

THESIS

REBUILDING LOCAL FOOD SYSTEMS: MARKETING AND ECONOMIC  
IMPLICATIONS FOR COMMUNITIES

Submitted by

Allie Gunter

Department of Agriculture and Resource Economics

In partial fulfillment of the requirements

For the Degree of Master of Science

Colorado State University

Fort Collins, Colorado

Fall 2011

Master's Committee:

Advisor: Dawn Thilmany

James Pritchett  
Marisa Bunning

Copyright by Allie Gunter 2011

All Rights Reserved

## ABSTRACT

### REBUILDING LOCAL FOOD SYSTEMS: MARKETING AND ECONOMIC IMPLICATIONS FOR COMMUNITIES

The research community has identified value chains as one of the most successful ways for small and mid-scale distributors, focused on providing locally sources foods to structure their businesses. The concept of value chains is still relatively new, so by conducting case studies of successful value chains this thesis provides insight into the best practices for new value chains, organized based on the value chain's main customer.

After conducting case studies, the next step was to address one of the claims made by local food proponents: that increased local food consumption has a positive impact on the economy of a community. The local school food procurement program studied in this paper provides evidence that yes, the direct impact on the local economy is positive when there is an increase in local food purchasing. But that impact is quite small and may or may not cover the cost of investment necessary to build the necessary infrastructure. Moreover, that positive impact is dependent on some important linkages between the new food distribution enterprise and other economic actors (workers, owners) in the community.

## TABLE OF CONTENTS

<b>ABSTRACT.....</b>	<b>ii</b>
<b>LIST OF FIGURES .....</b>	<b>iv</b>
<b>LIST OF TABLES .....</b>	<b>vi</b>
<b>CHAPTER 1: INTRODUCTION.....</b>	<b>1</b>
<b>CHAPTER 2: PREVIOUS RESEARCH AND FINDINGS.....</b>	<b>8</b>
Impacts .....	9
Case Studies .....	15
Lessons Learned.....	21
<b>CHAPTER 3: COMMON THEMES FROM TEN CASE STUDIES OF VALUES BASED SUPPLY CHAINS LOCATED IN CALIFORNIA, OREGON, NEW MEXICO, AND COLORADO .....</b>	<b>24</b>
Retail.....	36
Restaurant .....	42
Institutions.....	46
Distributor .....	47
Conclusion .....	49
<b>CHAPTER 4: MARKET ENVIRONMENT .....</b>	<b>51</b>
Methodology .....	52

Online Supply Survey Results .....	55
Online Demand Survey Results .....	59
Conclusion .....	63
<b>CHAPTER 5: ECONOMIC IMPACT OF A FARM TO SCHOOL PROGRAM...</b>	<b>64</b>
Background of IMPLAN .....	67
Customization .....	69
Scenarios .....	74
Results.....	79
Conclusion and Discussion.....	83
<b>CHAPTER 6: CONCLUSION.....</b>	<b>85</b>
<b>DATA AND LITERATURE .....</b>	<b>88</b>
<b>APPENDIX A: INTERVIEW GUIDE.....</b>	<b>93</b>
<b>APPENDIX B: SUPPLY SURVEY.....</b>	<b>99</b>
<b>APPENDIX C: DEMAND SURVEY .....</b>	<b>106</b>

LIST OF FIGURES

**FIGURE 3.1. CASE STUDIES CATEGORIZED BY MARKET OUTLET ..... 26**

**FIGURE 4.1. SMALL FARMS: % OF PRODUCTION BY PRODUCT..... 56**

**FIGURE 4.2. SMALL FARMS: % OF SALES BY MARKET OUTLET ..... 56**

**FIGURE 4.3. MEDIUM FARMS: % OF PRODUCTION BY PRODUCT..... 57**

**FIGURE 4.4. MEDIUM FARMS: % OF SALES BY MARKET OUTLET ..... 57**

**FIGURE 4.5. LARGE FARMS: % OF PRODUCTION BY PRODUCT ..... 58**

**FIGURE 4.6. LARGE FARMS: % OF SALES BY MARKET OUTLET..... 58**

**FIGURE 4.7. POTENTIAL SUPPLIERS TO DISTRIBUTION HUB, BY SALES  
VOLUME AND WHOLESALE EXPERIENCE..... 59**

**FIGURE 4.8. MAP OF BUYERS AND SELLERS REPRESENTED IN THE  
SURVEY RESULTS..... 60**

**FIGURE 4.9. CURRENT INSTITUTIONAL DEMAND FOR COLORADO-  
GROWN PRODUCTS BY PRODUCT TYPE..... 62**

**FIGURE 4.10. CURRENT DEMAND FOR COLORADO-GROWN PRODUCTS  
BY AVERAGE INSTITUTIONAL BUYER BY PRODUCT TYPE..... 62**

**FIGURE 4.11. CURRENT INSTITUTIONAL DEMAND FOR COLORADO-  
GROWN PRODUCTS BY PRODUCT TYPE..... 63**

<b>FIGURE 5.1. MAP OF DIRECT FARM SALES IN COLORADO, 2007 .....</b>	<b>76</b>
<b>FIGURE 5.3. SCENARIO MAP.....</b>	<b>78</b>
<b>FIGURE 5.4. PURCHASING HISTORY OF THE WELD 6 FARM TO SCHOOL PROGRAM .....</b>	<b>79</b>
<b>FIGURE 5.5. DIRECT, INDIRECT AND INDUCED EFFECTS .....</b>	<b>81</b>

LIST OF TABLES

**TABLE 3.1. VALUES BASED SUPPLY CHAIN BACKGROUND INFORMATION..... 27**

**TABLE 5.1. STUDY AREA DATA CUSTOMIZATION..... 73**

**TABLE 5.2. PRODUCTION FUNCTION CUSTOMIZATION ..... 74**

**TABLE 5.3. SCENARIO 1: LOCAL IMPACT (ALL NEW DEMAND)..... 80**

**TABLE 5.4. SCENARIO 2: REGIONAL IMPACT (ALL NEW DEMAND) ..... 80**

**TABLE 5.5. SCENARIO 3: REGIONAL IMPACT (OFFSET TO WHOLESALE SECTOR)..... 80**

**TABLE 5.6. SCENARIO 4: REGIONAL IMPACT (OFFSET TO WHOLESALE SECTOR, CUSTOMIZED FTS SECTORS) ..... 80**

**TABLE 5.7. GROSS TYPE II MULTIPLIERS..... 83**

**TABLE 5.9. NET TYPE II MULTIPLIERS: REGIONAL (LARIMER, WELD, MORGAN, ADAMS, MESA, DELTA)..... 83**

## CHAPTER 1: INTRODUCTION

In the United States, 99.2%<sup>1</sup> of all food is purchased through traditional wholesale channels such as grocery stores, restaurants, and institutions (Martinez, et al., 2010). Due to the large volume and centralized purchasing of most food wholesale channels, the majority of the producers that supply these outlets are large, commodity producers. While this type of production provides a consistent supply of affordable products that are available to consumers year round, it provides little opportunity for small and mid-size growers to reach the wholesale market.

But there are opportunities: recently, some consumers have begun to demand products that are often difficult for the traditional wholesale channels to provide. Specifically, increasing demand for source verified and locally produced foods appear to play a role in the significant growth in direct markets. So, the small and mid-size farmers have addressed the barriers to wholesale markets partially through their willingness and appropriate scale strategies that lead them to sell their products directly to the consumer. The number of farmers' markets across the country has increased by almost 250% since 1994 and, from 2009 to 2010 alone they showed a 16% increase (Farmers Market Growth: 1994-2011, 2010).

---

<sup>1</sup> If non-edible products are excluded from total agricultural sales

Moreover an online registry estimates the number of farms engaged in community supported agriculture (CSA)<sup>2</sup> to be 4,401 (Local Harvest, 2011), a huge growth since CSA's first emerged in this country with two identified operations in 1986 (Adam, 2006). On the supply side, from 2002 to 2007 the number of farms selling directly to consumers through farmers' markets, roadside stands, and pick-your-own operations grew by 104.7% while the value of farm products sold directly to the consumer increased by 47.6% (Vogel & Low, 2010). The smaller increase in the value of farm products could be, in part, because many of those selling through direct markets were small farms.

Although the growth in direct markets suggests a steeply increasing trend for local food purchasing by households, direct marketing still only accounts for a small percentage of total food sales. The very small share of local food sales can be partially attributed to the supply chain constraints of being reliant on direct markets; currently, conventional supply chains account for the great majority of food dollars. Since these outlets are often unable to integrate local products from small and mid-size producers (while retaining product identity into their distribution channels), new opportunities have arisen for farmers to reach the wholesale market. But the economic question is whether these innovations can compete in terms of efficiency, since transaction costs of distribution are likely to rise if new systems do not achieve scale economies.

Some communities have assisted their local small and mid-size producers to re-develop mid-scale distribution channels through research and grants. These projects are

---

<sup>2</sup> "In basic terms, CSA consists of a community of individuals who pledge support to a farm operation so that the farmland becomes, either legally or spiritually, the community's farm, with the growers and consumers providing mutual support and sharing the risks and benefits of food production. Typically, members or "share-holders" of the farm or garden pledge in advance to cover the anticipated costs of the farm operation and farmer's salary. In return, they receive shares in the farm's bounty throughout the growing season, as well as satisfaction gained from reconnecting to the land and participating directly in food production" (DeMuth, 1993).

seen as economic development tools and as means to assist small and mid-size producers remain in business. An important question to ask is whether supply chain redevelopment is resulting in any economic gains (in distributional if not economic efficiencies). Given the investment necessary, what are the potential impacts of mid-scale supply chains and how can a community benefit? And more specifically, what are the potential economic impacts?

Given the current economic climate, there is a strong focus on economic development strategies that can increase local economic activity. There are two main ways in which this can occur: export enhancement and import substitution. Export enhancement involves enticing businesses to locate in your community to bring with them jobs and economic activity. Import substitution focuses on increasing the output of current local businesses in order to increase economic activity in lieu importing the outputs from other regions' activities. Two of the main differences between the two strategies come from how much of a dollar earned by a company is spent in the local community in the form of proprietor income and on supplies, support services (lawyers, accountant), salaries, etc. Because the owners of local businesses tend to live locally and also tend to do more business in their own community than non-local businesses with headquarters located elsewhere, a dollar spent on a local business has a larger impact on a local community than a non-local company, all else equal.

Mid-scale supply chain redevelopment is considered an import substitution strategy because it focuses on increasing the output of current farmers and others involved in the supply chain in the region. In order to determine how the impact of a dollar spent on a mid-scale supply chain would differ from a dollar spent at a traditional

supply chain, it is necessary to take an in-depth look at this mid-scale supply chain. A better understanding of how these types of businesses function will enable us to more accurately estimate the potential economic impacts.

In the majority of studies, the economic impacts of a more localized food system are positive. The problem lies in the overstatement of those impacts. One reason studies tend to overstate impacts is because entities who fund the studies want to see the largest level of impact that can be reasonably assumed. Many studies have looked at the economic impact of increased consumption of locally produced foods and found positive outcomes (Swenson, 2006, 2010; Conner, Knudson, Hamm, & Peterson, 2008; Tuck, Haynes, King, & Pesch, 2010). Although some researchers are careful to not overstate the impact, others overlook the fact that money being spent in one sector of the economy is usually money being taken away from another and they report the gross impact rather than the net impact, thereby overstating the total economic impact of the activity in question. In short, studies of import substitution, such as food sector value chains, should be careful to consider countervailing effects of relocalization.

