terms for price and quantity tend to steer commodity business to large suppliers.

The product is then shipped from the packer or processor to a storage facility in the state where it will be used. In some cases, the relevant State Agency will own a storage facility or contract with a third party to store the product. In other

instances, the SFA itself will arrange for storage and delivery to its location.

State agencies (typically state Departments of Education, Agriculture or similar institutions) play a variety of roles in implementation of the USDA Foods program. These include making USDA Foods available to SFAs in their state, aggregating SFAs’ product orders, and in some states arranging for the “diversion” of products for further processing (such as processing apples into applesauce).

SFAs will receive a notice from the State identifying the name of the processor and the transporter that will provide their order. However, these notifications do not identify where the product is actually grown.



Three grades of apples. Photo courtesy of H. Brooks & Company

**DoD Fresh:** The DoD Fresh program enables SFAs to use their USDA Foods entitlement to buy fresh produce. The program is operated by the Defense Logistics Agency at the Department of Defense. DoD Fresh began as an eight-state pilot program in 1994 and has grown rapidly in scale and popularity since that time, now operating in 46 states with a budget of \$100 million.<sup>61</sup> It is estimated that \$120 million will be spent on fruits and vegetables through DoD Fresh in SY 2013-14.<sup>62</sup>

There is no USDA limit at the SFA level for the amount of entitlement that can be used for DoD Fresh Purchases: a district could use 100% of its commodity entitlement to purchase produce through the DoD Fresh program if the SFA's state agency allows it. Although DoD Fresh is a government-run program, the movement of produce through DoD Fresh parallels the open market fresh produce pathway depicted earlier.

This concludes our exploration of “how fruits and vegetables get to school.” From here, we turn our attention to the findings of the market research conducted as part of this project.

## 4) MARKET RESEARCH AND INVESTMENT OPPORTUNITIES

### A) Innovation Priorities for the FOCUS Regional Learning Lab

In November 2012, FOCUS Regional Learning Lab members began exploring potential priorities for F&V procurement innovation. Their deliberations were rooted in the following aspirations:

- Expanding the use of minimally processed fruits and vegetables, namely fresh and frozen options.
- Using geographic preference to source from farms and other suppliers close to where the food would be eaten (typically 200 - 400 miles from the participating districts, depending on each district).
- Purchasing in ways that would provide economic benefit to nearby farmers and processors, and afford greater transparency back toward the farm level.
- Identifying strategies for reducing the cost of minimally processed produce while maintaining standards for quality and freshness.

By June 2013, this led to the identification of regionally grown fresh and frozen fruits and vegetables as priorities for procurement innovation. The Lab's member districts also clarified their interest in both Grade A product and potentially lower-cost cosmetically imperfect seconds (i.e. "unsized non-Grade A" produce). The latter is typically produce that is perfectly edible and of high quality but does not meet the prevailing market standards for size, shape, color or other cosmetic attributes.

To more fully assess the availability of regionally grown fresh and frozen produce, a Request for Information (RFI) was developed.<sup>63</sup> The RFI



*Photo Courtesy of Minneapolis Public Schools.*

specified priority products and the districts' volume needs. It was issued to packer-shippers, freezing companies, fresh-cut companies and distributors across the Upper Midwest region. The RFI proved instrumental for gathering detailed information about the responding companies, the farms they purchase from, on-farm environment and food safety practices, packaging, shipping and various other issues.

We received 11 completed responses and conducted follow-up interviews with each business. The respondents ranged from companies in business for 100+ years with several hundred million dollars in annual sales to "food hubs" like Growing Power in Milwaukee and Iowa Choice Harvest, a freezing company focused on Iowa-grown produce that is in its

first year of operation. We supplemented the RFI process with an extensive array of interviews with produce businesses in the Midwest and district foodservice staff.

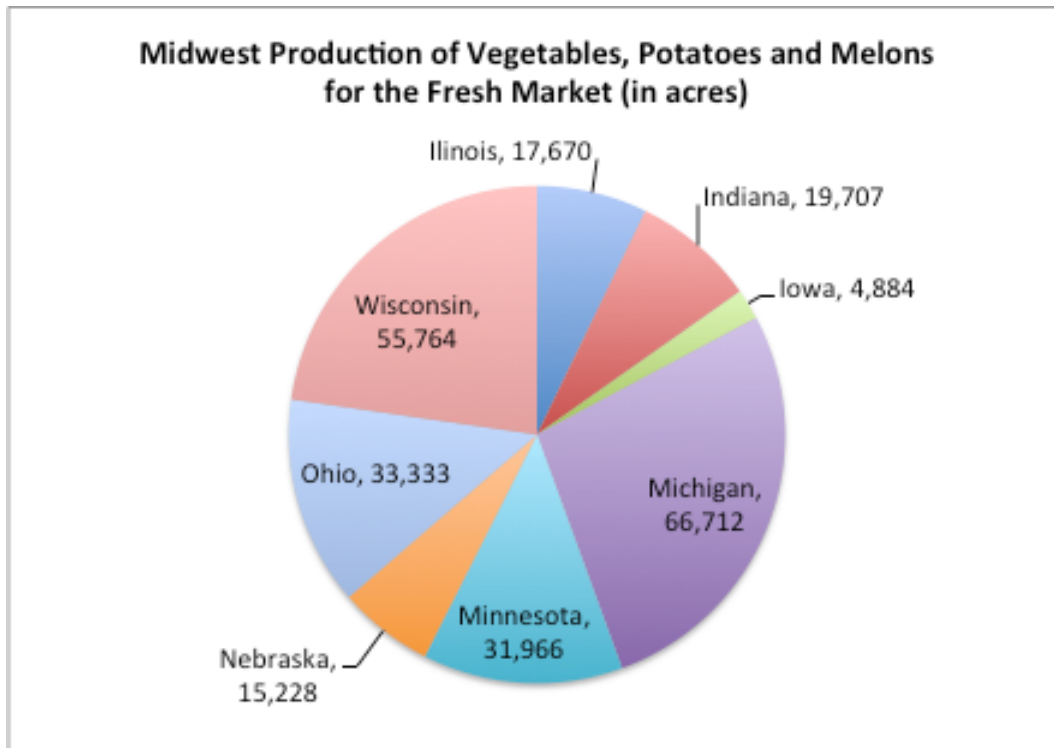
Before diving into the research results, we provide a brief recap of the fruits and vegetables that are grown in the Midwest as context for the market research itself.

## B) Produce Production and Processing in the Midwest

### F&V Grown for the Fresh Market

The Regional Learning Lab districts span a region encompassing eight states: Nebraska, Iowa, Minnesota, Wisconsin, Illinois, Indiana, Michigan and Ohio. The eight state region has nearly 250,000 acres on which vegetables and melons are grown for the fresh market. This represents just under 10% of the US fresh market acreage. As shown below, Michigan has the largest land base for fresh vegetable production among Midwest states, followed closely by Wisconsin.

**Figure 6: Midwest Fresh Melon, Potato and Vegetable Production<sup>64</sup>**



Given its vantage point on the east side of Lake Michigan, the state of Michigan also offers the second most diverse agriculture production region in the US. Unlike most other states in the region, Michigan grows significant quantities of fruits for both the fresh and processing markets. As shown below, Michigan ranks in the top ten US states for production of a variety of fruits.

While fresh fruit and vegetable production is more prevalent in some Midwest states than others, a variety of crops that are widely used in K-12 meal programs is grown throughout the region. This includes potatoes, sweet corn, winter squash, tomatoes, bell peppers, cucumbers, snap beans, melons and apples.

**National Rankings of Fruits Produced in the Midwest<sup>65</sup>**

	Michigan	Ohio	Wisconsin
Apples	7th		
Sweet Cherries	4th		
Tart Cherries	3rd		6th
Grapes	6th	9th	
Peaches	7th		
Pears	6th		

**F&V for Processing**

While fresh production in the Midwest is modest by national standards, the Midwest is a national leader for various vegetables grown for processing markets (including freezing and canning for both the foodservice and retail markets). As shown below, Michigan, Wisconsin and Minnesota are among the top states in the country for key processing vegetables such as corn, carrots, green peas, potatoes, and snap beans.

**National Rankings of Crops Harvested for Processing in the Midwest<sup>66</sup>**

	Illinois	Indiana	Iowa	Michigan	Minnesota	Nebreska	Ohio	Wisconsin
Asparagus*				1st				
Beets*								1st
Cabbage*				4th			3rd	2nd
Carrots								1st
Pickles		8th		1st			4th	5th
Green Lima Beans*	4th							3rd
Green Beans					2nd			3rd
Potatoes*				6th	4th			7th
Pumpkins*	1st							
Snap Beans	6th	8th		3rd	7th			1st
Squash*				1st				
Sweet Corn					1st			3rd
Tomatoes in the Open		2nd		4th			3rd	

*\*Due to limitations in available data, rankings for crops shown with an asterisk are based on the USDA 2007 Census of Agriculture data based on acres of production. Other rankings are based on 2012 data from the USDA National Agriculture Statistics Service Agricultural Statistics Database 2.0 and are based on pounds of production.*

In the Midwest, intense consolidation in recent decades has led to the dominance of a handful of national and international companies with major processing operations in the region (with processing plants concentrated in key growing regions in Michigan, Wisconsin and Minnesota). These include Gerber Foods, Welch's, Green Giant/General Mills, Birds Eye/Pinnacle Foods, Lakeside Foods, Del Monte, and Seneca Foods, among others.

Their products are marketed under national brands and distributed widely in the US and for some, overseas. While some frozen and canned products on Midwest grocery shelves may, in fact, have originated on farms in the region, this is not generally known to the end user. Michigan also has a cadre of mid-sized processors for fruits and vegetables, although mid-size processing operations are relatively rare in other Midwest states. A small number of "food hubs" are exploring produce processing on a much smaller scale.

### C) Findings

From here, we explore what we've learned through the RFI process and related research, taking fresh produce first and then examining dynamics related to frozen produce.

#### i) Fresh Produce – Grade A (a.k.a. "Firsts")

##### National and Global Supply Chains

Where Grade A "firsts" are concerned, we found that all of the RLL districts have a reliable, year-round supply of pre-cut fresh fruit and vegetables that are sourced primarily from national and global produce suppliers. Product

is typically purchased from distributors that can access product on a reliable basis from major growing regions in the United States and overseas.

Through these large suppliers, attributes like safe food handling protocols, industry-standard packaging, on-farm food safety protocols, liability insurance and temperature-controlled transportation from distributor to the delivery site are consistently in place. Such companies can provide a steady supply of most crops by mixing and matching product from various regions of the US and internationally (primarily Central and South America), and for some crops, with product that has been stored in temperature-controlled facilities.

As noted earlier, fresh produce prices have roughly tripled since the early 1980s. Frozen prices have roughly doubled in that time period. Nevertheless, these large-scale channels are likely to offer the most competitively priced sources available for nationally and globally grown product.

Transparency, however, back toward the farm of origin tends to be very limited. Produce purchased through these chains typically originates with packer-shippers (produce companies that grow and/or aggregate large quantities). The identity of the packer can typically be found on shipping boxes and on invoices, but deeper information about where that product was actually grown and by whom that is discernible to the buyer is not typically provided.

Coding systems used throughout the supply chain enable the businesses involved to trace product back to the farm (and often the field) of origin, but farm origins are not typically made known to buyers when purchasing through mainstream channels.



## Increasing Availability of Regionally Grown Produce

When it comes to produce that is grown within the 200 – 400 mile regional parameters chosen by the Learning Lab districts, the issue of product availability becomes more nuanced. Below we explore key factors that influence sourcing of regionally grown produce including agricultural production, product availability and transparency, pricing, and environmental sustainability.

### Regional Crop Production and Seasonality:

The availability of produce grown in the Midwest region is significantly influenced by growing conditions and seasonality issues in the area. Availability of local vegetables is strong from the summer through roughly mid-October when a wide array of local vegetables is typically being harvested. Into the winter, availability of field-grown crops narrows to products like root crops, kale and apples. In the spring, local field production is typically limited to specialty items like radishes and early greens.



Photo Courtesy of Minneapolis Public Schools.

A rising number of farmers are growing in “hoophouses” (structures for growing food in a more controlled atmosphere) that enable them to start producing earlier in the spring

and harvest later into the fall (and potentially over the winter in certain circumstances). Such “season-extended” produce is typically a higher-priced specialty product. As hoophouse production expands, prices may become more affordable for K-12 buyers, expanding the window for local sourcing.

**Product Availability and Transparency:** Our research showed the availability of regionally grown, pre-cut produce (and the transparency with which it moves through the food system) varies substantially across the region given the particular distributor involved. For instance, some distributors have moved aggressively over the past five or more years to expand their offerings of regionally grown produce and to make them more visible to clients. Some produce distributors have always purchased from local farmers but only began actively marketing local product as such when it became evident that demand for local was increasing.

Distributors will determine their own definition of “local.” This often includes a multi-state region and may be significantly broader than a given district’s definition. Some distributors have instituted systems (e.g. using Stock Keeping Units or SKUs) that distinguish between their local and non-local products. These systems generally enable buyers to identify and select local products through the distributor’s standard ordering system.

However, distributors don’t typically maintain SKUs specific to individual farms. Some districts informally ask their produce distributor to provide that information when needed.

At least six of the seven RLL districts are located in areas served by produce distributors with these capacities and are already purchasing at least some of their produce from such partners. In these cases, the districts typically have access to a wide array of locally grown pre-cut, fresh



*Photo courtesy of H. Brooks & Company*

vegetables in season, as well as apples and melons.

However, even with produce distributors that offer some local or regionally grown product, availability is not always universal. For instance, some distributors may rely on a third party to purchase and then cut the produce that the distributor offers to its foodservice clients. We have identified cases where the cutting company has equipment for instance, to dice carrots but not to make carrot coins or sticks.

In cases where a third party handles procurement, that extra layer in the supply chain can make it more challenging for districts to encourage purchasing from farms in their vicinity. The participation of a third-party cutting operation can also add more mileage

and elapsed time between farm and fork if the produce has to be shipped to and from several different locations.

In addition to distributors, “food hubs” – nascent businesses that aggregate, distribute and/or process locally grown produce – can be another potential source of supply. For instance, Growing Power, a respondent to the FOUCS RFI, is such an entity. Growing Power grows vegetables in Milwaukee and Chicago and sells them to an array of commercial accounts.

Food hubs that aggregate and distribute are more common than those that pre-cut fresh produce (in part due to the high cost of cutting facilities, food safety requirements and other challenges). As a result, many food hubs will handle only whole produce, sold by the case.

In other instances, aggregation hubs have their produce cut for them by a cut-fresh operation in their vicinity.

The pending Food Safety Modernization Act may have enormous consequences for food hubs and other businesses that handle produce. Now in the rule-making phase, the Act has the potential to add significant cost and complexity to functions like produce aggregation and processing.

Although they are growing in number, many areas in the Midwest currently lack hubs that could efficiently and cost-effectively link schools with local suppliers. In some cases, such hubs could potentially provide a link to product grown by New American farmers, women farmers, beginning farmers and other growers that are less likely to wholesale through the larger channels described above. Opportunities



*Photo courtesy of Wikimedia Commons*

and challenges associated with food hubs are discussed in greater length in Section 4 of this report.

**Pricing for Regionally Grown Produce:** Prices for fresh-cut produce shift on a daily basis and can swing widely given weather and supply dynamics around the nation and around the world. Prices tend to be dictated by short-term supply and demand dynamics and whether a locally grown crop had “a good season.” Given this volatility, it is difficult to make direct price comparisons between local and non-local produce.

Some resources suggest that local produce purchased in season through a distributor may be somewhat more expensive<sup>67,68</sup> while others suggest that prices for local Grade A produce can sometimes be lower than for non-local product.<sup>69</sup> While local or regionally grown produce may sometimes be higher in price, it can offer other types of “value” as a vehicle for community engagement, parent support, student education and support for local economies and farmers.

In some cases, districts may be able to negotiate lower prices by purchasing directly from farmers or larger produce companies, rather than purchasing through a distributor who will add their own mark-up to the price. Given the large scale of both fruit and vegetable production in Michigan, opportunities to purchase from produce companies (including those that can pre-cut or freeze) is likely to be greater in Michigan than other states in the region.

Purchasing directly from individual farms is challenging for large districts given the significant volumes they typically need. Such direct purchases are growing among smaller districts, although they typically require additional staff time to arrange and the ability to cut whole produce received from individual

farms. One notable exception is the Minneapolis Public Schools' Farm to School program which is seeking product from nearby small and New American farmers and having the product pre-cut by the district's fresh-cut operator.

**Environmental Sustainability:** In the Request for Information, we also solicited information about the environmental practices used in growing foods offered by responding businesses. This reflects not only concern about agriculture's broader impact on the environment, but also the potential for pesticide residues on fruits and vegetables. We found that:

- Conventionally grown produce is widely available and makes up the bulk of the available supply.
- The availability of Grade A certified organic is much more limited and pricing (which tends to be roughly double that of conventional produce) is often prohibitive in K-12 contexts.
- Many RFI respondents indicated that at least some of their growers use integrated pest management (IPM) techniques on their farms. IPM stresses reduced use of chemical pesticides, but allows growers to use such chemicals when needed. Unfortunately, there is currently no third-party verified set of standards that are widely used to document adherence to IPM principles.
- Other than certified organic, there are few third-party verified standards for environmentally sustainable production of F&V. As a result, it is challenging for buyers to easily distinguish on-farm practices related to environmental management and pesticide use, short of purchasing organic. The Food Alliance has a well-developed certification program (which also includes components like labor and wildlife habitat),

but it is not widely used in the Midwest.<sup>70</sup> Whole Foods Market has just released a new rating system for produce that addresses issues ranging from pesticide use, labor standards, climate change, pollinator protection and other attributes.<sup>71</sup>

In summary, with regard to Grade A fresh produce:

- Districts in the Regional Learning Lab have ready access to a national and globally sourced supply of product.
- Most can purchase pre-cut locally grown produce in season through a distributor in their region.
- Pricing for currently available regional product tends to be similar to or somewhat more expensive than non-regional product.
- Relatively little regionally grown product is available from New American, women and small farmers through existing wholesale channels.
- Transparency for locally grown product varies and often does not extend to the specific farm of origin without additional coordination with the distributor.
- Options for produce that have met verified sustainability practices are generally limited to certified organic product which can be price-prohibitive where Grade A "firsts" are concerned.

## ii) Fresh Produce – Cosmetically Imperfect Seconds

In the area of cosmetically imperfect (CI), fresh seconds, we found that:

- There is the potential for significant cost savings with CI seconds.
- CI seconds are not currently available through most existing supply chains that serve RLL districts.

That said, the K-12 sector has the potential not only to benefit from CI seconds, but to play a catalytic role in opening up the supply of this type of value-priced, high quality fresh produce. Below we flesh out potential benefits to schools, considerations for distributors and farmers, innovative models, priority F&V, and steps for moving this forward.

*“Schools could buy the majority of their produce as cosmetically imperfect seconds. We think the price to buyers of CI seconds will be 20% - 30% less than the price of Grade A, depending on volume.”*

– Midwest-based produce distributor that serves the K-12 market

### Value Creation

In terms of the potential value created for school districts, we see five main areas of potential benefit:

- **Cost savings:** While more research needs to be done and cost dynamics will be circumstance-specific, it appears that pre-cut, regionally grown CI seconds could yield savings in the neighborhood of 15% - 30% relative to alternate product, where available.<sup>72</sup>
- **Increased access to products that may otherwise be cost-prohibitive:** For instance, Grade A organic-certified is typically unaffordable for K-12 buyers, but regionally grown organic product could become a prime source of CI seconds.
- **Expanded student education:** The seconds that distributors could access are likely to be regionally or locally grown (as seconds are not typically shipped long distances). Greater use of regionally grown crops can enable schools to expand student awareness about healthy foods and local agriculture.
- **Support for local farmers and economies:** By broadening procurement to include CI seconds, K-12 buyers could expand their purchases from local growers and keep more of their food dollar circulating in the local economy.
- **Environmental benefits:** The purchase of CI seconds helps keep wasted produce out of landfills (where it emits the greenhouse gas methane) and avoids the use of water, fuel and agricultural chemicals to grow crops that are never eaten. CI seconds can also be an innovative component of K-12 waste reduction and environmental sustainability programs.

### Distribution

While our market research was not comprehensive, the results were informative: a minority of produce distributors we interviewed



Cafeteria signage for heirloom tomato seconds. Photo Courtesy of Minneapolis Public Schools.

was open to the idea of offering CI seconds. However, a few innovative distributors in the field did expressed an interest.

As one distributor that supplies K-12 accounts put it, “Our company has a long history in produce. We haven’t worked with seconds historically because our clients require upper-end product. But I feel that seconds need to be part of the equation for all of us in the industry. When I talk with farmers about developing markets for their seconds, every head in the audience begins to nod. Offering cosmetically imperfect seconds could provide significant returns to our growers while offering our foodservice customers new value-priced products.”

*“The idea of moving cosmetically imperfect seconds into foodservice channels is really outside the box. If the volume was there and pricing was there, some distributors would get on board. But they are so focused on USDA grading standards. There’s also confusion in the produce industry about what ‘seconds’ are – that it means product that isn’t fresh. We need to change those misconceptions.”*

– Produce distribution industry representative

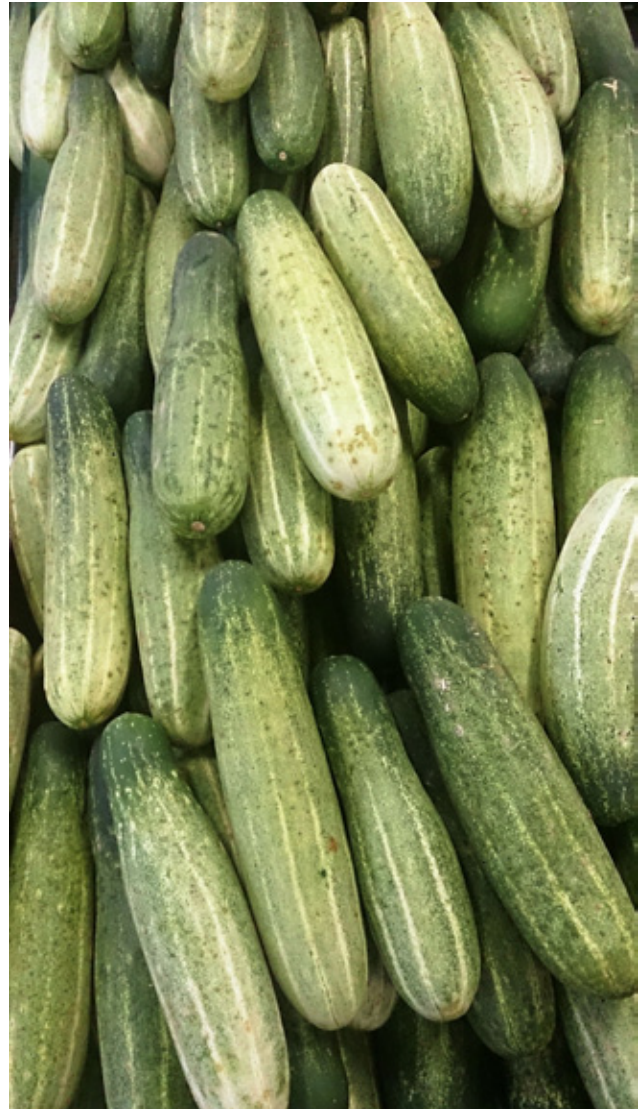
More commonly, distributors raised concerns about CI seconds. Understanding their concerns and finding ways to address them will be key for catalyzing distributors' participation.

- **Culture within the industry:** The culture of the produce industry is rooted in USDA grading standards that focus on cosmetic attributes like size, shape and color. Although USDA plays a role in establishing grade standards, they are largely driven by the produce industry itself.

As one distributor that serves an RLL school district noted, "Everybody in the distribution model is held hostage to the idea that if it's not cosmetically perfect, it won't work. During my 30 years in produce distribution for the retail market, I've never seen a #2 carrot come through our doors. The packers we buy from don't offer them to us and we don't ask for them."

As a result, product that falls outside USDA grading standards is often assumed to be unworkable within the industry. Some distributors will fear that carrying CI seconds could damage their reputation for quality. Commodity marketing boards can also be resistant to products they perceive as potentially putting their product's "brand" at risk.

- **Absent from the supply chain:** Typically, CI seconds are culled out during or after harvest and don't enter the chain of commerce that supplies most produce distributors. As a result, many distributors have limited experience purchasing or handling such product. (One common exception is misshapen "chopper" peppers that are widely used by companies that cut fresh produce.)



*Photo courtesy of Wikimedia Commons.*

- **Unpredictable supply:** The available supply of CI seconds is hard to predict and plan around. As one distributor put it, "It is true that the availability of seconds is quite variable. If there is a hot spell and the crop comes on strong, farmers will need to quickly harvest in volume. If it's cool, farms don't have that difficulty. In a given harvest there will be a variance of sizing, too large and too small for #1 sales, as well as excess volume in a glut market." As a result, offering CI seconds requires a certain nimbleness on the part of the distributor (and on the part of schools as well).

- **Unpredictable pricing:** Given uncertainty around supply, it is difficult for distributors to predict prices for CI seconds. As we learned through the RFI process, they are generally unable to provide price quotes in advance. This is quite different than for Grade A product where numerous suppliers were able and willing to provide specific price quotes for a wide range of products. This reality makes close coordination between schools and distributors all the more important.
- **Logistical concerns:** Offering seconds would require the use of limited warehouse space and additional “slots” for tracking product through the distributor’s operation. Misconceptions that CI seconds are not as fresh and wholesome as other products may raise concerns about food safety among distributors.
- **Processing equipment:** Based on input from fresh-cut operators participating in this research, it appears that CI seconds (within reasonable sizing parameters) don’t pose significant challenges when running the product through commonly used fresh-cut processing equipment. Nevertheless, the issue of compatibility with existing cutting equipment and processes bears more research as it is undoubtedly specific to particular companies, crops, equipment and the like.
- **Is the market viable?** As with any product introduction or change in business practice, distributors will want to know that there is a viable market for CI seconds that will make it worth their effort. Distributors that sell significant volumes into foodservice channels may see more opportunities than distributors focused on retail markets where most product is sold whole (rather than pre-cut) and retail standards for

product appearance predominate. Not surprisingly, distributors would also rather sell higher value Grade A product than a lower-price second. The potential to sell in greater volumes, keep the customer happy, or introduce a value-priced option to an array of customers may help offset these concerns.