In order to better understand the potential economic impacts, it is necessary to take a closer look at the supply chains that provide local food. Many wholesale buyers, driven by consumer demand, have shown a desire to purchase locally grown foods. In a National Restaurant Survey, the number one trend for 2011 is cited as locally sourced meat and seafood, and the number two trend is locally sourced produce (Chef Survey: What's Hot in 2011, 2011). This trend has spilled over to other food service sectors as well, partly because of new policy initiatives to improve the quality of food served in venues with a high share of youth. There are currently an estimated 2,352 farm to school

programs in the U.S., a huge growth from the 400 that existed in 2004 (Farm to School, 2011), in addition to 164 farm to college programs (Farm to College, 2011).

Hospitals across the country have started farm to hospital programs inspired by Kaiser Permanente developing the nation's first successful hospital farmers' market (White, 2009). "One in every six U.S. consumers surveyed by analyst group Mintel is going out of their way to buy local food products as much as possible, with potential for further growth, according to recent findings (Merrett, 2009)." These trends have implications for the food supply chains that source larger customers since much of the movement towards increased local food purchasing has been in the context of consumer household-focused markets (CSAs, farmers market) up until now.

The wholesale demand exists, but getting access for small and mid-size producers into wholesale channels is difficult in most communities. Many small and mid-size farmers would like to sell more volume than direct markets provide, but they are too small to access the conventional wholesale channels that model their business on consistent supplies of fairly large volumes. To solve this problem, entrepreneurs, producers, and others involved in the food system have adopted a model from the business community—value-based supply chains. These value chains fall on a continuum of size and sales profit margins somewhere between the two primary agricultural models (niche, direct markets and high volume, commodity markets) and provide an avenue for both small and mid-size farmers to access the wholesale market.

A few key aspects of value chains which differ from the typical supply chain are that all actors are seen as partners with each receiving a price above the value of cost production, there is a high level of transparency and trust throughout the organization,

and the partners in the value chain may provide high levels of support, interaction and assistance with one another. The idea is that such a structure will lower transaction costs (because of trust and built-in incentives to provide good quality) and increase returns to all stakeholders in the chain (which achieves the objectives of the communities developing these organizations). Value chains typically focus on long-term relationships, creating horizontal linkages to provide adequate volume and partnerships to utilize existing infrastructure and knowledge. These relationships are with businesses that have similar production values, such as practices that support land stewardship, humane animal treatment, and sustainable farming practices. Given the new interest in value chains, those currently in existence are being studied to determine best practices, effective methods to address barriers to entry and growth, as well as lessons learned from failed strategies, so that more organizations can be replicated in other regions of the country.

Given the investment in both research and development that many communities are making in value chains, knowledge of whether those efforts are having their expected outcomes is important for both current and future projects. This paper seeks to provide insight into the question of whether or not a value chain is effective in achieving one of their stated outcomes by looking at the potential economic impact a value chain might have on a community. By first looking into the operations of value chains and how their business decisions differ from traditional distributors, we will be able to provide a more accurate economic impact study.

The paper will begin with a review of the literature, followed by a discussion of the common themes from 10 case studies of value chains in California, Oregon, New

Mexico and Colorado<sup>3</sup>. The following chapter will describe the market environment and provide the information used in the remainder of the paper. The fourth chapter will use an input-output model to determine the economic impact of a local purchasing program by a school district in Weld County, Colorado to provide insight into a potential benefit to a community of a value chain.

---

<sup>3</sup> The three detailed case studies from Colorado and New Mexico can be found on the Colorado State, DARE webpage under Extension/Outreach Publications:  
<http://dare.colostate.edu/pubs/AMR11-03.pdf>  
<http://dare.colostate.edu/pubs/AMR11-02.pdf>  
<http://dare.colostate.edu/pubs/AMR11-01.pdf>

## CHAPTER 2: PREVIOUS RESEARCH AND FINDINGS

The significant growth in demand for local food in recent years has translated to a growing body of research devoted to the topic. Exploring previous research enables this paper to build upon the literature and to further advance research devoted to the topic of local food. One of the first questions researchers have asked is why should we rebuild local food systems and what are the benefits? The environmental, health, and economic benefits of increased local food consumption have all been studied as a means to answer this question. Other studies have taken the approach of exploring shared values of food supply chain stakeholders that would simply allow for a competitive edge for those who are targeting values-oriented buyers. Once the question of why is answered, the next question is, how? Case studies and feasibility studies of local and regional food systems have been conducted as means to show other examples and highlight best practices to build mid-scale supply chain infrastructure in their own community.

This chapter will look at the literature that focuses on the economic studies and best practices related to the distribution activities of values-based supply chains with particular attention to local foods. To provide background from previous literature, a summary of past work on three topics is provided, including: the impacts of increased local food consumption on local communities and states, case studies and feasibility studies of successful value chains, and the elements of successful value chains that will help to determine best practices for the Front Range of Colorado.

## **Impacts**

There is a body of research on the environmental and health outcomes of increased local food consumption that show broad and positive impacts. For example, Lea (2005) argues that consumers can influence their own health and the health of the environment through food choices. Conner & Levine (2006) show how high rates of obesity, unemployment, and fiscal deficits are related to the food and agricultural system and the solution to the wide-ranging issues is a community-based food system. One claim of local food is that it increases food access in a community with limited access to a grocery store by locating a farmer's market or farm stand in the area or by providing produce for local schools. One study found that participants living in the worst-ranked food environments (characterized by low access to grocery stores) were 22-35% less likely to have a healthy diet than those in the best-ranked food environments (Moore, Diez Roux, Nettleton, & Jacobs, Jr., 2008). Chomitz, et al. (2010) found that increased access to healthy food and physical activity in schools reduced obesity, having a greater impact on low income children.

But there are also studies that challenge some of the pro-local food studies based on a lack of rigorous evaluation and proof of direct causality. A USDA Economic Research Service (2009) report looks at the literature linking food access and its relationship to health outcomes and finds that although food environment is associated with the foods people eat; most studies cannot make causal links. "In the case of obesity, easy access to all food may be a more important factor than lack of access to specific relatively nutritious foods" (Ver Ploeg, et al., 2009, p. 57).

Another set of literature examining potential outcomes from local food systems examine the claim that there is an environmental benefit from a local food system due to a shorter distance that food travels. This claim has also been refuted in recent studies. Canning, Charles, Huang, Polenske, & Waters (2010) argue that there is little evidence that local food systems use less energy and, even if food does travel a shorter distance, the transportation piece of the supply chain uses a relatively small amount of energy. In short, a full system, life cycle analysis is necessary and few have been completed on alternative food supply chains.

The other main benefit that is claimed is increased consumption of locally produced foods provides an economic benefit. There is a direct economic impact: how much more money is spent in a local economy and how much of that money stays in the local economy. And there is an indirect economic impact: healthier people means less money spent on healthcare. The remainder of this literature review will focus on understanding and estimating the former (the more relevant focus for an economic study), by evaluating the direct economic impacts of increased consumption of local foods.

Tuck, Haynes, King, & Pesch (2010) looked at the economic impact of a farm-to-school program in Central Minnesota. They determined that the two most significant barriers that farm-to-school programs face are processing capacity and price points paid by school institutional buyers. To address these barriers, they determined three utilization scenarios and three pricing scenarios in IMPLAN, an economic impact modeling system. They created four new sectors and modified the technical coefficients so that each of the sectors more accurately represented the firms participating in the farm-to-school program than if they had used the firm averages found in the IMPLAN data set. They found that

the potential annual total economic impact of farm-to-school programs for the community located in the Region Five Development District of Central Minnesota ranged from \$20,000 for a monthly special meal to \$427,000 for sourcing a large amount of six easy to use and easy to source products. The assumption in this study was that taxpayers would bear the cost of this program and the offset of the increased local purchasing was to increase taxes. These scenarios represented the two extremes on the continuum of potential farm to school programs in the region at that time.

Swenson (2006) also uses IMPLAN, but in this case, he had a broader objective to measure the potential net economic impacts that could accrue to the state of Iowa if it were to increase selected fruit and vegetable production for all marketing channels. Two of the scenarios anticipate expanded production of fruits and vegetables so that they substitute directly for existing imported commodities for a quarter of the year. The third and fourth scenarios examine the economic impact that would occur if all Iowans followed a diet including five or seven servings of Iowa-grown fruits and vegetables per day for the same period (developing a linkage with public health goals).

The Swenson (2006) study supposes that the farmland to grow the fruits and vegetables will be taken from corn and soybean production, one potential countervailing effect. All new production will be sold in the direct market or in a combination of the direct market and wholesale market, depending on the scenario. Results from the first two scenarios vary from a total economic effect in increased sales of \$104 million, creating 1,300 jobs (when half of new production is sold to the direct market and half to wholesale) to \$160 million in increased sales and 2,300 new jobs (when all new production is sold to the direct market).

In a later study, Swenson (2010) measured the economic impact in largely rural, Southwest Iowa if the region were to increase fruit and vegetable production to accommodate regional demand. The first scenario assumes farmers in the region produced enough to fill all regional consumption during a typical growing season. There would be 902 new acres of fruit and vegetable production, where the farm-gate value would be \$2.42 million and the potential retail value would be \$5.2 million. The second scenario assumes the region also produces for the metropolitan areas on the east and west borders, providing a portion of the fresh fruit and vegetable demand. This would result in 2,107 acres of fruit and vegetable production, \$4.62 million in direct level farm sales, and \$11.41 million when sold at the retail level. It was assumed that cropland was taken from existing land of corn and soybeans and demand was shifted from imported fruits and vegetables to locally produced fruits and vegetables.

Conner, Knudson, Hamm, & Peterson (2008) used IMPLAN to study the economic impact in Michigan if residents were to increase fruit and vegetable consumption to the recommended levels with the increased consumption being provided by Michigan growers (with those products that can be grown in Michigan). Similar to Swenson, they assumed production shifted from existing acreage. But unlike Swenson's and other studies, no customization or additional offsetting shock was studied. The economic impact is simply the gain from shifting production from dry beans, corn, soybeans, and wheat to fruits and vegetables. They found the net increase in jobs to be 1,780 and the net increase in income to be \$211 million.

Sharp, Clark, Davis, Smith, & McCutcheon (2011) studied the economic impact on Knox County, Ohio from increased local food sales. They looked at three scenarios: increasing specialty crop sales by 5%, expanding retail food sales by 10% and adding a new processor in the county. Using IMPLAN, they determined the effect of scenario one to be 11 new jobs and an increase in sales of over \$1.1 million; scenario two created 243 new jobs and \$12.8 million in increased sales; and scenario three created 96 new jobs and an increase in sales of \$15.8 million. Given the size of agriculture in Knox County, the total impact of all three scenarios combined is about 1% of gross county product. This study assumed that all increased sales were sales previously done outside the study area; therefore looking at the gross impacts, rather than the net impacts. Unlike Swenson (2006, 2010) and Hughes, Brown, Miller, and McConnell (2008), no countervailing production effects were considered; this study assumed that the increased production was not taken away from other cropland and the increased food sales were not taken away from another sector.

Hughes, Brown, Miller and McConnell (2009) studied the economic impact of farmers' markets in West Virginia. Unlike much of the previous research, this study used an opportunity cost framework thereby reporting the net impact of farmers' markets rather than the gross impact. The net impact assumed that money spent at the farmers' markets was money not being spent at grocery stores; therefore all gains were due to the larger multipliers for the farming sector compared to the retail sector. The farming sectors were modified slightly to more accurately represent West Virginia farmers. The \$1.725 million in spending at the farmers' markets resulted in a net total impact of \$1.075 million in output and 42.8 jobs. Although much lower than the gross impacts that are

often reported, this study shows that there is a positive economic impact from shifting buying from grocery stores to farmers' markets, even when more careful analysis is conducted.

Ulmer, Holcomb, Woods, Willoughby and Tilley (2005) studied the economic impact of the Oklahoma Food and Agricultural Products Center (FAPC), an organization that focuses on helping local and regional entrepreneurs as well as established firms compete in the marketplace. The center facilities were constructed at a cost of over \$18 million and they have an annual operating budget of \$2.8 million, all funded with state dollars. Given the large taxpayer investment, the goal of the study was to determine the economic impact the center was making on the state of Oklahoma. The IMPLAN results show the total economic impact of those firms assisted by FAPC equaled 28% of all direct food processing jobs and 48% of the direct food processing sales in the state.

Although the results for the health and economic benefits of increased consumption of locally produced foods are not always positive, in the case of the economic impacts, all studies found a positive impact even when careful to account for direct and indirect effects of new activities (Tuck, Haynes, King, & Pesch, 2010; Swenson, 2006, 2010; Conner, Knudson, Hamm & Peterson, 2008; Sharp, Clark, David, Smith & McCutcheon, 2011; Ulmer, Holcomb, Woods, Wiloughby & Tilley, 2005; Hughes, Brown, Miller & McConnel, 2008). The size of those impacts varies greatly; due to the size of the direct impact as well as the assumptions made by the authors. The main analysis of IMPLAN results, where the validity of potential economic impacts can be tested, is in the assumptions of how economic activity will change in shift with new innovations. The assumption that money being spent in one sector is not lost anywhere

else in the economy produced the largest results, but most likely, could be construed as leading to inaccurate inferences. The studies that take into account the countervailing effects and provide net, rather than gross, impacts provide the best guidance for future research because of their consistency with economic theory.

### **Case Studies**

The economic impact of increased local food consumption was found to be positive in all of the scenarios studied above, providing some insight into the question of why a community would want to increase consumption of local food. The next important question is what market-based approaches a community might use to increase local food consumption. Many community-based projects, organizations and researchers have shed light onto the question by conducting case studies and feasibility studies of enterprises with a mission to increase local food markets and availability.

One of the first papers to look at mid-scale value chains, focusing on regional food systems, was conducted by Agriculture of the Middle, a research group created to renew mid-scale farms and ranches, and related agrifood enterprises. Stevenson (2000) conducted four case studies for the Ag of the Middle project to look at successful mid-scale value chains. These cases include a 100-member natural beef producer co-op, Country Natural Beef; a 1,000-member multi-regional farmer co-op, CROPP/Organic Valley; a 35-farmer Limited Liability Corporation (LLC) marketing sustainably produced grain, Shepherd's Grain; and a non-profit market oriented business supporting 35 fruit and vegetable farmers, Red Tomato.

It is interesting for this project to consider a few highlights and common themes found among those cases. All enterprises studied chose to create partnerships with

enterprises along the supply chain that share the same basic values rather than move towards a vertical integration model and, by doing so, they were able to use strategic partnerships to replace capital and expertise. These partnerships were also crucial in helping to address scale economies, as they allowed the organizations to forego new investments that would have led to pressure to grow larger than might have been possible given market conditions. With a few exceptions, value-chain partners of all the enterprises were (and remain as) privately held companies, freeing them from shareholder pressures. And when it comes to pricing, the overall goal to return a fair price to producers put upward pressure on prices, but also kept a check on marketing costs within the distribution or marketing enterprise (Stevenson, 2000).

The Agriculture of the Middle cases and subsequent research spurred entrepreneurs and communities to begin their own value chains. Day-Farnsworth, McCown, Miller and Pfeiffer (2009) studied eleven of these local food entrepreneurs from across the United States. They conducted in-depth interviews with key personnel at each business and identified bottlenecks that continue to make it difficult to move significant amounts of local produce into mainstream markets along with some solutions. A few of these bottlenecks include controlling for product consistency and quality, seasonality, matching supply and demand, supply chain infrastructure, capital, capacity development, and information flow and transparency. Almost all organizations rely on multiple supply chain customers including grocers and grocery store chains, institutional buyers and restaurants. In addition to the eleven case studies Day-Farnsworth et al. studied, they included a directory of 37 other local food distributors across the country with business information and a brief description.

In a similar study by King et al. (2010), 15 food supply chains were studied with the goal of answering two general research questions: what are the factors that influence the structure and size of local food supply chains and how can local food supply chains compare with mainstream supply chains on performance indicators? They found that producers and businesses in local supply chains can be successful despite the higher per unit costs of locally produced foods if they offer unique products or services, diversify marketing operations, and have access to processing and distribution services. But in order to persuade customers to pay that higher price, product attributes beyond local origin are commonly necessary. Production process attributes, such as grass-fed and organic, are examples of other assurances that were found to influence price.

Producers in the local food supply chains studied by King et al. (2010) received a greater share of the retail price than they do in mainstream channels, with the producers' net revenue per unit ranging from about equal to seven times higher when compared to conventional supply chains. And although many assume fuel costs to be lower the shorter the distance traveled, these cases found transportation fuel use is more related to the transportation mode and strategy employed in the supply chain rather than the absolute distance the food travels, given the large fuel efficiency gains from larger loads.

Melone, et al. (2010) wrote a report as one step in developing a plan to improve the regional wholesale food marketing system in California. This report included a case study on existing regional distributors, including ALBA Organics. ALBA Organics (AO) is a non-profit aggregator and distributor that coordinate orders from 30-50 producers to sell product to universities, K-12 schools, hospitals, retailers, distributors and restaurants. In addition to providing high quality, local organic produce to buyers in the region, one

of their goals is to connect beginning and limited-resource farmers with markets. There are two challenges faced by AO: first, that demand exceeds supply, in part because both AO and the growers are undercapitalized; and second, information management systems that provide adequate capabilities are too costly for their current financial capacity.

Since the Agriculture of the Middle study of value chains in 2000, a large number of similar businesses have emerged across the country, and researchers continue to glean best practices. Barham (2011) from the USDA Food Hub Subcommittee helped to aggregate information and findings on such projects in order to provide the most comprehensive study (augmented by information from a survey of 72 food hubs). Of those who completed the survey, 36% were non-profit, 27% cooperatives, and 22% LLCs. The typical food hub employs 6 full-time staff and uses volunteers regularly. They work with 40 regular food suppliers most of whom are small and mid-size producers and they offer a wide range of food products with fresh produce being the major product category. They sell through multiple market channels with restaurants being an important entry market. They have gross annual sales around \$700,000, but are not completely financially independent, relying on some external support to cover parts of food hub services/activities.

Matson and Sullins (2011) take a similar approach to Barham, researching a great number of food hubs around the country, but focus more on specific operational details. They provide a detailed overview of practices and strategies used by food hubs, giving communities a roadmap to create their own food hub. They point out that, in addition to the traditional distribution functions such as brokering, aggregation, transportation and distribution, food hubs often provide technical assistance and professional development

for producers, market access, maintain producer-consumer connections, and share information. They continue by describing the common constraints to growth that food hubs face; including undercapitalization, inadequate attention to liability exposure, too little processing capacity, and labor capacity that is aligned with the organization's needs.

Matson and Sullins (2011) also point out that, due to the many different business structures of food hubs, the choice of what type of business structure is appropriate can be difficult. "The structure of each type of hub defines: the types of transactions that may occur between buyers and sellers, who bears the risks and costs of those transactions, the opportunities for investment and future growth and who shares in the potential profits" (p. 20). Matson and Sullins (2011) provide examples and detailed descriptions of the different business structures: non-profit, privately held, cooperative, and virtual. The paper concludes with a discussion of the regulatory environment, the role of information in building capacity and reducing risk, and a roadmap for food hub development.

All of the studies thus far have looked at value chains as a separate entity from the traditional supply chain. But others have imagined what it may look like if entrepreneurs looked at how certain aspects of a value chain could fit into a traditional supply chain. Bloom and Hinrichs (2010) utilize the value chain model to analyze how traditional produce distributors can incorporate local food into their operations. They looked at two independent distributors in Pennsylvania, one urban and one rural. One of the greatest barriers that both the networks faced was meeting the goal of providing a fair price to all supply chain participants, which "may mean that this type of food distribution network will have a limited contribution towards scaling up the local food system, and in turn influencing the local economy" (p. 21).

Another barrier for both networks was the perception that local food would be less expensive due to the shorter shipping distance. “Based on comparisons with the value chain framework, our research suggests that food distribution networks relying on conventional infrastructure to promote and provide local produce may face challenges in meeting both producers’ and consumers’ needs” (p. 22). Because shipping distance is only one component of the cost structure of a food distributor, the economies of scale for a smaller distributor are likely to cause higher transaction costs due to a smaller size and create a challenge to compete with larger businesses.

Cantrell’s (2010) report, “Sysco’s Journey from Supply Chain to Value Chain: 2008-2009 Final Report,” describes how the largest distributor in the U.S. incorporated local products with more of a value chain approach into two regional pilot projects, Grand Rapids and Kansas City. “In both regions, the expansion of the local produce offerings through new items contributed significantly to profitable growth [for Sysco]” (p. 6). Although both of the branches already carried some amount of local produce, there was no way to distinguish them from the non-local products. The MIPROD (Michigan and Indiana produced) brand was developed and other brands like Buy Fresh Buy Local were used to allow customers to specifically choose local and for Sysco to receive a premium.

The last group of studies used both quantitative and qualitative methods to determine the feasibility of new value chains. Haddad, Nyquist, Record, and Slama (2011) conducted a feasibility study for a fruit and vegetable packing house in Illinois. “The primary determinant of feasibility is the commitment of sufficient acreage to provide the necessary raw material for a packing house to operate profitably as an

independent commercial business” (p. 7). Again, achieving scale economies and operating at capacity given capital investments appears to be an important indicator of success. Because grower participation is the greatest uncertainty of the study, the financial model was built to test the impact that a varying number of acres of production would have on profitability. Their study suggests that an 18,000 square foot facility would require about 1,200 acres to break even and have the capacity to sell 3.5 million cases per year.

Slama, Nyquist, and Bucknum (2010) conducted a study to assess the feasibility of building a fruit and vegetable aggregation and distribution system in Northern Virginia using qualitative methods. They determined four main factors that are keys to success: (1) management team skill is critically important, particularly sales and marketing; (2) establish a wide and cooperative network of growers; (3) collaborate with other intermediaries to strengthen the market; and (4) engage all stakeholders to maintain a supportive climate.

### **Lessons Learned**

The case studies and feasibility studies provide great insight for communities and entrepreneurs looking to begin or expand their own food hubs. On the Front Range of Colorado, stakeholders are very interested in the possibility of a food hub and what that would look like in their community. But Colorado has some challenges when it comes to local food: the state has a relatively short growing season, and currently, very limited capacity for processing. Although there is a great deal of farmland, little is in fruit and vegetable production while much is focused on beef and pastured livestock systems. So, the marketing and processing infrastructure may be misaligned with the needs of a

produce-oriented value chain. Additionally, given the vast landscape of the state, population centers are often very distant from agricultural areas (with implications for transport costs). The last portion of the literature review discusses the findings from papers with similar challenges that will provide insight and help to determine best practices for a food hub located on the Front Range of Colorado.