- **Lack of clarity about terminology:** The expression “cosmetically imperfect seconds” is not a technical term with one clear definition. Although it is used informally in the produce industry, people have very different assumptions about what it means and can easily get at cross purposes about the type of product being discussed. The most common misconception is that CI produce is not fresh or is compromised in ways beyond its appearance.

The technical term that appears to be most appropriate is “unsized non-Grade A.” When communicating about CI seconds within and outside the produce industry, it will be important to very clearly re-enforce the idea that the types of products at issue are differentiated from Grade A only by cosmetic attributes.

### Through the Farmer’s Eyes

While a thorough assessment of farmer perspectives on CI seconds was beyond the scope of our research, we did gather some insight into farmer perceptions of this issue. Factors like having an assured market for CI seconds, receiving adequate prices, and the availability of on-farm labor are key.

- **Pricing:** For selling CI seconds to be attractive to growers, prices received from K-12 buyers will need to exceed the farmer’s cost in bringing the product to market. More specifically, the price will need to



exceed the variable costs farmers incur to harvest, sort, wash, package and transport the product by a large enough margin to be compelling to the farmer. These costs will vary by crop, harvesting method, labor costs, transportation costs and other factors.

For instance, with crops that are harvested mechanically (such as potatoes), the whole crop is typically harvested at once and then seconds are culled out in the packing shed. In this case, there would be few additional costs for harvesting seconds, but the grower would still incur the added costs of sorting, washing, packaging and transporting the product.

With hand-harvested crops (like zucchini, cucumbers and melons), having field workers make a second-pass through the field to harvest seconds is likely to be prohibitively expensive. Instead, workers could be trained to harvest CI seconds on their initial pass and keep the seconds segregated from the Grade A product.

- **Impact on farm financial returns:** The price received for seconds is unlikely to generate a net profit for growers (indeed, the price for Grade A product is precariously close to cost of production for many small and mid-size growers). However, selling seconds at a price point above the costs of harvesting, sorting, etc. could reduce the loss incurred by growers for growing product that otherwise would not sell. Generating some return for products that are otherwise 100% losses can be instrumental in supporting a farm's overall economic well-being. Collaborating with growers to identify the price points at which selling CI seconds makes compelling economic sense will be critical.



Photo courtesy of Wikimedia Commons.

*“The culinary world isn’t trained to think as FOCUS is thinking. What you are doing is so powerful because you’re thinking about the K-12 user all the way through the supply chain back to the farmer.”*

– Produce Distributor that serves the K-12 market

- **Market opportunities:** Selling CI seconds could be attractive to growers if it expands their markets and opens up new opportunities. It could potentially be disadvantageous if offering seconds means the grower loses the sale of higher-value Grade A product (i.e. seconds “cannibalize” the sale of Grade A product). That problem can be avoided in situations where, for instance:
  - a.) farmers do not currently sell Grade A product to a K-12 buyer or distributor that is interested in their seconds, or could expand their total sales by including CI seconds;
  - b.) farms offer a product like certified organic or greenhouse-grown that schools could not afford to buy as Grade A;
  - c.) schools might have been purchasing a lower-cost canned product because the cost of fresh Grade A is out of their budget; or
  - d.) the farmer has ample markets for their Grade A product but lacks markets for their CI seconds.
- **On-farm labor constraints:** An insufficient supply of trained farm labor is a major constraint for many farms, particularly at key junctures like harvest time. In some situations, farms may struggle to harvest even their Grade A product due to labor shortages.<sup>73</sup> If CI seconds are to make it to market, farmers will need to know that they have an assured market for the product at a workable price well in advance so that they can secure and pay for the needed labor.
- **On-farm storage facilities:** After harvest, crops are typically brought from the field to a packing shed on the farm and then may be held for some period of time before shipment. Particularly for crops that are held for long periods (like potatoes, carrots and onions), farms may not have adequate storage facilities to hold their seconds at proper temperature and humidity for extended periods. Grower decisions about expanding this type of infrastructure is, again, dependent on prospects for that type of investment to pay off in the form of product sales at attractive prices.
- **Season-extended product:** While we have focused primarily on field-grown crops (those grown in the open on farmland), it is possible that schools may be able to avail themselves of top quality seconds grown in greenhouses, hoopouses and other settings where crops can be grown for a larger portion of the year. While these “protected agriculture” settings provide a more controlled growing environment, most will still generate some volume of cosmetically imperfect product. Growers may welcome a foodservice market for their seconds given the potential to generate a return without compromising their brand at retail.

These dynamics will tend to be quite specific to individual farms and are important to be aware of when considering how this concept may be received by growers.

- **An assured market:** If farmers are to incur the cost of harvesting CI products that they would normally leave in the ground, they will need assurance that a buyer is firmly committed to purchasing the product. This means that solid commitments from K-12 buyers will be critical if seconds are to start moving through the supply chain in new ways.

- **Reaching enough volume:** Particularly because the supply of CI seconds tends to be unpredictable, it's possible that districts may need to tap into the seconds of multiple farms to obtain enough volume. Distributors and other aggregators can be critical in communicating with farms to identify sources of supply on a timely basis and ensure that product meets agreed specifications.
- **Data needs:** Hard data on the potential volumes of CI seconds are few and far between, primarily because many such losses occur on the farm and are not reported to outside parties. Also, little data is available that captures growers' perspectives, aspirations and concerns about expanding markets for seconds. As a result, it would be extremely helpful to conduct additional research to solicit growers' input and to engage in regionally based dialogue with growers, distributors and K-12 to further explore the potential for seconds to bring value-priced produce into schools while creating new opportunities for small and mid-size farmers.

### Leveraging Cosmetically Imperfect Seconds: Models of Innovation

Hands-on strategies for creating value from cosmetically imperfect produce are in their infancy. But emerging models for “eating lower on the beauty chain” (as the Los Angeles Food Policy Council<sup>74</sup> puts it) are showing promise. Two such examples from the Minneapolis Public Schools and the Portland (OR) Public Schools are highlighted below. Two additional models – from the emergency food system and the Women, Infants, and Children (WIC) retail grocery sector --- are provided in Appendix C.

Each model illustrates what is possible in re-purposing produce that does not meet prevailing market standards, while benefiting growers, local economies and eaters. These stories also reflect the critical nature of creative thinking and collaboration along the supply chain to find innovative ways to bring high quality, value-priced produce into the food system.

### Organic Butternut Squash<sup>75</sup>

In early 2013, the farmer cooperative Organic Valley approached Minneapolis Public Schools (MPS) with an opportunity and a question: Organic Valley had 2,800 pounds of local, organically grown butternut squash in their warehouse that was grown by farmers in Southwest Wisconsin. The squash had some scarring on their skins and couldn't be sold to retailers seeking visually perfect products.



Photo courtesy of Minneapolis Public Schools.

Given that MPS would have the squash peeled and cut, would the district be interested in buying the product?

MPS turned to Russ Davis Wholesale, a Twin Cities-based distributor that supplies MPS with whole and pre-cut fresh produce. MPS needed to receive the squash in pre-cut form so the participation of their fresh-cut partner was essential. Russ Davis and MPS identified several key issues:

- **Cost:** What would it cost to purchase the produce, have Organic Valley deliver it to the Twin Cities and have Russ Davis process it?
- **Food safety:** Were the necessary on-farm food safety practices in place so that Russ Davis could handle the product?
- **Timing:** How would the timing work? For example, if MPS wanted to put the squash on their menu on 9/11, Russ Davis needed to deliver it to the district by 9/9. Russ Davis then needed to receive the product by 9/6 at the latest, so a delivery date was set with Organic Valley by 9/4 to leave some leeway if there were any difficulties with the delivery.
- **Volumes:** How could they plan when the final volume of pre-cut product was uncertain? While the players knew that 2,800 pounds of whole squash would be received, the resulting amount of cut product was not certain. In response, Russ Davis agreed to provide additional squash if the yield was short and insufficient to MPS' needs. Alternatively, MPS would try to find additional uses for the squash if the yield was higher than anticipated or would donate the extra to Russ Davis if a good use didn't present itself.



*Photo courtesy of Minneapolis Public Schools.*

After these issues were resolved, MPS purchased the product from Organic Valley. The cost of processing the #2 squash was the same as it would have been for #1 product, and Russ Davis was paid their customary fees for processing and delivery to MPS.

This arrangement enabled the school district to purchase organically grown, local, top quality, pre-cut butternut squash. What's more, the price per pound for the pre-cut seconds – \$1.072 – was well below the \$1.298 that MPS would otherwise have paid for a conventionally grown product, resulting in a 17% cost savings for the district. By comparison, pre-cut Grade A organic product would have been out of reach, costing at least \$2.00 per pound. This innovation enabled MPS to introduce its students to a locally grown, fresh, organic product that would otherwise have been cost-prohibitive.

### Frozen Cherry Cobbler and Portland Public Schools<sup>76</sup>

A unique collaboration between a canning company, a food manufacturer and Portland Public Schools (PPS) provides an interesting window into how an off-sized produce item – one that was too small to meet prevailing standards – can create new options.

After earlier attempts to introduce PPS students to fresh cherries met with limited success, PPS Director of Nutrition Services Gitta Grether-Sweeney was looking for a new way to use local cherries. She turned to PPS supplier Truitt Family Foods to explore the alternatives. Based in Oregon, Truitt cans navy, pinto and other beans and until recently, also canned cherries, plums, pears and other produce grown in the Pacific Northwest. A local maker of frozen desserts, Willamette Valley Fruit (WVF), also joined as the conversation turned toward the idea of a frozen cobbler using Oregon-grown cherries.

When initial cost projections appeared untenable, Truitt suggested making the cobbler

with unusually small cherries. Truitt's cherries are hand-harvested, and all cherries on the tree are harvested simultaneously. The cherries are then sorted by size. Medium and large cherries find a ready market for fresh sales and canning. But smaller canned cherries can be tough to sell, and their price is often heavily discounted as a result.

Truitt pursued other cost saving strategies as well, like using small cherries in dented cans and shipping them to WVF without labels and in wrapped pallets rather than in pricier cases. That reduced packaging costs and, once the cherries reached Willamette Valley Fruit, saved Willamette the cost of removing and disposing of the cases before making the cherries into frozen cobbler. Because of Truitt's innovative use of "off grade" cherries, PPS was able to feature the cobbler as a Harvest of the Month item and at Thanksgiving.

As Truitt's Rod Friesen puts it, "The dialogue is the key. Gitta doesn't put a shield up between us and her. She lets us understand her business and that enables us to help find solutions together. As a supplier, if you don't have that access you can't begin to think creatively."



*Photo courtesy of Wikimedia Commons.*

## Priority Fruits and Vegetables for Use as CI Seconds

We also identified a variety of crops grown in the Midwest that are good candidates for use as cosmetically imperfect seconds. The most attractive produce items will have many of the following attributes:

- fruits and vegetables that are commonly used in school meals and that will be cut before being served;
- crops that are grown in significant quantities in the region relative to K-12 demand;
- crops that tend to yield significant quantities that are too large, too small, misshapen, etc. relative to USDA standards;
- crops whose CI seconds lack an attractive alternate market;
- items that are less perishable; and
- crops that are mechanically harvested and/or for which seconds can be harvested without significantly increasing growers' labor costs.

With these attributes in mind, the following produce items rise to the top as strong candidates for potential use of cosmetically imperfect seconds:

Apples	Peppers
Cabbage	Potatoes
Cantaloupe	Radishes
Carrots	Summer Squash
Cucumbers	Watermelon
Green Beans	Winter Squash
Onions	Zucchini

Certified organic suppliers may also be a compelling source of CI seconds as organic

seconds face very limited demand in grocery retail channels.

## Two Caveats about CI Seconds

In tandem with the potential benefits of CI seconds, there are two important caveats that need to be raised. First, it's important that such products not be perceived as schools using sub-par foods. Given limited public awareness of CI seconds and the inherent challenges of communicating clearly about school food in general, this is an issue that could easily be misunderstood.

Secondly, to the extent that CI seconds are now being utilized, most of the impetus is coming from stakeholders in the emergency food system. Examples include volunteer gleanings on farms, farmer donations to foodbanks, and a limited number of larger scale mechanisms that exist to move seconds into foodbanks and foodshelves (such as the California Association of Food Banks model described in the appendices). Given those efforts, K-12 interest in CI seconds could potentially be perceived as a threat.

However, school districts and foodbanks often serve the same base of low income children and share the goal of reducing hunger among underserved populations. The volume of untapped CI seconds also appears to be much larger than current usage. As a result, there appears to be significant room for both sectors to expand their involvement without "competing" for product.

School districts, which are able and accustomed to paying market rates for produce, are also likely to tap into a different, more commercially oriented market for seconds than emergency providers in the Midwest with extremely limited food procurement budgets. Joint efforts by the K-12 and emergency food sectors to expand access to CI seconds may help foster a spirit of collaboration and shared learning.