Stevenson and Pirog (2008) wrote a chapter in Food and the Mid-level Farm: Renewing an Agriculture of the Middle that provides a detailed discussion of value chains and their role in the regional food system. “The overall business model of value chains features close cooperation between strategic partners within the chain and competition between chains doing business in a given product sector” (p. 122). A value chain utilizes long-term partnerships, horizontal linkages, and strategic alliances rather than vertical integration or arms-length relationships with suppliers. Stevenson and Pirog (2008) discuss the importance of a regional focus rather than just a local focus with scale being an important dimension of successful value chains; a key to success is collaboration among farmers to provide sufficient volume for large scale, wholesale buyers. Although there is no one definition of regional, Stevenson and Pirog recommend looking beyond the 100 mile or even 400 mile radius to multiple states to achieve adequate supply volume. But achieving adequate scale is often challenging for new value-chains, so it is essential that they utilize existing assembly and distribution infrastructure of strategic partnerships wherever possible.

Day-Farnsworth, McCown, Miller, and Pfeiffer (2009) offered some solutions to overcome the challenge of a short growing season including regional processing and storage capacity, providing local when possible but sourcing from a larger geographic region during the off-season, promoting the use of season extension techniques, and educating consumers and institutional buyers about seasonal product availability (p. ii). They also offered solutions for a lack of infrastructure including utilizing third party enterprises, vertical integration, supply chain partnerships, and facility upgrades (p. iii).

One of the four mid-scale value chains that Stevenson (2000) studied was Red Tomato, a fruit and vegetable marketing non-profit. This organization has an innovative approach to revenue, offering consulting services for regional food system development as a way to increase revenue and provide year-round employment for staff. They currently rely on trading income, consulting fees, gifts and grants to cover the costs of running the business. When Red Tomato began it was a full blown distributor with trucks, drivers, docks and coolers. They soon realized the infrastructure was too expensive to sustain and they moved to a model where they coordinate the supply chain and focus on marketing, but rely on partnerships for infrastructure needs.

CHAPTER 3: COMMON THEMES FROM TEN CASE STUDIES OF VALUES  
BASED SUPPLY CHAINS LOCATED IN CALIFORNIA, OREGON, NEW MEXICO,  
AND COLORADO

“The structure of agriculture in the United States is moving towards two relatively separate spheres: large, corporately coordinated, agricultural commodity production units; and dispersed, local, and smaller-scale farms relying on direct markets” (Lyson, Stevenson, & Welsh, 2008, p. xi). The increasing consumer demand for fresh, high quality foods made from ingredients produced by local family farmers has been the main driver of the increase in direct markets such as farmers’ markets and community supported agriculture. Small farms have been able to capitalize on this market due to the inability of the traditional food system to change and adapt to this new consumer. Direct markets are a very important piece of the local food system and have had a large influence on the local food movement.

Given 99% of food purchases are still through wholesale channels (Martinez, et al., 2010), there is an opportunity for a new type of distribution system that is able to provide quality, local ingredients at traditional food outlets such as grocery stores, schools, and restaurants. This type of distribution system is called a values based supply chain or simply value chain. “Value chains are long-term networks of partnering business enterprises working together to maximize value for the partners and end consumers of a particular product or service” (Stevenson & Pirog, 2008, p. 120). A few key aspects of value chains, which differ from the typical supply chain, are that all actors are seen as

equal partners with each receiving a price above cost of production, there is a high level of transparency and trust throughout the organization, and the partners in the value chain provide high levels of assistance to one another. Value chains fall in the continuum between the large, vertically integrated, corporately dominated supply chains and the direct markets, filling a niche that has great opportunities for success but also many challenges. The structure of these emerging distribution enterprises varies widely as does their financial sustainability.

This paper summarizes case studies of ten values based supply chains located in California, Oregon and the Intermountain West. The goal is to assess two hypotheses: (1) “The successful development of distribution networks involving small and medium-scale producers is affected by three major factors—producers’ access to financial capital, various government regulations and policies, and the producers’ business acumen (entrepreneurship, managerial expertise). (2) Distribution networks within value chains generate environmental and social benefits, and enhance the financial viability of small- and medium-sized farms” (Feenstra, 2009).

With support from a USDA Competitiveness for Small and Midsize Farms grant project, case studies were conducted by research teams at UC Davis, Portland State and Colorado State. Data were gathered through phone interviews and personal visits with distribution network and value chain leaders. Interviews were conducted by each team using an interview guide<sup>4</sup> to allow for cross-state comparisons, but some flexibility allowed each case to have its own focus. In each case study, there were four main areas of interest: basic supply chain network characteristics and scope; financial

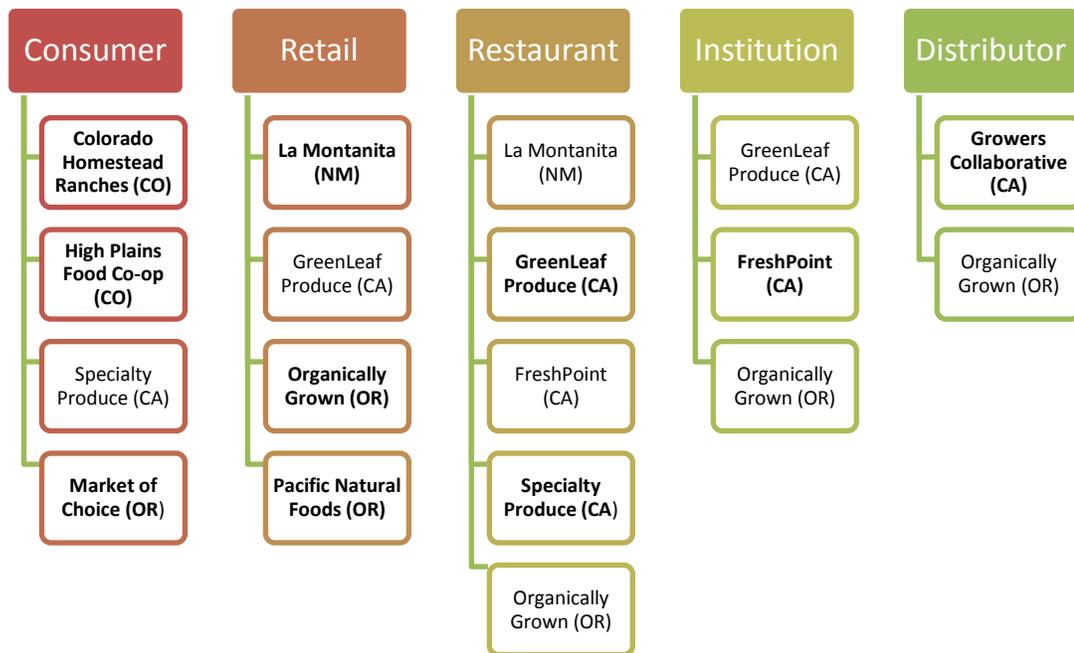
---

<sup>4</sup> Available in Appendix A

organization/structure, capitalization and performance; policy and regulatory issues; and entrepreneurial skills and business acumen.

Values-based supply chains are generally organized with a target customer and its unique needs in mind (regarding product lines, how products are delivered, terms, and volumes). Although many distributors sell to different types of customers, some broadly defined customer categories for values-based supply chains include direct to consumer, retail, restaurant, institutions, and distributor. This chapter will be organized according to the customer focus of each supply chain to share any common themes related to their focus. Figure 3.1 describes how each case study is categorized with those denoted in bold signifying the main customer for the values based supply chain. Table 3.2 presents a brief description of each company to provide the reader with basic background information.

**Figure 3.1. Case Studies Categorized by Market Outlet**



\*\*bold signifies main customer

**Table 3.1. Values Based Supply Chain Background Information**

<b>Company</b>	<b>Location</b>	<b>Market Outlet</b>	<b>Main business function</b>	<b>Time in Business</b>
<b>Colorado Homestead Ranches (CHR)</b>	Western Colorado	Consumer	Beef producer, processor and retailer	Formed in 1996
<b>High Plains Food Co-op (HPFC)</b>	Eastern Colorado, Western Kansas	Consumer	Consumer and producer cooperative	Formed in 2008
<b>La Montanita</b>	New Mexico	Retail Restaurant	Retail cooperative	Retail co-op founded in 1976, distribution began in 2007
<b>Growers Collaborative</b>	San Francisco Bay Area California	Distributor	Hub selling to produce distributors	Created in 2006 and reorganized in 2009
<b>GreenLeaf Produce</b>	Northern California	Restaurant Retail Institution	Distributor selling high end products	Created in 1980
<b>FreshPoint Southern California</b>	Southern California	Institution Restaurant	Traditional produce distributor	Acquired in 2000 by Sysco
<b>Specialty Produce</b>	San Diego, California	Restaurants Customer	Distributor selling mostly specialty produce	Created in 1980, CSA began in 2009

<b>Organically Grown Company</b>	Pacific Northwest	Retail Restaurant Institution Distributor	Produce wholesaler	Began in 1982
<b>Pacific Natural Foods</b>	North America	Retail	Food processor	Began in approximately 1987
<b>Market of Choice</b>	Oregon	Consumer	Grocery Retailer	Began in 1979, repositioned in 1999

Consumer oriented distributors sell product directly to the consumers. These businesses are either vertically integrated, focused on the retail end of the supply chain, or are part of a truncated supply chain in which the distributor sells directly to the customer. For the most part, these are relatively small to mid-size chains, with narrowly targeted customer groups in terms of geography or product lines. This customization allows for relatively higher margins since their scale may prove to be a competitive disadvantage relative to other retailers.

Four of the companies studied in this project are consumer oriented distributors: High Plains Food Co-op and Colorado Homestead Ranches (Colorado), Market of Choice (Oregon), and Specialty Produce (California). Both Colorado companies are small distributors, the farmers and ranchers run the distribution and sell their products directly to customers. Market of Choice is a small chain of retail stores with a strong focus on local food and Specialty Produce is a large restaurant distributor that recently began selling CSA boxes directly to consumers.

Although these businesses are very different, they all have the common goal of meeting the unique needs of their customer, the consumer, while providing the producers relatively greater negotiating power, either through direct ownership and control or through significant feedback into supply chain management and pricing policies. The following themes are the commonalities observed in the businesses and what appeared to be instrumental in their business operations as consumer oriented distributors.

### *High End Market Position*

Values-oriented products generally command a higher price due to perceived value through supply chain assurances, including complement production process claims such as organic and grass-fed meats. Market of Choice (MOC) is a family-owned blended retailer with a conventional/organic line of products and an up-market positioning.

Although it was originally positioned as a price impact retailer called Price Chopper, it was repositioned in 1999 as an up-market mix of conventional and organic products.

”Shoppers cover a full spectrum of income levels but tend to skew up-market with the stores positioning” (Gillpatrick & Shubert, 2011, p. 26).

HPFC is a small distribution co-op owned by both its customers and its producers: a membership and governance structure which creates a vested interest from both groups in the continued success of the co-op but also creates a challenge when it comes to pricing. “What makes HPFC interesting is that they are owned by both the buyers looking for local products and the food enterprises who are seeking to develop regional markets (since their locales are lightly populated)” (Gunter & Thilmany, 2011, p. 4). This has a potential for conflict of interest, as one party wants to pay the lowest price and the other wants to receive the highest price. HPFC addresses this issue by leaving all the pricing up

to the producers and encouraging competition among the set of suppliers so that buying members can have choices that are suitable to their values and preferred pricing points.