### Needs for Making This Work in K-12 Contexts

To move forward in pulling CI seconds through the supply chain and into K-12 kitchens, several things will be important:

- The K-12 community and allied organizations will need to catalyze this process. That will mean cultivating and committing demand for the product from K-12 districts and enlisting participation from growers and potentially allied businesses. Key businesses would include distributors and cut-fresh operators that serve the K-12 market. Some opportunities may exist as well with value-added processors that make sauces, salsa and other pre-made foods using regionally sourced produce.
- Close planning and coordination will be needed among K-12 catalysts, distributors/cut-fresh operators and farmers. To generate sufficient volumes, distribution partners (or food hub allies) may be needed to identify a cluster of farms that, collectively, can provide needed quantities. Given perishability of some crops, reliable logistical systems will be needed to move product from farm to buyer quickly. Unpredictability of supply will make nimbleness on the part of schools and distributors essential.
- Tapping into CI seconds may also involve adjustments to K-12 procurement and menuing practices. For instance,
  - a.) It is important that suppliers have an open channel for communicating with K-12 buyers when CI seconds are available. This will necessitate mechanisms for growers and distributors to promptly share opportunities with school procurement staff and for K-12 staff to make decisions quickly.

- b.) Appropriate quality controls should be built into product specifications. As with Grade A product, specifications should be very explicit as to the required freshness and cleanliness of the product. In some cases, cosmetic attributes are also associated with quality so it will be important to develop clear specifications that ensure product quality and performance. (For instance, the color of an apple can indicate its maturity and have implications for its taste.)
- c.) Schools may be able to use CI seconds more widely if they consider different forms of a given produce item (such as shredded or pureed) when developing menus.
- d.) Understandings with distribution partners should reflect the expectation that Grade A product will be provided should CI seconds not be available when needed.

### An Additional Possibility

In the course of our research another possibility for making certain types of fresh produce more affordable came to our attention. It involves growing larger varieties of crops such as cabbage, broccoli and cauliflower – varieties that exceed the product sizes typically demanded in the retail market.

Terry Nennich at University of Minnesota Extension put it this way, “Nobody will buy a 10-inch head of broccoli at retail. As a result, our growers all grow varieties that yield smaller heads. But those smaller varieties can have higher costs and lower yields per acre. It costs about the same to grow a 15-pound cabbage as a five-pound cabbage, and it gives you a much lower cost per pound. We could be growing produce that is both high quality and

much more affordable, but we don't." Larger varieties of crops such as broccoli, cauliflower and cabbage may offer lower average production costs per pound under some conditions. Further, the use of larger varieties may, in some cases, lead to reduced harvesting costs. Where crops are harvested by hand, harvest costs can account for up to half of the product's overall cost,<sup>77</sup> making it a key factor in the cost of finished product. It is possible that growing larger varieties may enable some growers to shift from hand-harvesting to mechanical harvesting, further reducing costs.

Lastly, deliberately growing larger varieties could avoid the unpredictability that comes with CI seconds (which are often influenced by weather). This could make it much easier to establish product volumes and prices, and for growers, schools and distributors to coordinate supply and demand. More research is needed to identify growing regions and crop varieties that may be most feasible from an agricultural stand-point and that could yield meaningful cost savings.



### iii) Frozen Produce

Now we turn our attention to supply chains for frozen produce.

We found that all of the RLL districts have a reliable, year-round supply of frozen F&V from large, mainstream freezing companies. Such companies offer a full array of products grown in the US and internationally at competitive pricing through existing channels, such as broadline distributors.

By contrast, access to regionally-identified frozen produce is limited. For instance, Wisconsin and Minnesota are national leaders for growing and freezing crops like sweet corn, green beans, peas and carrots. But processing capacity is concentrated among a small number of very large companies and their products are typically marketed under national brands without clear identification (for the buyer) of the region or state of origin.

While food processors will have traceability protocols in place, transparency for the buyer

back toward the farm is generally not available, even when the product was, in fact, grown in the region. Further, frozen produce purchased via broadline distributors is sometimes branded under the broadliner's house brand. In these cases, even the name of the processing company may not be readily apparent to the buyer.

We did identify a number of exceptions of note. First, Michigan grows a wide variety of crops and has a well-developed processing sector. Some product grown there is frozen in-state and can be identified fairly readily as Michigan-grown.

Second, Chicago Public Schools (CPS) and their former foodservice management company (Chartwells-Thompson Hospitality) catalyzed an initiative several years ago that makes regionally grown, frozen produce available to CPS students. The arrangement involves a co-pack relationship with Harvest Food Group (HFG), a leading national processor of frozen foods that is based near Chicago. HFG obtains produce from farms in Michigan, Illinois and Wisconsin and freezes it within 48 hours of harvest. The



*Cranberry production. Photo courtesy of St. Paul Public Schools.*

products are distributed via Testa Produce, a Chicago-based distributor, who now makes them available to all of their customers. For confidentiality reasons, the farms of origin are not disclosed, but HFG ensures that the product is sourced from within the 250-mile radius specified by CPS.

Third, SnoPac Foods is a multi-generation freezing company in Southeast Minnesota. They are one of a very small number of mid-size freezing companies that survived the consolidation of recent decades. Offering certified organic produce has been critical to SnoPac's success. SnoPac also has the capacity to do product runs from specific farms in the region. SnoPac offers a diverse line of regionally grown frozen vegetables and specialty items like cranberries.

Minneapolis Public Schools tested SnoPac organic sweet corn in late 2013, and Saint Paul featured SnoPac's cranberries this fall as well. Key factors for expanding purchases will include finding price points that work for the districts, placing orders that meet SnoPac's minimum delivery amount, and syncing purchases with the receipt of USDA Foods frozen commodities.

Lastly, we learned about Iowa Choice Harvest through our RFI. ICH is part of a very small but growing cadre of food hubs that aggregate and freeze regionally grown produce. ICH's mission is to aggregate produce grown in Iowa and sell it to Iowa buyers. After more than six years of development, ICH began processing Iowa-grown produce in fall 2013. They currently focus on freezing apples, corn and asparagus. Additional insights from ICH's Penny Brown Huber about the financing of their freezing operation are provided in the final section of this report.

The above types of businesses and initiatives are not great in number and not all K-12 markets in the Midwest are served by them. However, these types of enterprises could, with time, potentially provide K-12 buyers with frozen foods that are clearly region- or state-identified. Price challenges may be a factor with product that is certified organic or provided by smaller companies.

We also found that school districts may be challenged to shift toward more regional sources of frozen product as they have typically ordered frozen USDA Commodity Foods well in advance. This makes advance planning with new suppliers essential.

### Frozen Seconds

Conversations with various freezing companies yielded some helpful insights about the issue of CI "seconds" for freezing applications:

- When vegetable crops grown for processing are harvested, it is typical that fields are stripped of their whole crop (irrespective of quality or cosmetic attributes), loaded onto semi-trucks and delivered to the processing facility. From there, product that doesn't meet the processor's standards are culled out. It appears that most processing companies have markets in place for produce they can't use and that relatively little actually goes to waste. Common outlets include sale to prisons, customers based overseas, food manufacturers and as animal feed.
- In some cases, freezing companies already use lower qualities of produce, such as the "peeler grade" apples that are commonly used for applesauce or frozen applications where size and color are not critical.

Misshapen green beans are typically cut and used. Lower grade fruits are widely used for juices and jams.

- Another challenge is the “slotting” of product made with CI seconds in freezing companies’ warehouses. Keeping small volumes of a given product physically separate and tracking it separately comes with a cost that would eat into the savings that might be possible by freezing seconds.

However, there is a second tack to consider. Although the field is relatively new, there seems to be growing interest in food hubs that would freeze regionally grown produce. In turn, regionally oriented farmers who grow expressly for the fresh market may have an interest in freezing part of their production to diversify their markets, sell product that does not find a home in the fresh market or extend their income beyond the relatively brief harvest season for fresh product.

While the economics are challenging, food hubs that purchase and freeze locally grown product could potentially become a source of supply for buyers like K-12.<sup>78</sup> Such freezing operations (like Northern Girl in Maine, Mission Mountain Food Enterprise Center in Montana, and the Western Massachusetts Food Processing Center) are demonstrating how small businesses can freeze local produce for sale to K-12, university and other institutional markets.

These types of enterprises tend to be risky in their early stage of growth and may be challenged to provide needed volumes at workable prices. Nevertheless, they could be part of a broader sourcing strategy for districts that value the student education and community linkages that come with purchasing from community-based businesses in their area.

### D) Investment Opportunities

Efforts to improve K-12 access to produce run up against challenges at three broad levels in the food system:

- gaps in the infrastructure in the “middle of the chain” to aggregate, store, process, distribute and market that product;
- gaps in the supply of regionally grown produce at the farm level; and
- gaps in facilities, equipment and staff capacity at the K-12 level that inhibit greater use of minimally processed produce.

Below we highlight some key areas of potential investment that can help expand access to and use of fresh and frozen fruits and vegetables by large school districts in the Midwest, including regionally grown produce.

### Investing in the Middle of the Chain: Aggregation, Processing and Distribution

- **Fresh, cosmetically imperfect seconds:** The potential to connect K-12 schools with high quality, cosmetically imperfect seconds emerged from our supply chain research as a compelling possibility for making fresh produce more affordable. As discussed earlier, CI seconds are largely absent from mainstream chains that supply schools. Changing that reality will necessitate investments in further research, partnership building, and piloting to fully test the potential for CI seconds. The following types of investments would be particularly helpful:



*Photo courtesy of Eastern Market Corporation.*

- a.) Conduct more research with F&V growers in the Upper Midwest to better document their perspective and operating realities with regard to CI seconds, including the nature and scale of the supply of seconds, potential cost dynamics, labor and harvesting issues, storage and distribution needs, and potential benefits and concerns for farmers.
- b.) Conduct more targeted research into priority crops in given locales and potential volumes.
- c.) Educate and engage distributors and cut-fresh operators on issues such as procurement of CI seconds, processing equipment and facilities, specifications and pricing. This type of strategy could be pursued through cooperative agreements between K-12 districts, school nutrition catalysts and open-minded produce distributors.
- d.) Go deeper by supporting on-the-ground pilot efforts with K-12 procurement of seconds to test models, identify success factors, clarify supply dynamics, build pathways with distributors and test CI products in school settings. This could also be pursued through grants or cooperative agreements.
- e.) Support collaboration with emergency food system partners to research and pilot the use of CI seconds. As with the other investments above, this could be pursued at national, regional or state levels.

Investment strategies that support research and pilot projects in two or more regions of the country would be particularly helpful in clarifying the circumstances in which CI seconds can have the greatest benefit to schools.

## MARKET RESEARCH AND INVESTMENT OPPORTUNITIES

- **Food Hubs:** The existing, industrial-scale food system does a good job of providing large volumes of relatively low cost produce to schools across the country. But gaps remain that are not well-addressed by these enterprises, including:
  - a.) Coordinating between schools and local growers to encourage local production of crops for which schools have unmet demand.
  - b.) Aggregating Grade A and cosmetically imperfect seconds from smaller and more diverse farms for sale directly to schools or collaboratively through fresh-cut operators that can process and then distribute the product.
  - c.) Freezing regionally grown crops that are not currently available to schools through the existing frozen produce supply chain.
  - d.) Collaborating strategically with allied businesses in the existing food system to identify and address key bottlenecks and gaps at a regional level.
  - e.) Connecting schools with farm product that has been grown using more sustainable farm practices.
  - f.) Providing high levels of transparency about farms of origin.
  - g.) Advancing schools' educational efforts with children.
  - h.) Enabling schools to channel more of their food dollar to the local economy in a verifiable manner.



Preparing squash to be frozen. Photo courtesy of Mission Mountain Food Processing Center.

Various types of food hubs could be instrumental in addressing these supply chain gaps, albeit on relatively modest scales in the near term. Hubs can also be effective targets for program-related investments and will have different types of investment needs based on the business' focus. For instance:

- a.) Aggregation, storage and distribution hubs: Examples of investments at this level would include packing sheds, warehouses, inventory management systems, packaging and labeling systems, food safety compliance, and transportation capacity to bring products from farms of origin to a central location and/or to deliver it to customers.
- b.) Processing hubs: This would include pre-cutting fresh fruits and vegetables; freezing, canning and drying; and "value-added" strategies like processing vegetables into soups or sauces. Processing businesses typically involve significant capital investments in facilities and equipment for processing, labeling and packaging; storage; maintaining food safety and traceability systems; and transporting product down the chain toward the ultimate buyer.
- c.) Marketing hubs: Enterprises focused in either or both of the above two arenas will also need to market their product (or may work through a broker or allied business that plays this role on their behalf). In other cases, a marketing enterprise may focus exclusively on selling products grown or processed by other businesses. One area of rapid growth is found among food marketing businesses that link supply and demand through web-based portals.

Opportunities and challenges with food hubs are discussed more fully later in this section of the report.

- **Improving transparency:** Investments in collaboration among buyers, processors and distributors could potentially catalyze greater transparency about the origins of produce purchased by schools. Companies that see a strategic benefit to greater transparency are more likely to be open to tracking and communicating this type of information. Clearly voicing K-12 demand for greater transparency can help signal this interest.
- **Sustainability standards for F&V production:** For schools concerned about issues like pesticide residues on produce, the environment, and/or farm labor issues, the development of additional sustainability standards for fruits and vegetables could be useful. Such standards could potentially document and communicate farms' practices to buyers, backed up by third party verifications. Investments in expansion and adoption of models like the Food Alliance standards and the new standards developed by Whole Foods Market could be helpful in this regard.



Photo courtesy of Eastern Market Corporation.

### Supply-side Investments

Efforts to expand the supply of regionally grown produce and increase the efficiency with which it is grown and brought to market could be instrumental for K-12 buyers interested in regionally grown product. This would involve strategies aimed at retaining the Midwest's base of "Ag of the Middle" farmers, positioning interested smaller farms to expand to the point that they can effectively supply institutional markets, and diversifying product offerings to better address market demand.

- **Farm-level investments:** Helpful investments (in the form of PRI or grants administered by an intermediary based in the region) could include:
  - a.) Support for farms to strengthen their on-farm food safety systems and come into compliance with Good Agricultural Practices<sup>79</sup> and the federal Food Safety Modernization Act.<sup>80</sup> This could take the form of financial support for individual farms or groups of farms to make improvements, funding for food safety experts to train and mentor farmers, and development of additional on-line resources that can reach many farms at relatively low cost.
  - b.) Investments in hoophouses and other growing techniques that address seasonality limitations in the Midwest while diversifying farm income.
  - c.) Grants or loans for farms to make capital investments that enable them to better serve institutional markets such as improved harvesting equipment, post-harvest handling systems, and crop storage facilities.
  - d.) Investments that enable farms to purchase or obtain secure access to farmland.
  - e.) Resources that enable farms to band together in developing and sharing infrastructure such as aggregation and storage facilities, trucking capacity and marketing support.
- **Larger crop varieties:** Further research into larger varieties of crops such as broccoli, cauliflower and cabbage could lead to lowered costs of production. Support for this research could take the forms of grants to regional food experts and university extension staff to identify priority crops, collaborate with interested growers, conduct cropping trials, and identify impacts on growing and harvesting systems, product yields, cost dynamics and processing and distribution infrastructure needed to reach K-12 buyers. Investment could also support collaboration between farmers and K-12 customers to test the market for these types of products and assess potential pricing benefits to K-12 buyers.



*Photo courtesy of Wikimedia Commons.*

### Investing in Schools

As discussed earlier, schools face their own challenges in using minimally processed produce, even when such product is available in the supply chains that serve them. PRI may not be a good fit for public school districts given the complexities of public school finance and the limited ability that school nutrition departments would have to pay back loans. However, grants can be instrumental in expanding K-12 use of fresh and frozen produce when addressing needs such as:

- Facilities and equipment that better enable schools to refrigerate and freeze produce.
- Staff training on use of minimally processed produce and regional food systems.
- Development of recipes, menuing strategies and the like to support expanded use of fresh and frozen produce.
- Relationship building with the agricultural community, food businesses, and allied organizations in districts' vicinity to support stronger planning and closer coordination with suppliers of fresh and frozen produce.

More broadly, the importance of creative, skilled foodservice leaders cannot be understated. “Early adopters” in the K-12 foodservice profession are key for catalyzing new approaches and enabling others in the profession to learn from their pioneering efforts. Grant dollars could be very instrumental in bringing together leaders from that profession, school nutrition advocates and allied businesses to identify and prioritize mechanisms for cultivating more such leadership for the future.



*Photo courtesy of Healthy Schools Campaign.*



*Photo courtesy of St. Paul Public Schools.*



## E) A Spotlight on “Food Hubs”

Among the type of businesses that can potentially supply fruits and vegetables to school districts, nascent food enterprises are the most likely to be of a scale and tenure that is appropriate for PRIs. Such enterprises may be growing beyond grant funding (or have started without grant dollars) but, unlike larger and more established businesses, have difficulty tapping into commercial debt or significant outside sources of equity. They could be investment avenues for addressing supply chain gaps discussed above including:

- Aggregation, distribution and marketing of Grade A produce from small and mid-size farms to K-12.
- Channeling CI seconds from regional farms.
- Cutting or freezing of regionally grown produce.

- Creating new market and value-added opportunities for under-served farmers.

That said, it is important to keep in mind that such enterprises typically have modest sales volumes, will suffer their share of growing pains, and are likely to play a modest role in overall K-12 food procurement in the near and medium terms as they grow and become established.

However, these nascent enterprises are playing a growing role in connecting K-12 schools with fruits and vegetables, particularly those that are regionally grown. Growing enthusiasm for regional foods is amply reflected in the rapid growth of Farm to School across the country. And K-12 procurement of regionally grown foods can help lay the groundwork for hands-on student education in nutrition and healthy eating, cooking, gardening, agriculture and related arenas.



Photo courtesy of Southeast Minnesota Food Network.

To get started, we look below at some of the realities of nascent food enterprises that often lack access to capital and that could potentially be aided by PRIs. A recent survey by Michigan State University (MSU) and the Wallace Center at Winrock International illuminates a variety of trends and realities among so called “food hubs.”<sup>81</sup> Food hubs are businesses or organizations that aggregate, distribute and/or market source-identified food products. The MSU/Wallace survey gathered input from over 100 food hub managers around the US. They found that:

- Food hubs take many different forms including for-profits, cooperatives, publicly-owned entities and non-profit organizations.
- By far the most common products handled by responding food hubs are fresh produce and herbs.



*Vacuum-packing squash before freezing. Photo courtesy of Mission Mountain Food Processing Center.*

- The most common reported customer types for these businesses are restaurants, small grocery stores and K-12 schools.
- The most common themes identified in hubs’ mission statements were those related to “supporting farmers” (for 52% of responding hubs) and advancing “local foods” (49%). These were followed by “food access” (22%) and “local economy” (20%).
- In addition to providing food aggregation or distribution services, roughly 80% of the responding food hubs also provide marketing services to producers and actively help producers find new markets.

### Operations

- 62% of responding food hubs began operation within the last five years, 32% within the past two years.
- Median annual sales in 2012 among survey respondents was \$450,000, with a median number of three paid staff positions.
- Taken collectively, responding hubs’ operating expenses approximated their revenues (suggesting that many are operating at roughly their break-even point). In general, the survey found that food hubs that are cooperative in structure and those in operation for more than ten years were the mostly likely to be profitable.
- 67% of responding hubs indicated that all or most of their producers are either small or midsize.
- Three-quarters of the hubs preference producers who use organic practices or integrated pest management.

- 74% indicate that the majority of their customers are located within 100 miles.
- Over 95% of the responding food hubs are experiencing increased demand for their products and services.

### Financing

When launched, participating hubs' most common sources of capital were the founder's own capital, individual donations, in-kind support and foundation grants. In fact, each of these capital sources was used by 40% or more of the hubs that participated in the survey. By contrast, fewer than 15% of responding hubs had commercial loans or funding from private investors when their operation began.

In terms of ongoing sources of revenue, income from hub services and operations

represents the vast majority of revenue for most hubs: on average, income accounted for 86% of hubs' total revenue sources. Further, 51% of responding hubs indicated that they are currently "not at all dependent" on grant funding from public or private sources. Another 32% characterize themselves as "somewhat dependent" on grant funding and 17% indicated that they are "highly dependent" on grant resources.

Nonprofit food hubs are much more likely to be reliant on grants than hubs that are publicly-owned hubs, for-profits or cooperatives. Hubs focused on issues like "reshaping the food system" and "justice/equity," as well as those engaged in activities like providing paid employment opportunities to youth or accepting or matching SNAP benefits, are also more likely to be highly reliant on grant dollars.



Frozen storage. Photo courtesy of Mission Mountain Food Processing Center.

### Challenges

Food hubs continue to face an array of challenges, many of which parallel those experienced by new businesses in any fast growing sector. The most prevalent challenge (identified by 60% of responding hubs) was “managing growth” of their business. This was followed by “balancing supply and demand” (59%) and “access to capital” (28%). Hubs that identified capital access as a key challenge were typically for-profits or cooperatives.

Food hubs that anticipate additional growth were also asked about the barriers to growth that they face. Operational challenges – such as increasing staff, securing more product supply, and expanding trucking and warehouse capacity – were found to be top concerns. Each of these was identified as a significant barrier to growth by more than 40% of the responding hubs. Securing capital was identified as a key challenge by 33% of the respondents. PRIs could assist such enterprises in meeting the financing gaps they face.

## 5) PROGRAM-RELATED INVESTMENTS & ALLIED FINANCING STRATEGIES



*Photo courtesy of Healthy Schools Campaign.*

Program-related investments (PRIs) have the potential to play a uniquely valuable role in supporting smaller businesses that can help expand K-12 access to minimally processed produce. One aspect of playing that role to maximum effect is making good choices about “what” to invest in, as discussed above. The other part is “how” to go about it. It is the “how” that we explore in this final section of the report.

Following a discussion of key dynamics for funding effectively in the food enterprise space, the report closes with a series of recommendations for making PRIs and pursuing allied strategies.

### A) Gaps and Opportunities in Food Enterprise Finance

Interviews with a variety of food system finance experts and a review of key research materials yielded a fairly consistent set of perceptions about the current status, opportunities and challenges of using PRIs to advance food system development. Common themes include the following:

- The use of PRIs to advance food systems-related objectives like expanding healthy food access or rebuilding regional food systems is in its infancy. While some activity has taken place, this remains relatively uncharted territory.<sup>82</sup>
- That said, the level of interest among private foundations and related stakeholders in using PRIs to advance food-related objectives has reached a fever pitch in recent years.
- In general, sources of socially oriented capital for food systems are most developed on the East and West Coasts. Regions like the Midwest and South have typically seen less capital mobilization and fewer intermediaries channeling patient capital into food-related enterprises.
- While some PRIs have been made to advance food systems-related aims, most experts interviewed for this report had difficulty identifying particular impacts that PRIs have had to date on the food system.

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- A number expressed disappointment that PRIs have not become more widespread in the food world despite the extensive dialogue that is occurring among funders.
- In other sectors, many PRIs have often taken the form of real estate-based investments in low-income housing, grocery stores, and community health facilities.
- At the same time, there is broad agreement: scale-appropriate, flexible patient capital that can occupy the chasm among grants, commercial loans and venture capital is essential if regional food systems are to reach scale.
- A high level of risk with low returns for prospective investors.
- Intense competitive pressures on a playing field that is far from level. Many nascent food enterprises hold core values like paying fair wages, expanding food access among price-sensitive buyers, respecting the natural environment and building local economies. They run up against a dominant food system that is squarely aimed at maximizing economies of scale and maximizing returns that are measured almost exclusively in financial terms. The dominant system is often undergirded by subsidies of various types and entrenched policy supports that, de facto, create enormous barriers to participation by smaller players.

As Dorothy Suput of the Massachusetts-based Carrot Project expressed it, “To get to a tipping point where you don’t need non-profits to do the R&D to re-build the food system, you need higher risk capital. It is tough to impose existing finance systems on a developing system that sometimes has conflicting values; generating the highest returns are the goal for Wall Street but not in food systems development. You need money that is congruent with goals like building the food system and compensating farmers fairly. The farther the goal is from how the traditional capital system functions, the harder it is to find capital that fits.”

Among the barriers that have stymied the use of PRIs in this arena are, in brief:

- An insufficient pipeline of entities ready for outside capital.
- A business environment typified by slim margins, high risk, seasonality factors and limited infrastructure to support these businesses (such as scale-appropriate distribution systems and processing facilities).

- Conservative cultures within foundations when it comes to making “investments,” particularly at the investment committee level.

However, there is also a widespread perception that outside investment capital is, as one observer put it, “dammed up and ready to go.” Many financiers we spoke with also assert that foundations have a unique opportunity not only to creatively invest their own resources to advance mission-related aims but to use their unique status as charitable institutions to help unlock the flow of capital from more conventional sources.

With these opportunities and challenges in mind, we now explore a variety of issues and means by which PRIs and allied initiatives could advance business growth to improve K-12 access to minimally processed produce.

## 1. The Importance of Thinking Systemically and Collaboratively

Thinking systemically and acting collaboratively should be two hallmarks of PRI investing in the food space. While these approaches can be helpful for investing in any part of the economy, the unique realities of our food system make them particularly crucial in this sector.

As highlighted in the 2012 report by RSF Social Finance “Bridging the Gaps: Funding and Social Equity Across the Food System Supply Chain,” “coordination among food system stakeholders is critical in order to efficiently and effectively drive capital toward developing sustainable food systems. Currently, individuals, businesses, non-profits, governments, foundations and networks are all working on many of the same goals, often with little information sharing. Increased sharing of best practices, strategic planning, resources, enterprises being funded, and expertise would help regions achieve a better understanding of what work is being done in their food system, and create opportunities for collaboration and mentorship.”<sup>83</sup>

In this regard, a prominent attribute of PRIs – that they are typically used to channel capital into individual enterprises – is, in some respects, both a blessing and a curse. As USDA food hub expert Jim Barham put it, “The food hub issue took off in part because it was business-oriented and you were looking at something specific that you could invest in. People could understand an individual deal more than a ‘system’ that is hard to get your mind around. But we need to think systemically if we are to develop functional regional food systems. Fortunately, foundations are far more able than investors to think systemically about networking, research and development, values, and bringing players to the table that wouldn’t normally come together.

Thinking systemically is really hard and really important. Foundations bring something unique there.”