Although this is not necessarily the best price available to the consumer in the broader food retail market, they are provided a unique marketplace to buy an assortment of goods that would be otherwise unavailable. “Given the nature, values and mission of the producers involved in the co-op, the goal is for every member (including buyers) to be better off, not just producers. In short, the HPFC business model is focused on being socially just. People that prescribe to this type of business want everyone in the system to win” (Gunter & Thilmany, 2011, p. 4).

CHR is a group of six ranches located on the Western Slope of Colorado that was formed to provide high quality beef, marketed directly to their customers, in order to retain the greatest value. As one of the owners noted, it is the customers who have taught him to run his business better and have told him what he needs to sell. Customers demand natural beef raised without hormones or antibiotics, and they wanted other meats in addition to beef. CHR sells their high quality beef at a price premium and they sell similar high quality products for other local producers at a similar premium.

Both HPFC and CHR sell products at a higher price than their commodity counterparts but in interviews with their customers, price was never cited as a concern. CHR introduced a 10% price increase during summer 2010 and saw no change in demand. “Of the HPFC customers that were interviewed, most said the prices at HPFC were higher than at their primary shopping outlets, but that buying from HPFC is not about price. They cited product quality, access to products that they are otherwise unable

to find, and supporting local farmers as their primary motivations to join HPFC” (Gunter & Thilmany, 2011, p. 9).

Small-scale production is generally more expensive than large-scale production, due to economies of scale, and this increased cost of production must be passed onto the consumer. These economic factors suggest that retailers focused on small-scale producers are generally positioned as high-end channels. As is evident in these case studies, at least some segment of customers are willing to pay for products produced and distributed in a certain manner and higher prices are generally not seen as an obstacle.

*Marketing: Connecting the Customer to the Farmer*

Customers want to know the story of their food. For the vertically integrated company, this is easy. CHR began as a group of ranchers selling their own product at farmer’s markets and gradually increased their customer base by selling to restaurants, opening their own retail food market (Homestead Market), purchasing a USDA packing plant and operating a wild-game processing facility. CHR direct markets through their storefront and farmers’ markets as well as restaurants and wholesale distributors. At both CHR and HPFC, the owners are the growers and ranchers raising the crops and livestock, retaining ownership through the processing and delivery stages. This direct contact with producers is a double edged sword: the customers love it, but it creates a lot of extra marketing effort for farmers and ranchers who are already very busy with production.

Specialty Produce is a distributor whose main customer focus is restaurants. In an effort to expand, the distributor began a line where they sell products from local farmers directly to consumers. “Specialty Produce started a CSA program recently that entails packing consumer boxes with product acquired at the Santa Monica Farmers’ Market and

from a network of 17 regional producers. At any given moment they may have product from seven of these producers (Feenstra & Visher, 2011, p. 31).” Their customers receive produce from a group of farms and have to the ability to share the story of each farm. Although they do not have direct contact with their farmers, as do CHR and HPFC, given the small farmer base they draw from, customers may be confident that Specialty Produce knows their farmers and their practices.

The Market of Choice employs approximately 700 people and currently operates seven stores in Oregon: four in its “home town” of Eugene, two in Portland and one in Ashland in southern Oregon. It is currently expanding to Corvallis, Oregon, and expects to grow its business. They source from over 240 local vendors and also have a full array of national and regional suppliers. This is a long supply chain and the producers are far removed from the customer. Employee training is paramount to their marketing strategy. In the vision of the company two of the five statements are about employee training: “Create a unique environment that fosters exceptional customer service, employee commitment, community involvement, operational performance, and financial results” (Gillpatrick & Shubert, 2011, p. 25). The CEO believes that a highly motivated, well-trained team is the key to achieving the company’s vision. “The stores frequently promote local vendors using in-store posters and media. Its website is also used as a key tool to promote its local connections and community engagement. Market of Choice employs its own advertising department which is active in producing weekly brochures and involved in local marketing efforts. Those weekly brochures feature a local vendor in each issue and help connect its customers to the ‘stories’ of local producers. It does not

charge its local vendors for display in its ads, as is the common practice among retailers” (Gillpatrick & Shubert, 2011, p. 30).

These distributors are able to connect customers with their farmers and, by doing so, they are able to compete in the retail world. These cases drive home the point that customers want to know where their food comes from and the closer that connection can be or the better that connection can be created through marketing, the more loyal customers will be.

### *Unique Offerings*

Selling food at the retail level is very competitive. In this environment where customers have so much choice, how do customers choose where to shop? In the case of the distributors interviewed, unique product offerings were a key competitive advantage.

CHR provides more variety than their competitors and has its own retail store front. They are a one stop shop for local meat and a variety of other local products. They sell beef, pork, chicken, elk, fish, lamb, buffalo, and processed meats. All of their meat is sold individually packaged and vacuum sealed and beef is also sold as a ¼, ½, or whole. They sell frozen ready-to-eat entrees, eggs, cheese and milk, greens, jams and jellies, salad dressing, wine, and candy. They source all beef directly from CHR members while other products are sourced from local farmers and ranchers (Thilmany & Gunter, 2011). Niche beef has become very popular and many farmers’ markets have multiple meat vendors. By having both variety and a store front, CHR has been able to remain successful in an increasingly competitive market place.

Similarly, HPFC provides its consumers with products that are otherwise unavailable. The main products purchased by the customers interviewed were eggs and frozen meat. They all said they were unable to find products with the same quality at any other location in their area (Gunter & Thilmany, 2011). In contrast, the Market of Choice is positioned as offering its customers a “choice” of national brands and local products and a choice of organic/sustainable products along with conventional choices in a friendly, vibrant shopping atmosphere. Its produce section offers more than 400 items at the peak of the season (Gillpatrick & Shubert, 2011).

It is a local retailer with strong community focus. This includes local sourcing of products (produce, baked goods, wine and beer, flowers, jams and frozen goods, and specialty foods) as well as a commitment to supporting local business services, construction, banking and charities. Finally, Specialty Produce offers more choice and variety than the typical CSA because it draws from 17 farms, rather than just one or two farms and it is able to use the infrastructure and contacts already in place from their restaurant distribution to offer a broad spectrum of products directly to their members.

### *Industry Experience*

Having team members with industry experience, reaching out to other allied community members for expertise and recognizing when you need to hire experience are all qualities that enabled the companies interviewed to find success. The Market of Choice has been in business for over 30 years. It began with a team that had significant retail experience but also knew when they needed help. “After making its conversion from a price format to a differentiated format in 1999, it had substantial challenges managing the transition culturally with its associates and management team. When some

other competitors, such as Wild Oats, left the market the firm was able to add a number of team members who understood the natural-products industry which complemented team members who understood the discipline of being a price-based competitor” (Gillpatrick & Shubert, 2011, p. 29). Market of Choice credits their management team with their current business success as a differentiated retailer. Specialty Produce is able to utilize their 30 years of extensive experience distributing high end produce to restaurants and parlayed that further into selling directly to the consumer.

HPFC was able to utilize the industry experience of others to offset their own lack of experience. HPFC modeled their basic business after a successful organization, the Oklahoma Food Co-op, who also provided software and business advice. HPFC utilized the local Farmers Union and county economic development staff to write their business plan. The current business is small and run mostly by volunteers; their board comprises seven members that put a combined 20 hours per week of unpaid time into running the business. Without any full time, paid staff, HPFC is struggling to get beyond the growth stage of their business, regardless of community support.

CHR began their business as a group with extensive ranching experience but very little marketing experience. After 14 years, they appear to have reached a point of confidence and stability in their regional market. They rely on owner-members to run the stores, sell at farmers’ markets, and finish the cattle but have hired outside help to run the processing facility and to do the company’s accounting. When they vertically integrated through acquiring a processing facility, they hired an employee with extensive processing experience who has helped them to run an efficient, safe plant.

Food distribution is a complicated business. In each of the ten cases, but particularly in those focused on the consumer, access to those with industry experience was cited as a major reason for success. All of the businesses utilized team members with experiences from all realms of food supply chain management in addition to relying on community partners for expertise. It was the team that created successful distributor enterprises, not individuals.

### **Retail**

The retail oriented distributors sell their product to grocery stores who then sell product to the customer. There are three main retail outlets that value-added distributors target: specialty grocers, natural food co-ops, and conventional grocers. Due to large growth in demand for local foods, all types of grocery stores are now sourcing locally. Independent operators are using local sourcing to differentiate themselves and conventional grocers want to remain a one stop shop for their customers who are now demanding more local food.

Due to the quantity, quality and consistency demands of grocery stores, it is often challenging for small and mid-size agricultural enterprises to provide local food to meet those customers demand. Local food distributors have two main options when selling to retail stores: they can source only value-laden products or source value-laden products when possible but also have conventional options through partnerships with allied supply chain operations. Of the businesses studied, the most successful were those that were able to sell both value-laden and conventional products. Due to scale inefficiencies, it is unclear whether distributors carrying only value-laden products can be financially viable without outside funding.

Four of the companies studied are retail-oriented distributors: La Montanita (NM), GreenLeaf Produce (CA), Organically Grown Company and Pacific Natural Foods (OR). La Montanita is a grocery store co-op that recently opened a distribution center that sells only value-added products, mostly to their own co-op stores but also to other retailers and a few restaurants in New Mexico. GreenLeaf produce is a large, fairly conventional produce and specialty food distributor whose main customers are restaurants, but which also sells to retailers. Organically Grown Company is a very large organic produce distributor selling through many outlets, but with a focus on retailers. Pacific Natural Foods is large processor and wholesaler, selling shelf stable goods to retail outlets throughout the country.

Each of these companies has distinct opportunities and challenges, but there are several similarities among the set. The ability to supply retailers with adequate scale and consistency, having a high level of communication across the supply chain, product branding and unique business funding are all common themes among these distributors.

*Adequate scale and consistency*

Retailers have sales on specific products and change price occasionally, but generally speaking, they rely on consistent product quality and price in large volumes. The main focus of La Montanita's distribution center is the multiple La Montanita Co-op locations as well as other specialty grocers in the region. In 2009, sales through the distribution center (CDC) were \$2.2 million, 70% of which was sold to the four La Montanita grocery stores located throughout New Mexico. The CDC is a retail-driven food hub considered an additional store operating under the Co-op umbrella organization. "All products sold through the distribution center are a part of their value-added line.

This line has both local and non-local products, all of which have added features that go beyond the standard expectations of that product.” (Gunter & Thilmany-McFadden, 2011, p. 5). They are able to meet the scale demands of small independent grocers, but do not sell to larger retailers.

Organically Grown Company, a large produce distributor in Oregon and Washington, serves as an aggregator for over 400 small to mid-sized growers and its customers include both smaller independent stores and large national chains. OGC serves the Oregon/Washington market in the Pacific Northwest region of the U.S with gross sales of between \$50 and 100 million in 2009 (Gillpatrick & Shubert, 2011). The company has two distribution centers in Oregon: one in Eugene and one in Portland. The Portland area facility is the larger of the two and moves about 80% of its products. The company has approximately 160 employees and carries about 300 fruits, vegetables, nuts and herbs. They are large enough to supply large conventional retailers such as Kroger, but also sell to independent retailers. Because they source from all over the world, they can provide the scale and consistent availability necessary to sell to large retail chains.

Pacific Natural Foods, an Oregon based wholesaler, is also a very large business that sells both locally and nationally. It is vertically integrated, owning large farming and dairy operations that supply its processing/manufacturing facilities. Products include shelf-stable soups and broths, nut and grain beverages, pot pies, frozen pizza, and teas. PNF serves a largely North American target market. In 2009, it shipped more than 10 million cases of its product which equals about 250,000,000 pounds of food production. The company employs approximately 400 people and has a 600,000 square foot production facility located in Tualatin, Oregon (Gillpatrick & Shubert, 2011). They are

able to meet the scale requirements and consistent demands of the largest retailers due to their size.