The creative tension between being deal-focused and approaching the work through a broader lens was also emphasized by John Rhoads, formerly with The Reinvestment Fund: “The financial intermediaries are definitely thinking about individual transactions and how to generate more deals – how to fill up your pipeline. That in itself can keep you fully occupied. But it’s such a complex world and food systems are complicated. Capital funds should have a broader understanding of the food system and how the pieces fit together.”

**Place-based approaches:** Another important attribute of food systems development is that it is inherently place-based in nature. As a result, it is important that investment strategies be rooted in a solid understanding of the unique conditions, gaps and possibilities that exist at regional and sub-regional levels.

For instance, Penny Brown Huber, the head of the new freezing company Iowa Choice Harvest, asserts that “Iowa’s culture around small food businesses is pretty unsupportive. The state government, most staff at universities and commercial lenders just think about corn and soy beans, not about growing and processing fruits and vegetables. Food processing knowledge is almost non-existent in the state anymore. Bankers don’t understand it. I can’t see an easy path for more fruit and vegetable processing to happen in Iowa without changing the level of food processing knowledge, and then developing financing models for these types of businesses.”

Ms. Huber goes on to say, “It is important to have regionally appropriate financing models because sometimes the translation between the East Coast and Midwest doesn’t really



*Photo courtesy of Healthy Schools Campaign.*

work. People think these regions are the same but they aren't. Agriculture conditions are different even between Iowa and Wisconsin and Minnesota. Iowa will be tougher at growing small produce processing businesses, and that often gets glossed over."

The many "food system assessments" conducted over the past five to ten years have helped document these differing realities in locales across the country. (A list of assessments relevant to the FOCUS RLL Midwest region is provided in Appendix D.)

These assessments have typically explored existing assets and infrastructure in a given area, highlighted food and agriculture-related aspirations from various perspectives, and begun to chart out key gaps and possible strategies for addressing them. However, it is

relatively rare that they have been backed up with the resources and institutional frameworks to then advance that vision in a systematic way.

One notable exception has taken place in Vermont. In 1995, the Vermont Legislature created the Vermont Sustainable Jobs Fund (VSJF) to develop Vermont's green economy. The VSJF provides grants, loans and technical assistance to build the state's local agricultural, renewable energy, sustainable forestry and green technology sectors.

In 2009, the VSJF was directed to develop a ten-year strategic plan to grow Vermont's local food system, known as the Farm to Plate Strategic Plan.<sup>84</sup> An extensive and collaborative process yielded a clear vision, goals and benchmarks. The VSJF and its public, private and philanthropic partners are now committing



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financial, technical and other resources for food systems infrastructure and related goals. VSJF’s technical assistance programs have become particularly well known for high quality, sustained assistance to entrepreneurs in the food and related sectors.

In recent years, there has also been a growing emphasis on regionally oriented (e.g. multi-state) strategies for food systems development. This reflects growing recognition that reaching an economically viable scale may take larger geographies for both product sourcing (for instance, by tapping into larger numbers of farm suppliers and product types) and for reaching target markets of a sufficient size.

**Fueling connectivity:** Given the systemic nature of food systems, fueling connectivity is key to impact. This can take many forms, such as prioritizing investments that will link multiple suppliers and multiple buyers or that address key bottlenecks that constrain multiple parts of a particular regional food system.

As USDA’s Jim Barham puts it, “USDA and other funders love to fund specific projects and cut the ribbon on facilities we finance. But we aren’t good at the value chain facilitation piece. It’s not only about building stuff. It’s about connecting the components of systems – buyer/producer meetings, building relationships between supply chain actors, fostering coordination among the players. That may not require an investment in anything other than people. But USDA programs aren’t set up to do that. Foundations can be great in supporting that kind of connectivity.”

### **Catalyzing innovation in existing infrastructure:**

This brings us to another important strategy. Rather than growing new food businesses, this approach focuses on leveraging existing infrastructure to achieve similar aims. Such approaches might involve PRIs, but also tools like contracts with businesses in the supply chain and collaborative agreements between catalysts like School Food FOCUS and supply chain partners. Such strategies are likely to be less capital intensive and less risky than



*Farmer Rae Rusnak. Photo courtesy of L&R Poultry and Produce.*

investments in early stage businesses, and could potentially achieve targeted impacts more quickly. And they can engage companies that already have the scale, quality control and pricing needed by K-12 buyers, particularly large districts like those in the RLL.

Tools like cooperative agreements could be particularly helpful for advancing issues that are still in the research and development stage and where participation from business allies is key. For instance, the development of supply chains and markets for cosmetically imperfect seconds will require collaboration between K-12 catalysts, distributors and farmers to identify and address key constraints, assess potential cost savings, and get distribution and procurement systems into place.

We will need allied businesses to collaborate in that endeavor, to share their expertise, and enable us to share our learning with others. We will need those businesses to stay at the table with us and invest time in the effort even though it may not have a tangible benefit to them in the near term. Cooperative agreements that support private/public partnerships to jointly pursue an agreed set of goals can be instrumental in fostering market-oriented research and piloting of supply chain innovations.

To be sure, food systems development on a scale that can meaningfully impact school food will require an artful blend of systems thinking, place-based food systems knowledge, and the ability to invest financial resources in ways that not only support individual enterprises but help weave together key infrastructure and knowledge gaps in the food system. That brings us to our next strategy for pursuing this work – investing through, and in, financial intermediaries.

## 2. The Merits of Investing Through – and in – Intermediaries

Particularly given the systemic nature of food systems work, interested funders would be well-served by partnering with mission-aligned financial intermediaries to design and implement food-related PRI efforts. Well-positioned intermediaries can also provide a critical link to entrepreneurs in search of patient capital. However, the connections between those seeking investment dollars and those looking for investment opportunities remain a work in progress.

As the Solidago Foundation’s Jeff Rosen put it, “On the one hand, potential investors are knocking at the window and saying, ‘Can I give you some money, can I give you some money?’ On the other hand, food entrepreneurs spend so much energy trying to find financing – years in many cases. It’s a tragic failure of philanthropy that we haven’t figured out how to create enough portals where someone with a business plan can come to figure out how to take their business concept to the next level. Part of that is grants. It is identifying what entrepreneurs’ needs are. It is the technical assistance to conduct feasibility studies. And it is the link to sources of capital that are appropriate to the unique needs of a given food enterprise. We need more of those portals – both to build the pipeline of deals and to link enterprises with the money. We need to be the super-glue that holds things together.”

While attention to food systems has grown among financial intermediaries (in part due to helpful efforts by the Opportunities Finance Network and others), many CDFIs are still in a learning phase and exploring whether and how food-related investments could fit into their work. As a result, it will be important not only

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for foundations to channel financing dollars through intermediaries, but to invest in the internal capacity of CDFIs, community loan funds and similar entities. Areas of focus should include:

- Building intermediaries' understanding of food systems and their regional food context in particular;
- Networking and relationship building among intermediaries and food-related stakeholders in their regions;
- Cultivating their capacity to provide financial resources and business development services that are appropriate to the emerging food enterprise sector and that help build the pipeline of financeable food enterprises;
- Creating opportunities for intermediaries to learn from one another; and
- Building intermediaries' outreach capacity and accessibility among food entrepreneurs.

Where the Midwest is concerned, linking with, and supporting development of, a cadre of mission-aligned intermediaries and funders will be particularly important. Such efforts should be informed by regional players through a strategy aimed at building the intermediary community, leveraging existing capacity, and addressing key gaps in financial services without replicating or competing with existing resources.

One promising effort in the Midwest is being catalyzed by Fresh Taste, a Chicago-based collaborative of nine funders.<sup>85</sup> Rooted in a commitment to sustainable agriculture and food systems, the group focuses on the "Chicago foodshed," roughly a 200-mile area surrounding Chicago. Fresh Taste has developed a learning community for these foundations to explore finance-related roles for philanthropy in the Midwest food system. The collaborative has made grants from its shared pool to support technical assistance for entrepreneurs in Wisconsin.

Fresh Taste also incubated the angel investor network Sustainable Local Food Investment



Cherry pitter. Photo courtesy of Mission Mountain Food Processing Center.

Group, which prioritizes food system investment in the Chicago foodshed. Fresh Taste is now extending this approach to the Upper Midwest.

Another effort worth noting in the region is the Michigan Food Hub Network.<sup>86</sup> With support from the Kresge Foundation, the network is supporting the advancement of food hubs in Michigan and coordinates with a state program that channels grant dollars to developing food hubs and other entrepreneurial food and agriculture businesses. Connecting with such a network could provide a helpful platform for deeper engagement by other foundations.

Strategic investments in key intermediaries and support networks could play a pivotal role in building critical infrastructure in the food finance arena. A partial list of CDFIs based in the Midwest is provided in Appendix E.

### 3. A Diversity of Financing Needs

#### Varying Capital Requirements

The amount and types of capital needed by growing food businesses will depend greatly on the type of enterprise involved and the way it structures its business. Many savvy food entrepreneurs prioritize strategies that keep their capital needs in check.

For instance, leasing trucks and facilities rather than owning them can reduce capital requirements. Partnering with a processing company that owns the facilities to cut or otherwise process produce (through relationships known as “co-packing”) can be an effective way for nascent processing businesses to reduce both operational risks and capital needs.

Another strategy for leveraging existing infrastructure is “cross-docking,” in which a product is received by a distributor and forwarded by them to a buyer without the entrepreneur needing to maintain their own warehouse facilities or distribution capacity. Web-based marketing businesses can often avoid some of the capital investments needed by businesses working in other parts of the chain.

However, such strategies are not always the most desirable route or may not be feasible. This is common in regions where needed infrastructure simply doesn’t exist or is inaccessible to suppliers below a certain size. In such cases, food enterprises operating in the middle of the chain may be quite capital intensive.

Rising industry standards for product traceability and food safety have also added significantly to the capital needs and ongoing operating costs of many food-related enterprises.

#### Stages of Development

In terms of the stage in a business’ development where PRIs may be most germane, many food finance experts see a key window with businesses in operation between roughly three and seven years. During that general timeframe, businesses typically need significant resources to fuel their growth. Initial capital provided by the entrepreneur, friends or family and resources that might have come from grant funding will often prove insufficient or not reliable enough to foster business expansion.

Broadly speaking, businesses in this “age range” may provide a sweet spot for PRI as the risk is likely to be lower than with brand new start-ups, and businesses that survive this period become more able to tap commercial financing. Philanthropic grant dollars will remain of critical importance for many earlier-stage

entrepreneurs seeking to launch new a business in the food arena and for building the pipeline of enterprises that are ready for outside capital.

### Types of Financing

Nascent food enterprises have widely ranging needs, making a diversity of financial instruments important to the overall equation.

As Janice St. Onge, Deputy Director of the VSJF and President of related VSJF Flexible Capital Fund, L3C, expresses it, “We need grants, traditional debt, high risk loans, equity, royalty (or revenue sharing) financing and convertible debt. Businesses have different financing needs at different stages of their growth, so there’s a role for all kinds of money – money that’s tailored to the particular business, their business model, circumstances and aspirations.”

As a result, PRI initiatives that are paired with other, complementary sources of patient capital can be particularly helpful. While a given funder doesn’t need to offer a full range of financial tools itself, working with and through others to offer multiple types of money in the “capital stack” can help catalyze a more robust strategy.

Indeed, RSF’s “Bridging the Gaps” report<sup>87</sup> zeroed in on this dynamic. RSF surveyed funders and asked what they needed “in order to increase their level of investing in sustainable food and agriculture.” The number one need, identified by 55% of the respondents, was the “ability to collaborate with other funders and to layer capital” (of varying types and sources). RSF asserts that, “By understanding the risk profile of each investor, deals can be created that allow for layered capital, enabling grants, PRIs, debt and equity to work together to grow businesses. This layering of capital can also address different return expectations and liquidity needs, enabling the funding of businesses with slim margins and large up-front costs.”

### A Shortage of Equity

At the root of many new businesses’ financing challenges is a shortage of equity. In turn, limited equity can make it more difficult to tap into other types of capital. Numerous factors are at play:

- Many nascent food businesses do not have the “J-shaped” growth curve and high rates of return that typical equity investors require. Few such enterprises are of interest to venture capital funds that may seek, for instance, to have their investment returned to them five- or seven-fold in as many years.
- Equity investors often prefer to invest in dollar amounts (e.g. \$2 - \$5 million) that are too large given the circumstances of food businesses in earlier stages of development.
- Investments by outside equity investors often lead to losses of management control that are unattractive to existing business owners.
- Equity investors typically want an “exit strategy” for pulling their investment out of the business at some future date. This may be incompatible with the goal of keeping ownership in the community long-term and be unattractive to entrepreneurs who don’t want to sell.

### Royalty Financing

One alternative receiving increasing attention in the food world is royalty financing. With royalty financing, a business receives an equity investment. But unlike other types of equity stakes, the capital is returned through payments representing a percentage of the business’s revenues over an agreed period of time.



*Photo courtesy of Eastern Market Corporation.*

As such, royalty financing can provide a source of equity without dilution of ownership or eventual sale of the business. It can also provide the recipient with greater flexibility as payments are tied to the level of business being conducted, unlike traditional debt involving a fixed monthly loan repayment.

While the investment dollars are still at risk, royalty financing mechanisms can be closer to the comfort zone of foundations that are less accustomed to other types of equity investment.

As John Rhoads puts it, “I would love to see royalty financing used more. It’s not the right fit for all businesses as you need to have high enough margins and a reasonably reliable revenue stream in place. That said, it can be a good fit for a business with \$1-2 million in revenue that wants to be a \$6 million business. It doesn’t require the expected higher growth rates that traditional equity capital requires.”

Janice St. Onge goes on to say, “Royalty financing provides a choice for growing businesses that don’t want to give up ownership or decision making in their business – the way that venture capital and other forms of outside equity may require. Royalty financing isn’t new but it has not been widely used because we tend to think in silos of either equity or traditional debt – maybe a loan that is long-term with a low interest rate but still a traditional loan. Royalty financing doesn’t require collateral like a bank, so it can often encourage a bank to lend against assets that can be collateralized and play the role of bringing more patient equity-like capital at the table.”

(Note that the New Hampshire Community Loan Fund has made a great contribution to the development of royalty financing. While their work has largely focused in sectors other than food, the Fund’s work is an important source of additional lessons learned for readers wishing to explore royalty financing more deeply.<sup>88</sup>)

### Guarantees of Loans and Loan Pools

Loan guarantees are another arena where philanthropic dollars can make a big difference. Guarantees provide an assurance that a loan will be repaid (in full or in part) if the borrower fails to repay. This type of credit enhancement can be particularly helpful when applied to riskier transactions like subordinated debt. And while various federal guarantee programs exist, they tend to be limited in scope (e.g., to rural settings, farm-based businesses, businesses of a certain size, etc.), leaving a significant gap where many types of food enterprises are concerned.

Guarantees can help “de-risk” other investments, making lending in the food arena more palatable to other lenders and to financial intermediaries. “CDFIs can’t just throw their money away. They still have to play by certain rules about how they invest,” asserts Solidago’s Jeff Rosen. “It is hard to be a creative lender and not get burned. Philanthropy has a role to play in collaborating with CDFIs so that they can do things that aren’t incredibly risky for them.”

Loan guarantees have often been applied to individual businesses, making them potentially quite labor intensive (and dependent on the performance of a single enterprise). A higher-leverage strategy might be providing guarantees for larger pools of diversified, professionally managed loans. Such approaches may, in turn, have the potential to unlock much larger sources of capital. Loan loss reserve strategies could offer similar benefits.

It is important to keep in mind that guarantees involve risk and that losses should be anticipated. As Michael Shuman puts it, “People pretend that they know what the returns are for providing guarantees and they talk with great confidence about the risk level associated

with a given deal. But they almost never really know. You can get some good multipliers with guarantees, but you need to be clear about the risks and rewards – and how much uncertainty there is surrounding these assessments.”

### 4. Technical Assistance

*“Loan funds too often assume that TA providers exist, are effective and will do the work for free.”*

– Michael Shuman, Cutting Edge Capital



Packing gravy in bulk bags. Photo courtesy of Minneapolis Public Schools.

Reflected throughout the commentary above is the widespread perception that there is more capital available than there are food businesses ready to use it. Building the pipeline of capital-ready deals is thus essential for bringing the supply and demand for dollars into alignment and breaking the logjam that now exists. Technical assistance (TA) aimed at building the pipeline will be key.

TA for nascent businesses is critical for other reasons as well. For instance, entrepreneurs may approach a loan fund seeking financing but have other needs that could go unrecognized and unaddressed if the conversation does not extend beyond financing. Ongoing mentoring and support are also widely viewed as having a direct, positive impact on business viability, particularly during the early years when failure rates are highest.

TA needs run the gamut from feasibility studies and business plans to product research and development; human resources advice; engineering support for equipment and facilities planning, food safety and quality control; marketing and brand management; assistance in navigating particular market niches; and accounting and financial management, to name a few. Over time, mentoring by experienced business leaders and peer support networks can be very valuable.

However, there are a number of key barriers to technical assistance in the emerging food space:

- The narrow margins on investments in this arena are rarely sufficient to fund technical assistance by financial intermediaries.
- Outside dollars, such as grants or contracts, to provide TA functions are often limited or short-term.
- Effectively advising food entrepreneurs requires specific types of expertise. Cultivating and sustaining that experience is difficult when funding is unreliable.
- Tailored, sustained engagement with entrepreneurs is widely perceived as more effective than more limited, generic approaches. Higher-touch TA methods are generally viewed as more effective in positioning businesses for success and mitigating risks to investors.

Philanthropic support for technical assistance functions can be a great contribution to this field. Support for TA services should also be paired with mechanisms for tracking the effectiveness of TA services and their impact on entrepreneurs and their investors. Entities like Coastal Enterprises, The Carrot Project, New Hampshire Community Loan Fund, the Vermont Sustainable Jobs Fund, and Wholesome Wave provide strong TA models for best practices and potential replication.

### 5. Re-thinking Risk and Returns

*“The cost of people eating a poor diet is not reflected in lenders’ risk analysis and loan pricing.”*

– David Krueger, formerly with AgStar Financial Services

Working through PRIs can pose some unique challenges for foundations, particularly in high risk sectors like the emerging food arena. Many stakeholders reflected on the internal tensions that foundations face when trying to use PRI dollars such as:

- Concerns that PRI may violate prudent investment requirements by the IRS.



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- Different mandates and measures of success for program staff, foundation finance staff and members of investment committees.
- The legitimate difficulty of “wrapping one’s head” around multiple types of benefit, particularly for finance staff who don’t typically live in the world of social impact.
- The “high hurdle” posed by organizational cultures that prioritize evidence-based strategies when applied to sectors where documented impacts are just beginning to emerge.
- Limited engagement by finance staff and investment committee members in fora such as the PRI deliberations of the Sustainable Agriculture & Food Systems Funders and the Opportunities Finance Network.
- The need to pass muster with foundation investment managers who are typically charged with minimizing risk and maximizing returns. As one stakeholder put it, “If they are using traditional portfolio theory, which nearly all of them do, they will always steer you away from innovation and risk.”

By contrast, use of PRIs in the food sector is likely to involve significant risk and uncertainty. In their “Bridging the Gaps” report RSF points out that, “Particulars like seasonality and weather dependency, and balancing fair prices and wages with tight margins are often difficult to reconcile with traditional market-based funding options... These issues come up particularly in regard to innovative business in regional food supply chains (processing, aggregation, distribution), which are less understood by traditional lenders and often have unconventional needs. Additionally, sustainable food system businesses have different goals around growth and scale

(sometimes they do not want either), and funders need an understanding of how these influence financing.”

Indeed, many foundations that are interested in the food arena will need to adjust their perceptions and expectations of risk and return if they are going to engage in the food space in a more meaningful way. The tempering of financial expectations and elevation of social benefits will be a part of that shift for many.

As the Wallace Center’s John Fisk put it, “I’m not sure if many food hubs will ever be good investments when looked at using Wall Street’s metrics because part of what they deliver is social good. And it’s the social good that makes them worth it. Given the playing field we have where large businesses can externalize their impacts, can socially minded businesses compete? Where is social benefit recognized and valued? If anybody can, foundations should be able to incorporate that into their investments.”

Investments in nascent food enterprises are likely to yield a blended return, which as Michael Shuman notes, “will be modest in financial terms and include various social benefits. Foundations need to look beyond the percentage rate of financial returns and focus more on the social benefits. That takes a different mindset and I don’t see many foundations really prepared to do that yet.”

Doing so will necessitate social metrics that are appropriate to food-oriented investments and mechanisms for accounting for those benefits (as well as financial returns) over time. As Tim Crosby with Slow Money Northwest puts it, “Philanthropy has always valued non-financial returns. We just need to bring that together with metrics for financial return and structure our financial participation accordingly.” Helpful resources are provided in Appendix D.

## 6. A Third Path?

Lastly, our dialogue about the use of PRIs in the emerging food space also yielded considerable reflection on the wide gap between grants and PRIs.

PRI may be thought of as a “next step” for organizations that have received grants and have some prospects for re-paying a loan. But the space between the two instruments is actually quite wide – grants are, in a sense, 100% losses with no interest while PRIs carry the expectation of a 100% repayment with interest. The “leap” to PRIs also involves significant differences in selection criteria for recipients and decision making processes within foundations.

As one investment manager expressed it, “The problem is the type of capital. In our work with foundations, we have found that they have a low risk tolerance for their PRIs as they want their money back and a return. Who is willing to take the risk that is needed to really



Chilling brown rice. Photo courtesy of Minneapolis Public Schools.

make a positive impact? Foundations seem most comfortable with grants where there is zero return of capital and no appreciation but, in contrast, aren’t comfortable with risk as it relates to PRIs even though they are made out of the same pool of assets. There’s a huge disconnect in the thinking there. It’s about aligning foundations’ expectations with needs of the entrepreneurs. That’s the hardest part.”

A variety of options are worth considering:

- Issuing both a grant and a PRI to a given organization.
- Collaboration between funders so that one instrument from a foundation is deliberately paired with a different but complementary type of financing from another source. (As one stakeholder said, “My grants are co-joined with someone else’s investment.”)
- Recoverable grants.
- Funding through a combination of grants, high risk equity-like investment and lower risk, leveraged capital.

As one advisor put it, “In the end, this [blended] type of approach would give you grant-like impacts and potentially more, because you are leveraging the capital markets to bring in other dollars, with perhaps 60 to 80% of the capital returned.” Given the inherent challenges associated with food-related investments, some type of “third path” like this may also be called for – one that offers a “middle ground” that is in between a 100% loss and a 100% return-with-interest.

Another key theme that emerged from our interviews is a sense that the emphasis placed by PRI decision-making processes on financial returns needs to be re-balanced with greater recognition of social returns. Investment

decisions should explicitly value both financial and non-financial returns. Expectations about risk and loss would be paired with a clear and legitimized recognition of the multiple types of benefits being pursued.

This type of approach would take a different type of mindset within foundations as well as modified decision-making processes, a new vocabulary around impact, and re-vamped evaluation systems. More analysis would obviously be needed on legal, accounting and other dimensions.

Although the FB Heron Foundation has not focused primarily on food enterprises, they have made significant strides in articulating highly innovative financing strategies designed to fit the realities in which they work. Their efforts to “obliterate the line” between grants and PRI inherently recognize that tailoring financing strategies to suit the desired goal and modified expectations about risk and return are key to achieving the impacts they desire. Their work provides much insight into the opportunities and challenges of this type of approach.<sup>89</sup>



Loading dock. Photo courtesy of Minneapolis Public Schools.

## B) Recommendations

### 1) Help bolster a cadre of financial intermediaries in the Midwest that can work effectively and in tandem with each other in the emerging food sector.

Potential areas include:

- Building intermediaries’ understanding of food systems and the regional food context in particular.
- Networking and relationship building among intermediaries and food-related stakeholders in their regions (including K-12 representatives, food producers and key supply chain innovators).
- Cultivating intermediaries’ capacity to provide financial resources and business development services that are appropriate to the food enterprise sector.
- Creating opportunities for intermediaries to learn from one another (both within and across regions of the country).
- Building intermediaries’ outreach capacity and accessibility among food entrepreneurs.

In addition, review food system-related training and networking activities conducted by the Opportunity Finance Network over the past several years. Identify remaining gaps and lessons learned from OFN’s efforts with food system-related intermediaries in the Midwest.

### 2) Fund connectivity in the Midwest food system and empower financial intermediaries to take a holistic, place-appropriate systems approach.

Support region-specific planning processes that identify gaps, opportunities and place-

appropriate strategies. Use a combination of PRIs and grants to help weave regional food systems together based on specific supply chain needs that relate to the K-12 marketplace in particular locales within regions (see Section 4D above for specific K-12 supply chain gaps and investment priorities in the Upper Midwest). Emphasize investments in businesses that address strategic bottlenecks in the production, aggregation, processing and distribution of regionally grown produce in the Midwest.

### **3) Incentivize existing supply chain players.**

Pursue opportunities to incentivize desired actions by more established supply chain businesses in the produce arena. This could include contracts or collaborative agreements with K-12 catalysts and industry partners to jointly develop, test and learn from innovations that connect K-12 schools to minimally processed fruits and vegetables. A key priority for this type of investment would be researching and piloting mechanisms to expand K-12 access to cost effective cosmetically imperfect seconds.

### **4) Fund the provision of technical assistance to entrepreneurs.**

Provide funding for skilled intermediaries to offer high quality, sustained technical assistance to entrepreneurs, while instituting appropriate mechanisms to assess the impact of these services on participating enterprises.

### **5) Prioritize investment strategies that maximize participation by complementary sources of capital.**

Look more deeply into the idea of loan pool guarantees, loan loss reserves and other strategies that can help “de-risk” the capital stack and draw in other players. When channeling capital through CDFIs, loan funds, and other intermediaries, make the leveraging

of additional dollars an explicit objective of those relationships.

### **6) Strive for investment tools and metrics that value both social impacts and financial returns.**

More explicitly incorporate social impact metrics into foundation assessments of risk and returns for PRIs that relate to school food. Consider convening a team of leading thinkers in the food finance arena, regional food systems and food hub development to explore new financing tools that could address unmet needs among food enterprises while creatively bridging the gap between grants and PRIs. Also explore the opportunities and challenges of using social impact bonds to finance supply chain and procurement innovations that foster greater use of minimally processed produce in K-12 contexts.