FreshPoint Southern California is also able to meet the scale and consistency demands of retailers. It is part of a national company with 31 locations that are collectively the largest produce distributor in the US. After being acquired in 2000, it became a wholly owned subsidiary of the Sysco Corporation, a broad line foodservice supplier. The Los Angeles unit is the largest in the group. It is one of the largest branches of the largest produce distributor in the US with 27 operating companies in 31 locations and \$750 million in sales. The company sources both value-added and conventional products so they can meet all the needs of their customers.

Other than La Montanita, all of the retail focused distributors are financially successful, large companies with the ability to meet the demands of large retail chains. Large scale is a key competitive advantage for negotiating with and meeting the expectations of large retail chains. The one smaller enterprise in this category is La Montanita. The distribution arm of its business is still in its growth phase and the Co-op is working to reach an even greater scale in order to be financially self-sufficient.

#### *High Level of Communication across the Supply Chain*

Although the scale and type of these distributors is quite different, they all work to facilitate team work among members of the supply chain. Organically Grown Company works with growers to develop planting schedules, assists with logistics, and gives business advice to their smaller farmers. Pacific Natural Foods owns farmland and dairy operations that it uses in its processing, but can promote long-standing, collaborative relationships with its suppliers. La Montanita is very involved with its

producers. A few examples include creating a micro loan program, creating branded, value-added products, investing in equipment to help smaller farmers reach scale, and milling and trucking local flour so producers can make local bread. They use their staff experience and time to provide free services for producers. Although the co-op grocery stores receive the benefit of a unique branded product, these efforts are expensive and the distribution arm of the co-op is not financially self-sufficient, relying heavily on the co-op for funding. In the future La Montanita hopes to coordinate more of the small farmers in their area so they can expand offerings and stagger when products ripen across their suppliers in order to reduce market gluts in peak season. Similarly, “[GreenLeaf] partner[s] with small farms to help them develop new products with market potential and help them plan how to adjust their current offerings to meet fluctuating demand” (Feenstra & Visher, 2011, p. 22). In short, the distributors interviewed for this project act more as a business partner for producers rather than simply a customer.

### *Branding for Producers*

Labeling and branding are an important part of the values-based supply chain where the story of the product is important. However, it is expensive and many small farmers lack the resources to adequately brand their products. The retail distributors interviewed have pooled resources and created venues for farmers to brand their products. “[The Organically Grown Company] has its own ‘Ladybug’ brand that has about 80 items representing about 10-20% of sales. The Ladybug brand provides additional packaging, merchandising, and marketing support for the approximately 35-40 Northwest producers who use it” (Gillpatrick & Shubert, 2011, p. 9). La Montanita

employs their marketing staff and resources to design labels for individual producers to sell their value-added products.

### *Unique Funding*

Access to capital is a challenge for many food-based businesses, and of the newer distributors interviewed, this was definitely the case. Creativity in funding is evident in many of the businesses. La Montanita's distribution center is funded almost fully by the retail co-op. "The distribution arm of the co-op, CDC, began in 2007 as a means to extend the reach and market access of the enterprise, since those elements are La Montanita's core mission to the producer and the community" (Gunter & Thilmany-McFadden, 2011, p. 2). Although they are working hard to make the distribution center self-sufficient, profit is not the goal. They have benefitted from some USDA funding, and now will be a host enterprise for a new Rural Cooperative Development Center on behalf of the USDA. Similarly, CHR and HPFC expanded or began operations with support from new rural development initiatives of the USDA.

"The Organically Grown Company is an S-Corporation with about 45 private owners including 23 grower owners and an employee share ownership program (ESOP). About 75-80% of its employees participate with the ESOP which totals about 37% of the company's equity investment. The balance is held by private owners" (Gillpatrick & Shubert, 2011, p. 11). The Organically Grown Company is a well-established distributor but has continued to rely on internal funding throughout its growth. They began as a small co-op, but even now as a much larger company, they continue to utilize many of the same financing strategies.

Pacific Natural Foods is a large company: in 2009 it shipped more than 10 million cases, employed approximately 400 people and has a 600,000 square foot production facility (Gillpatrick & Shubert, 2011). Despite its current size, Pacific Natural Foods continues to be a family controlled business, relying on much of the same initial business structure from 20 years ago.

It is not clear how funding affects these organizations' competitiveness, but there may be some constraints considering typical equity, for-profit financing models do not always suit the intended outcomes of their missions.

### **Restaurant**

The restaurant focused distributor sells to chefs at both independent and chain restaurants. All restaurants are different but they tend to purchase more high end, specialty products, they change product offerings on a regular basis, they are willing to pay a premium for specific products, and they are looking for convenient ordering and procurement.

Five of the businesses studied sold to restaurants: La Montanita (NM), GreenLeaf Produce (CA), FreshPoint (CA), Specialty Produce (CA) and Organically Grown Company (OR). Of these five, only GreenLeaf and Specialty Produce have restaurants as their main customer. GreenLeaf is a fairly conventional distributor based in Northern California that is focused on high-end produce but also sells specialty cheese, dairy, bread, and other processed food. Specialty Produce is based out of Southern California and sells mostly produce, but also carries dairy and a few other items.

There were two driving themes among the restaurant-focused distributors; a competitive advantage from specialty products and the use of technology to facilitate

transactions. Chefs have very specific products they want to purchase and they want to be able to do so as easily as possible. The most successful restaurant distributors are able to achieve both.

### *Specialty Products*

The restaurant client is unique in its demand for high quality, specialty products. Many chefs look for unique varieties and high quality products as a tool for differentiation. GreenLeaf Produce is a 30 year old, conventional for-profit LLC. They source directly from dozens of farmers and buy from an array of growers and shippers in order to offer a full line of high quality specialty products (high-end produce but also sells specialty cheese dairy, bread, and other processed food). The company began selling to restaurants 30 years ago in the San Francisco Bay Area during the rise of a new kind of restaurant focused on boutique farming and specialty produce. Alice Waters of Chez Panise is one of the most recognizable names from this restaurant segment.

Specialty Produce is a privately held foodservice purveyor that buys directly from 17 local producers. It has a focus on specialty produce but also sells dairy and other items. The company sells to 600 restaurants and is the largest foodservice purveyor in the San Diego region. As an example of their variety of products available, they have over 200 varieties of micro greens, 80 Asian produce items, almost 38 different varieties of apples, 8 varieties of limes, etc.

La Montanita is able to offer its restaurant clients local products as well as local value-added products that would otherwise be unavailable. The distribution center is located in the Southwestern US, an area with agricultural production but sparse population. Many of farmers close to the city centers direct market products, but those in

more rural areas need La Montanita to access markets. Although they do not offer the same specialty products as their California counterparts, they similarly enable chefs to provide a unique product as a tool for differentiation. FreshPoint Southern California is a very large produce distributor that may not have as much of the very unique and high end products, but they fill a niche for those restaurants that are looking to incorporate local ingredients into their menu (but it is not the main focus of the restaurant). This allows them to use FreshPoint as a one stop shop for produce. Another case, the Organically Grown Company, is one of the larger organic produce distributors in the Northwest and has access to a quantity and variety that is unique.

One of the main reasons chefs cited as why they use the distributors interviewed was their unique product offerings. Chefs often want novel products that other customers have never heard about as their key to differentiation, and some of the values-based chains are a good fit to help the restaurants be successful with their strategic position.

### *Technology*

For the two companies whose main customers are restaurants, the common theme was their use of technology to make efficient transactions. Chefs are busy; thus, convenience and efficiency are very important when it comes to ordering product. Both GreenLeaf Produce and Specialty Produce have cited technology as a key to their business success and ability to provide chefs with the convenience and efficiency they demand. “[GreenLeaf Produce] claims to have the best technology in the market for managing sales and purchasing. The company’s positioning strategy is consistent with a message of class and quality, not price,” (Feenstra & Visher, 2011, p. 22).

At a time when the business was struggling and many of its competitors were going out of business, Specialty Produce made an investment in innovative software technologies. “Over the last 18 years, the owners have developed a unique and sophisticated technology that provides an unprecedented level of management information to chefs, and now to CSA customers, about the product, the season, the farmer, historical ordering patterns, etc.,” (Feenstra & Visher, 2011, p. 32).

FreshPoint Southern California is a large, efficient company utilizing scale, experience and technology to best serve its customers. This allows them to trim costs and provide their customers with product at the lowest possible price. Similarly, the Organically Grown Company utilizes technology in their operations and believes better information technology that allows for product traceability is becoming more important as the food safety landscape changes.

La Montanita does not utilize technology to provide convenience and efficiency for their restaurant clients; they use personnel with a focus on customer service. They are available and accommodating for their customers to ensure they have what they need when they need it. La Montanita is small and, for now, is unable to invest in expensive technology. Instead they use their personnel-driven system to service the needs of their clients.

The use of technology is dependent on the size of the different businesses. FreshPoint and Organically Grown Company are very large distributors with access to capital to build technology systems. GreenLeaf and Specialty Produce are mid-size distributors and have been in business for many years, both selling high end products. Their scale and sales volume have allowed them to afford expensive technology. La

Montanita, on the other hand, is small and does not utilize technology in part, given a lack of capital to invest.

### **Institutions**

Institutional buyers include universities, hospitals, school districts and wholesale buyers such as Sodexo and Aramark. These businesses purchase in very large volumes and are often constrained by a tight budget and specific purchasing protocol. Institutional distributors are dominated by very large companies, but there are also smaller companies that have found success in this segment.

Three of the companies interviewed sold their products to institutions: GreenLeaf Produce (CA), FreshPoint (CA) and Organically Grown (OR). FreshPoint is the only company whose main customer is institutions. The common theme among these distributors was the need for year-round availability. Institutional buyers rely on a constant supply of large amounts of food, often purchased with significant regulatory guidelines and tight budgets.

#### *Year-Round Product Availability*

FreshPoint Southern California is part of a national company with 31 locations that collectively comprise the largest produce distributor in the US. It is a wholly owned subsidiary of the Sysco Corporation, a broad line foodservice supplier that was acquired in 2000. The Los Angeles unit is the largest in the group, made up of 27 operating companies in 31 locations with \$750 million in sales (Feenstra & Visher, 2011). They sell produce to all types of customers and dominate institutional sales in Southern California.

FreshPoint Southern California is a foodservice and retail produce distributor that has a Farmers Market line of products supplied by mid-sized farmers at the Santa Monica

Farmers' market and augmented by product delivered directly by farmers to the warehouse in the City of Industry. They usually re-pack produce for customers, but farm identification remains intact. The "Farmers Market" line accounts for 4% of the firm's sales. FreshPoint now employs a vice president in charge of developing this line. By having both a conventional line and a value-added line, FreshPoint is able to be a year-round main supplier of very large clients, but still provide some unique products for those institutions wanting to differentiate a little in this respect. The Organically Grown Company is also a very large distributor whose main focus is organic. They source from the Northwest one-third of the year, and from national and international sources for the remainder (Gillpatrick & Shubert, 2011). They can provide organic goods in large quantities, year-round to meet the demands of institutional buyers.

Please note that although the case studies here found that large companies with year-round variety were the only institutional buyers, this customer segment is not exclusively for large enterprises, as there are successful smaller, value-added distributors selling to institutions as well, but not their primary customer target.