## APPENDIX A. REGIONAL LEARNING LAB DISTRICT PARTNERS

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Each RLL district also has one or more partner organizations that participate with them in the Lab and provide hands-on support for the district's efforts locally. District partners are selected by the district and typically bring expertise and relationships in nutrition, regional food systems, local agriculture, environmental sustainability or related disciplines. The current RLL district partners are:

- **Eastern Market Corporation (EMC):** EMC develops programs, manages operations, builds facilities, and provides critical infrastructure to strengthen the Eastern Market District of Detroit. EMC seeks to fortify the food sector as a pillar of regional economic growth, and to improve access to healthy, green, affordable and fair food in Detroit and throughout Southeast Michigan. EMC partners with the Detroit Public Schools.
- **Family Farmed.org:** FamilyFarmed.org helps consumers and trade buyers develop trusting relationships with farmers and artisanal food producers on a regional basis. Family Farmed is a partner to the Chicago Public Schools.
- **The Gretchen Swanson Center for Nutrition:** Partner to the Omaha Public Schools, the Center provides scientific expertise and technical assistance on issues of childhood obesity prevention, food insecurity, local food systems and program evaluation.
- **Healthy Schools Campaign:** Healthy Schools Campaign (HSC) advocates for policies and practices that allow all students, teachers and staff to learn and work in a healthy school environment. HSC is a partner to the Chicago Public Schools.
- **Institute for Agriculture and Trade Policy (IATP):** IATP is the partner to Saint Paul Public Schools. A non-profit organization, IATP supports fair and sustainable food, farming and trade systems in the US and around the world.
- **University of Minnesota:** The On-Farm Food Safety Program in the University's Bioproducts and Biosystems Engineering Department is the partner for Minneapolis Public Schools.
- **National Center for Appropriate Technology (NCAT):** Through partnerships with businesses, organizations, individuals and agricultural producers, NCAT supports small-scale, local and sustainable solutions to reduce poverty, promote healthy communities, protect natural resources and grow healthy foods using sustainable practices. NCAT partners with the Des Moines Public Schools.
- **Ohio State University Extension:** OSU Extension fulfills OSU's land-grant mission by interpreting knowledge and research to help Ohioans use scientifically based information to better their communities. OSU Extension partners with the Cleveland Metropolitan School District.

## APPENDIX B. INTERVIEWEES

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John Baxter	Lakeside Foods
Penny Brown Huber	Iowa Choice Harvest
AJ Bussan	University of Wisconsin Extension
Elena Byrne	Organic Processing Institute
Leah Carpenter	Gretchen Swanson Center for Nutrition
Ron Clark	Better Harvests
Christina Conell	USDA Food and Nutrition Service
Tim Crosby	Slow Money Northwest
Mike Dibernardo	Michigan Department of Agriculture
John Fisk	Wallace Center at Winrock International
Kathleen Fleugel	HRK Foundation
John Flory	Latino Economic Development Center
Rod Friesen	Truitt Family Foods, Inc.
Brian Geberding	Shoreline Fruit Co.
Pete Gengler	SnoPac Foods, Inc.
Nick George, Jr.	Midwest Food Processors Association
Taryn Goodman	RSF Social Finance
Elise Golan	USDA Food Waste Challenge
Julia Govis	University of Illinois Extension
Dana Gunders	Natural Resources Defense Council
Kenton Harmer	Milepost Consulting
David Horowitz	Tasty Brands
Cricket James	Russ Davis Wholesale
Margot Kane	Calvert Foundation
Colleen Landkammer	USDA Rural Development, Minnesota
Karen Lehman	Fresh Taste
Ellen Kennedy	Calvert Investments
David Kreuger	Formerly AgStar Financial Services
Julie Menter	BluSkye Consulting
Ariane Michas	Community Alliance with Family Farmers
Meg Moynihan	Minnesota Department of Agriculture
Michelle Muldoon	Formerly Wallace Center at Winrock International
Terry Nennich	University of Minnesota Extension
Robin Nicolaus	Testa Produce, Inc.

Sue Noble	Fifth Season Cooperative
Walter Orzechowski	Southwest Wisconsin Community Action Program
Jill Overdorf	Coosemans Shipping of LA
Tom Raak	Peterson Farms
Anneka Ramsey	Organic Valley
Mark Rieland	OnFarm Storage, Inc.
John Rhoads	Formerly The Reinvestment Fund
Jeff Rosen	Solidago Foundation
Rae Rusnak	L&R Poultry & Produce
Janice St. Onge	Vermont Sustainable Jobs Fund
Chris Sandwick	Belle Harvest Sales, Inc.
Scott Schaeppi	H. Brooks & Co.
Michael Shuman	Cutting Edge Capital
David Stangis	Campbell Soup Co.
Fritz Stelter	Field Fresh Farms
Josephine Stevenson	Public Health Institute (CA)
John Vanek	Harvest Food Group
Rhys Williams	Coop Partners Warehouse
Carla Wright	Organic Processing Institute
Vanessa Zajfen	Formerly San Diego Unified Public Schools

## APPENDIX C. ADDITIONAL MODELS OF INNOVATION FOR COSMETICALLY IMPERFECT SECONDS

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### California Association of Food Banks' Farm to Family Program<sup>90</sup>

In 2005, the California Association of Food Banks (CAFB) began their Farm to Family (FTF) Program<sup>91</sup> with the goal of connecting food banks with donated fresh produce. Under the program, CAFB's member food banks receive a wide variety of fruits and vegetables that don't meet market grade standards due to cosmetic imperfection.

The largest stream of produce comes from growers who provide such produce to the program at an agreed cost per pound. This approach is typically used for crops where the entire field (including items that meet market standards and those that don't) is harvested all at once. This is the case for crops like potatoes, which are mechanically harvested, and many fruits, where the entire tree is stripped of all its fruit. Such "shed-packed" crops are then transported from the field to a packing shed where they are sorted by size, color, shape and other factors.

Participating growers may have several options for dealing with shed-packed crops that don't meet market standards: sell them to a processor (e.g. to be made into potato chips or applesauce), sell them as animal feed, donate them or compost them.

Alternatively, under the Farm to Family program, growers have received an average of 7.5 cents per pound for the produce they donate through the program. This payment can make the program attractive to growers when compared to their most desirable alternative, which is typically selling to processors. While growers will still take a loss on the product, they recover at least some of their costs.

A second, smaller stream of product flows to FTF through their "concurrent" picking program. This is the case with row crops like broccoli, cauliflower and celery. With these hand-harvested crops, items that don't meet market grade standards would typically be left in the field unharvested. In such cases, FTF pays the grower-shipper 10 cents per pound to harvest, sort, wash and pack the produce they would normally leave behind.

In 2011, the California state legislature passed supportive legislation that was catalyzed by CAFB. Assembly Bill 152 created a state tax credit for growers who donate produce to food banks in California. The credit is equivalent to 10% of the wholesale value of the produce based on prices at the closest produce terminal, such as the terminals in South San Francisco or Los Angeles. For instance, if the terminal price is \$14 per case, the grower would receive a tax credit of \$1.40 per case. On a per-pound basis, this would be equivalent to roughly 5-6 cents per pound.

Although the per-pound figures above and the tax credit appear modest, they have proven to be a strong financial incentive for growers to participate in the program. As one industry expert put it, "the tax credit is a huge incentive for growers to participate. It really opened the flood gates" and has led to significant volumes of donated produce moving into the food bank system that might otherwise have gone to waste due to cosmetic imperfections.

CAFB estimates that it distributed 125 million pounds of produce to area food banks in 2012 alone and nearly 575 million pounds since the program's inception. The program continues to grow.



### Fresh Produce for California WIC Stores<sup>92</sup>

This model of innovation comes from the retail sector in California. It illustrates how seconds can be used at a significant scale through a market-based approach to meet the needs of low-income women and children. This model is rooted in a unique collaboration between produce distributors, growers and WIC retailers. It was catalyzed by Los Angeles-based Coosemans LA Shipping, which distributes fruits and vegetables to a wide range of foodservice and retail customers in the US.

Among its clients are “WIC-only” grocery stores in California that serve participants in the federal Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Many WIC stores have difficulty obtaining produce that is affordable for their customers. In response, Coosemans Shipping has helped WIC stores offer fresh produce by linking them with off-sized or slightly blemished produce at a value price.

This has also proven to be a good fit for Coosemans Shipping’s growing partners, who regularly have small fruit on hand that don’t meet standard retail sizing requests. Suppliers would typically discard that fruit, taking a total loss on the costs that were incurred to grow them. (Some have also sold small fruit to K-12 buyers under the federally funded Fresh Fruit & Vegetable Program).

Coosemans Shipping began by talking with WIC stores about what price points would be attractive to them. Then they asked suppliers if they were interested in selling to WIC stores given those pricing parameters.

Avocados are one of the five fruits now included in the program. On the farm, the grower places five small Hass avocados in a bag, with a weight of about one pound. Because small avocados are something that nature produces (and not a function of adverse weather), product supply is generally quite steady and reliable during the harvest months of April – September.

The program also includes bagged organic Valencia oranges, organic heirloom Old Grove Washington navel oranges, organic Crimson Gold apples and Ojai Pixie tangerines (a premium product that are typically featured in higher-end grocery stores). Items like the navel oranges are of standard retail sizes, but are graded as “Fancy,” with some scarring on the skin that typically keeps such fruit off of retail shelves. Coosemans Shipping focused on produce items that are more durable, given the stores’ limited refrigeration facilities, and on items that resonate well with shoppers, particularly the young children that are target beneficiaries of the WIC program.

As Coosemans Shipping’s Jill Overdorf explains, “Retail stores don’t see small sizes as worth dealing with. There’s still a perception among consumers that bigger is better. Our growers typically wouldn’t have an outlet for this fruit and it is a great way to introduce organic and local produce into the market. These smaller fruits are perfect for kids.”

Because growers bag the product on the farm, Coosemans Shipping does little handling of the product and distributes it to WIC stores (an approach called “cross-docking”). This allows Coosemans Shipping to charge a lower margin than usual, helping keep the end cost low. Prices received by growers for delivered, bagged product since the program’s inception have

## ADDITIONAL MODELS OF INNOVATION FOR COSMETICALLY IMPERFECT SECONDS

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averaged \$0.37 cents/lb. for organic oranges, \$0.94 cents/lb. for avocados and \$1.31/lb. for organic apples.

In the first four years of the program, about 400 tons of such produce was sold to WIC stores with prices at roughly 65% of typical wholesale prices for products meeting usual retail standards. The cost to the retailer has averaged just over \$0.90 cents/lb., meeting the stores' desired price point of \$1.00/lb. Currently three retail chains and a total of 16 Los Angeles County stores participate in the program.

“Inter-industry collaboration along the supply chain was critical in designing this program,” says Overdorf. “To catalyze these types of opportunities, you have to understand the market and then coordinate with growers to explore what might be possible. This model is about connecting the dots in the system.” California’s year-round supply of highly popular, kid-friendly fruit crops has been another success factor.

She goes on to note that “the produce industry tends to be very conservative and bottom line driven. Yes, we need to look after our bottom line, but you need to strive for collaborative and community-based ways to approach your bottom line. That kind of philosophy and a commitment to transparent negotiations make this kind of model possible.”

Coosemans Shipping is now collaborating with the Los Angeles Food Policy Council’s nascent LA Corner Market program to introduce this model to corner markets in underserved areas of LA.

## APPENDIX D. RESOURCES

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## APPENDIX E. MIDWEST-BASED COMMUNITY DEVELOPMENT FINANCE INSTITUTIONS

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Below is a partial list of CDFIs based in the states covered by the School Food FOCUS Midwest Learning Lab. This list is primarily, although not exclusively, drawn from the membership of the Opportunity Finance Network.<sup>93</sup>

Grow Iowa Foundation (IA)  
Siouxland Economic Development Corp. (IA)  
Accion Chicago (IL)  
Chicago Community Loan Fund (IL)  
Community Investment Corp. (IL)  
Illinois Facilities Fund (IL)  
Indianapolis Neighborhood Housing Partnership (ID)  
Detroit Development Fund (MI)  
Invest Detroit (MI)  
Northern Initiatives (MI)  
Opportunity Resource Fund (MI)  
Community Reinvestment Fund (MN)  
Entrepreneur Fund (MN)  
First Children's Finance (MN)  
Greater Minnesota Housing Fund (MN)  
Initiative Foundation (MN)  
Latino Economic Development Center (MN)  
Metropolitan Economic Development Association (MN)  
Neighborhood Development Center (MN)  
Nonprofits Assistance Fund (MN)  
Northcountry Cooperative Development Fund (MN)  
Sunrise Community Banks (MN)  
Midwest Housing Development Fund (NE)  
Nebraska Enterprise Fund (NE)  
Cincinnati Development Fund (OH)  
Common Wealth Revolving Loan Fund (OH)  
Cornerstone Corporation for Shared Equity (OH)  
Economic and Community Development Institute (OH)  
Finance Fund Capital Corp. (OH)  
Northwest Ohio Development Agency (OH)  
Ohio Capital Finance Corp. (OH)  
Village Capital Corp. (OH)  
Community Assets for People (WI)  
First American Capital Corp. (WI)  
Forward Community Investments (WI)  
Impact Seven, Inc. (WI)  
Legacy Redevelopment Corp. (WI)  
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