### **Distributor**

The distributors whose main customer is other distributors act aggregators, to aid in distribution to a number of outlets including retail, restaurant and intuitions. Of the cases studied, two sell to distributors: Growers Collaborative (CA) and Organically Grown (OR). Growers Collaborative is a small distributor focused on small farmers where Organically Grown is a very large distributor that sells to all different outlets, one of them being other distributors. The common theme among these two companies was increased market access for the growers they represent. Both companies were able to

leverage the resources of other distributors in order to get their product to a broader market.

### *Increased Market Access*

Not all distributors can sell to all outlets. Two markets that can be difficult to enter are the institutional market and the international market. Growers Collaborative has been able to work with FreshPoint San Francisco to supply local produce that can be sold to Sodexo and ultimately used for university dining. Growers Collaborative is a program of the Community Alliance with Family Farmers that works with existing distributors to aggregate product from small and mid-scale family farmers, branding items using the Buy Fresh/ Buy Local label. They sell exclusively to produce distributors who sell to institutional buyers and directly to retailer outlets. The Community Alliance with Family Farmers (CAFF) devotes about three full time employees to the Growers Collaborative initiative. At this writing two hubs are in place; one in the San Francisco Bay Area and the other in the Los Angeles region. Another is planned near Sacramento. Each hub will vary in size and in the form of its agreement with CAFF.

Growers Collaborative is less than a year old. Due to institutional contracts, many institutions cannot work directly with a small organization like Growers Collaborative; but by partnering with larger distributors, Growers Collaborative can access markets that are otherwise unavailable and provide produce to institutions that would otherwise not have access.

The Organically Grown Company acts as broker selling to large, national organic distributors such as Earthbound and Driscoll, as well as to international distributors. By utilizing other distributors, Organically Grown Company has been able to grow and

increase its foothold in the market. This allows the company to have more variety and scale across more seasons for its retail and institutional customers, as well as for its distribution customers.

## **Conclusion**

The original research team began case studies with the goal of assessing two hypotheses: (1) “The successful development of distribution networks involving small- and medium-scale producers is affected by three major factors—producers’ access to financial capital, various government regulations and policies, and the producers’ business acumen (entrepreneurship, managerial expertise). (2) Distribution networks within value chains generate environmental and social benefits, and enhance the financial viability of small- and medium-sized farms” (Feenstra & Visser, 2011).

Producer’s access to financial capital was a factor with the newer distribution companies interviewed, but not for the more developed companies. Government regulations and policies concerning food safety were cited as an area of concern for just about all of the companies interviewed, with small growers’ ability to meet the financial demands of new food safety laws being the most important and commonly cited issue. However, among interviewees, it is not clear that the quality they use to differentiate themselves will be greatly enhanced by new food safety assurances, as their customer base seems to have fairly high confidence in the quality of their offerings.

Expertise and business acumen were a large part of the success of many of the companies. Food distribution is complicated and experience appears to be an essential element of success. A common theme among the businesses interviewed was their commitment to the environment, their community and the farmers in their communities.

Almost all of the businesses have mission and vision statements to these ends and use these missions as a way to differentiate themselves from larger or more efficient competitors.

In conclusion, there is evidence that values-based supply chains are essential to market access and strategic market positioning for small and mid-size farmers on the supply side as well as increased access to locally produced food for customers who demand unique goods. From this analysis, it is clear that the main customer of a value chain has a significant effect on the business. It is important for a value chain to determine who their main client will be and how they can structure their business in order to provide products for that particular client. There are common themes among those most successful, but there are also unique aspects of each case suited to their market, customer needs and place-based factors.

## CHAPTER 4: MARKET ENVIRONMENT

In order to conduct an economic impact study, knowledge of the current market environment such as regional purchase patterns and economic activity in new, vertically integrated food supply chains is necessary. Given the lack of supply chain development along the Front Range of Colorado<sup>5</sup> as well as a lack of secondary data for the direct market sector, we do not have either data on intermediate business expenses for food distribution enterprises or a sense of appropriate market size for this region. Collection of primary data was identified as the best way to determine more accurate parameters related to the market environment. These data will be used to conduct the economic impact study for this thesis and a feasibility study in a future report.

From past experience, surveying all potential buyers and sellers and obtaining detailed financial information is challenging in this sector. As a solution, we surveyed selected groups and used the responses to create a framework of representative buyers and sellers. Due to the selection bias, it is important to note that extrapolation to the entire population of buyers and sellers will not be valid. Institutional buyers were chosen to be surveyed for the representative buyers.

---

<sup>5</sup>A region in Colorado located to the East of the continental divide. This is where the capital, Denver, is located as well as the majority of the state's population.

This group, and in particular K-12 schools, have demonstrated a desire and commitment to purchasing locally grown foods. Institutional buyers provide large, reliable, and consistent sales for producers. Additionally, K-12 schools have demonstrated a willingness to participate in research, unlike many of the other potential buyers (restaurants, retailers). Producers currently involved in direct marketing activities were selected to be surveyed for the representative sellers; this group of producers represents those most likely to work with the food hub in its initial stages, even though a broader set of producers may be integrated into supply chains once they are established.

## **Methodology**

### *Participants*

Two groups of subjects were sent the online survey to determine potential institutional demand and supply for local food, with supply questions targeted at local farmers and demand questions focused towards potential buyers. To determine potential supply, CSU Extension agents in each county were contacted with an introduction to the survey's purpose and a description of the types of information to be collected, and then asked to send out the survey link to their email list of producers. We felt this approach enabled us to contact the most complete list of plausible suppliers. Producers whose listed offerings included fresh fruit and vegetable, dairy and meat producers were contacted in several counties along the Front Range including Adams, Arapahoe, Boulder, Broomfield, Clear Creek, Denver, Douglas, Elbert, El Paso, Gilpin, Jefferson, Larimer, and Weld. Due to the large amount of fruit production that occurs on the Western Slope that is shipped to the Front Range, fruit producers in Mesa, Delta and Montrose were also included in the survey. In a previous survey, (Onozaka, Nurse, & Thilmany McFadden,

2010), most responded that any in-state purchases qualified for local in their buying decisions.

To estimate the potential demand for local food along the Front Range, food service directors were contacted at institutions including hospitals, K-12 schools, and universities. These individuals have the necessary information organized as part of the accounting and control systems, and if shared, this is important data so this research project can accurately estimate the potential demand for local food. Specific food service buyers were chosen based on the location of their institution. These counties include Adams, Arapahoe, Boulder, Broomfield, Clear Creek, Denver, Douglas, Elbert, El Paso, Gilpin, Jefferson, Larimer, and Weld.

#### *Apparatus*

Participants received an email describing the study and containing a link to the online survey, administered by StudentVoice (an online surveying company; [www.studentvoice.com](http://www.studentvoice.com)). Those that left their name, requesting to be contacted with further information, will be contacted and asked to participate in a future round of surveying, focus groups or personal interviews as the feasibility of the project considered moves into subsequent planning stages.

#### *Design*

Online surveys and results<sup>6</sup> can be found in Appendix B (supply) and Appendix C (demand).

---

<sup>6</sup> Detailed results from only the demand survey will be presented in the appendix. Due to incomplete answers from the supply survey, results will only be presented in the section titled, "Online Supply Survey Results."

### *Procedure*

The first step of the study was to create two questionnaires, one with supply and one with demand-oriented questions targeted at the populations described above. The supply surveys focused on what the producer was currently producing, both in type and dollar volume what they would be willing to sell to a wholesale buyer. The demand survey focused on what the buyer was currently purchasing in type and dollar volume, and what they would be willing to purchase locally if available. Additional demand questions include information about main suppliers and how the institution buys their products, which both play into a producers' ability to sell to that particular institution. By determining how well supply and demand match, the study can determine how effectively the region's farmers can work with institutional customers.

After the surveys were developed and the recipients were identified, a consent email was sent to each participant. The consent email described the study and informed the participant why the study was being conducted, the general information that would be asked and how their answers would remain confidential. If participants chose to participate in the survey, they followed a link to the survey which took about 20 minutes to complete. Online survey results were compiled and analyzed. Simple techniques were utilized to analyze data including statistical means and counts, but no formal regression analysis was conducted. These results were used to conduct an economic impact analysis and will be used in the future to conduct a feasibility study.

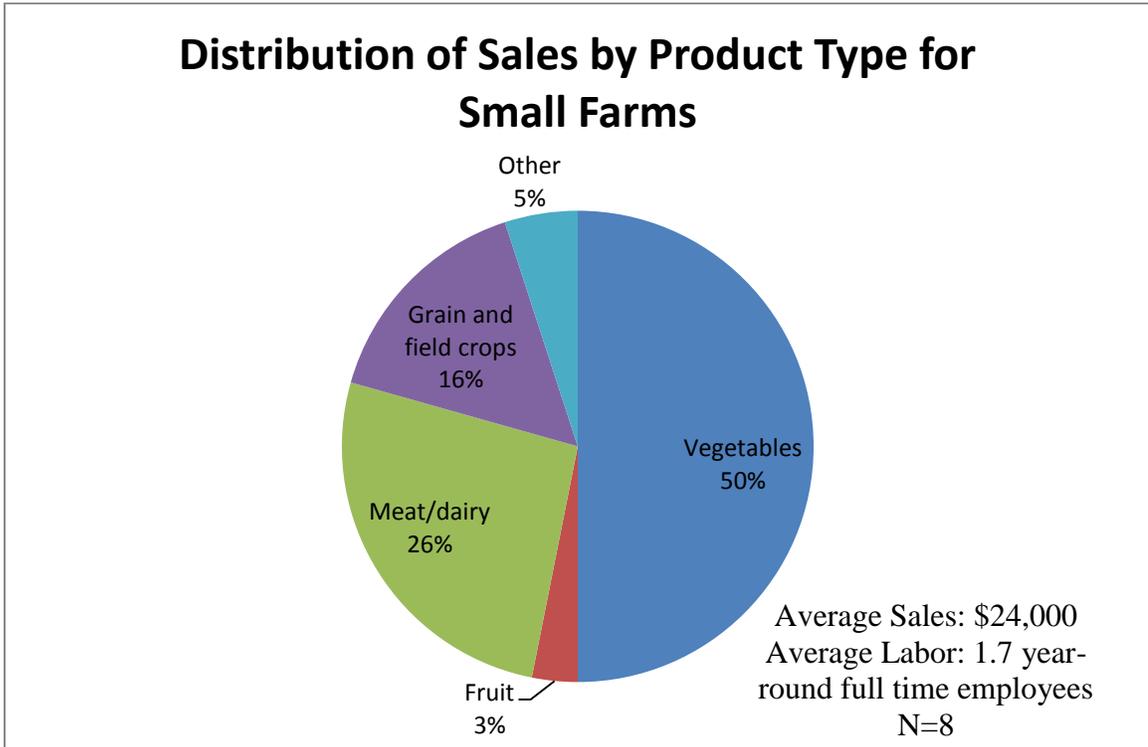
## **Online Supply Survey Results**

*What are the types of farms that will supply the food hub?*

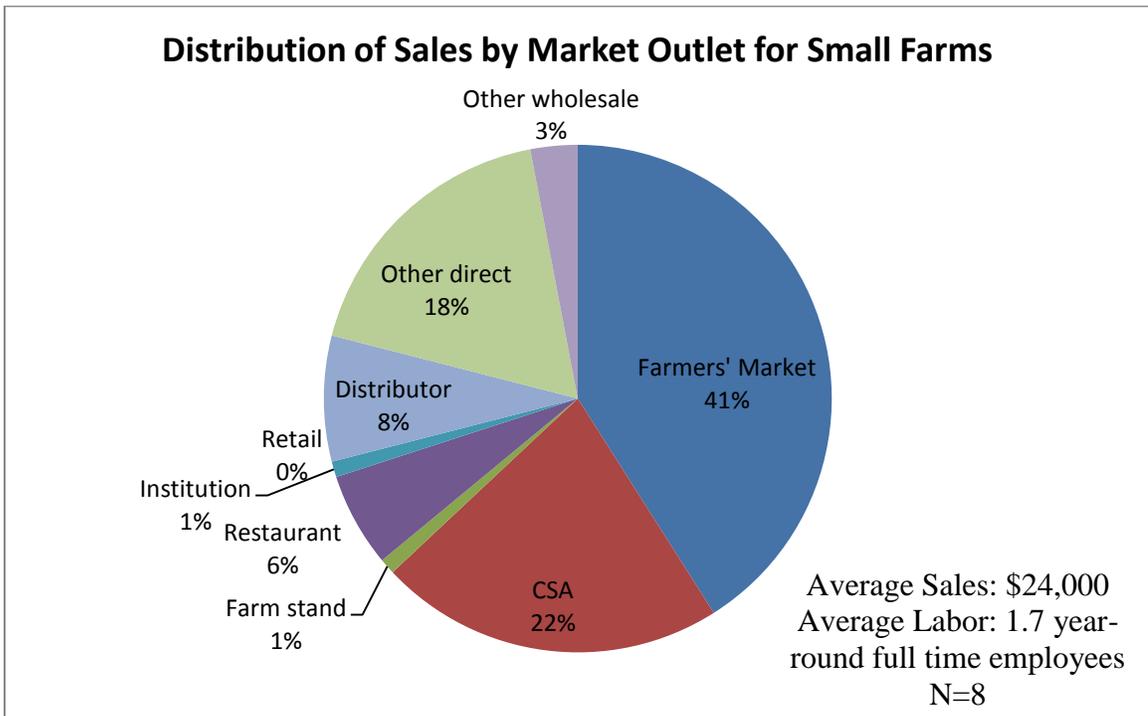
Seventeen surveys were filled out; 14 were complete enough to be usable for analysis. Eleven producers were located on the Front Range (5-Boulder, 5-Weld, 1-Larimer) and 3 on the West Slope (1-Delta, 1-Mesa, 1-La Plata). Of the 14 producers that filled out the survey, all 14 are interested in working with a small-scale local food distributor and among these farms there are variations in size, product offerings and experience. Of course participation will depend on a variety of factors including the price the farmers will receive and the quantity they expect to sell. These details were not addressed in this survey.

The farms in the sample fall into three distinct sales categories. The first group all has sales of \$40,000 or less; the second group has sales between \$130,000 and \$500,000 and although this is larger than the USDA definition of mid-size farm, this was the most logical grouping of farms and still gives us an average that is very similar to the USDA definition of \$250,000; the last category represents the large farms with sales between \$2,000,000 and \$7,200,000. The assumption is that the distributor will be anchored by one or two large farms, utilize medium size firms to fill the volume, yet still provide the variety in products, and then utilize the small farms for the remainder of the volume and as an opportunity to grow the local food system.

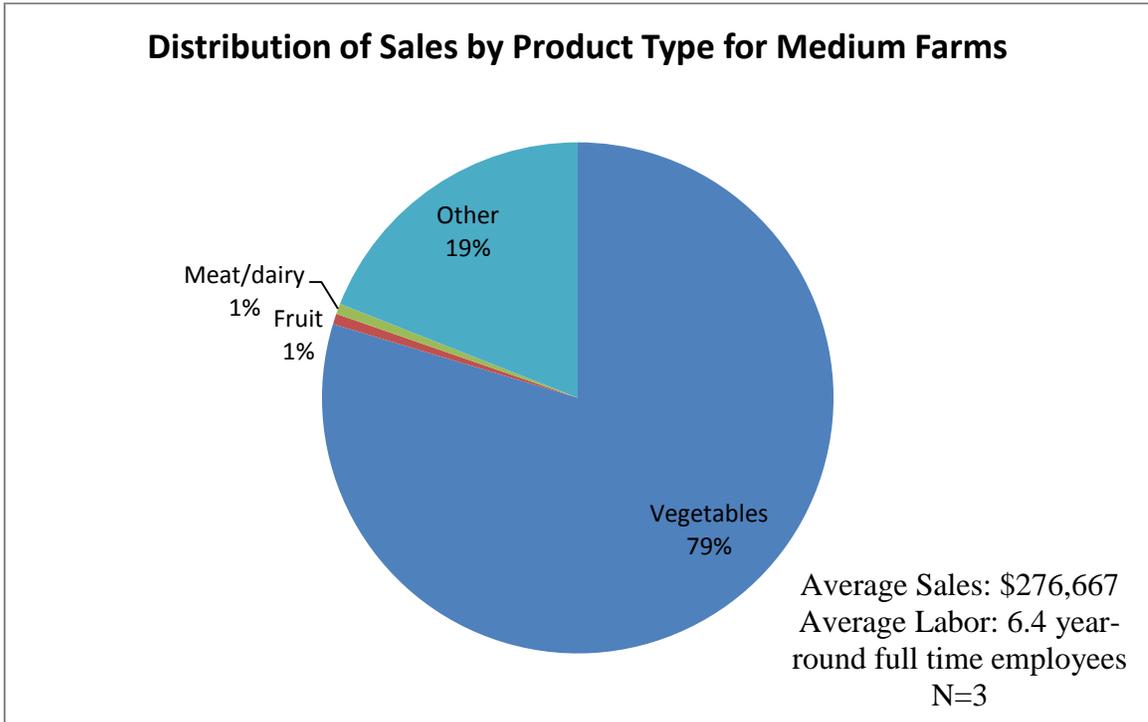
**Figure 4.1. Distribution of Sales by Product Type for Small Farms**



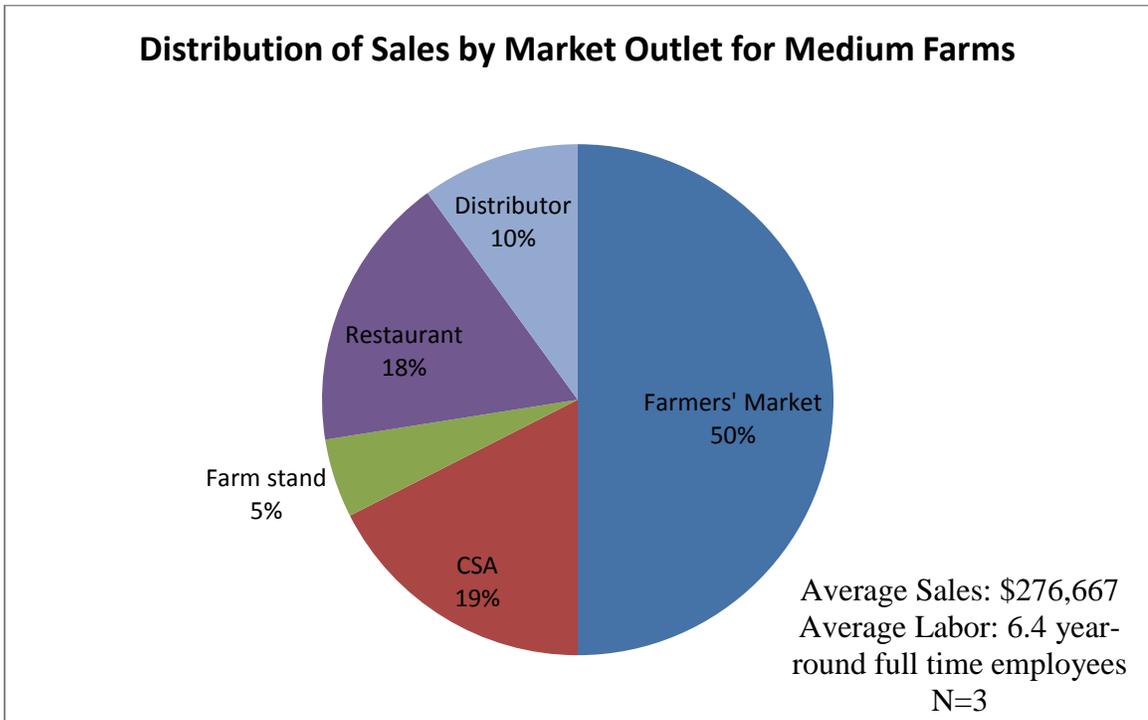
**Figure 4.2. Distribution of Sales by Market Outlet for Small Farms**



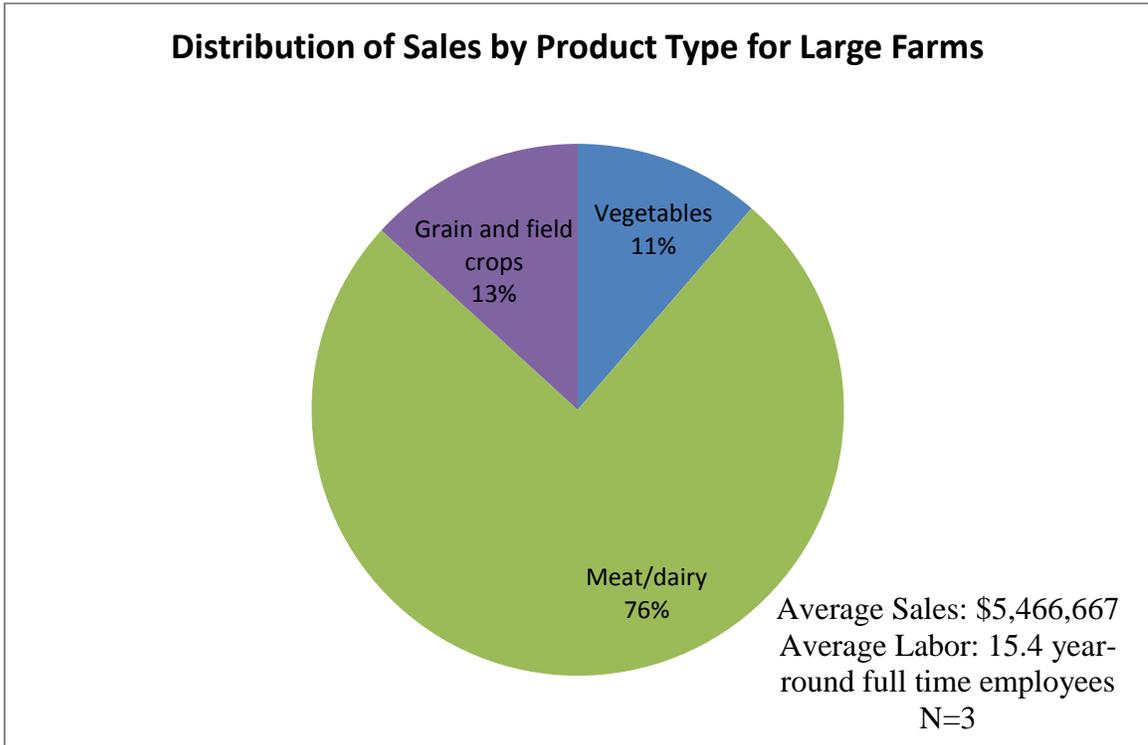
**Figure 4.3. Distribution of Sales by Product Type for Medium Farms**



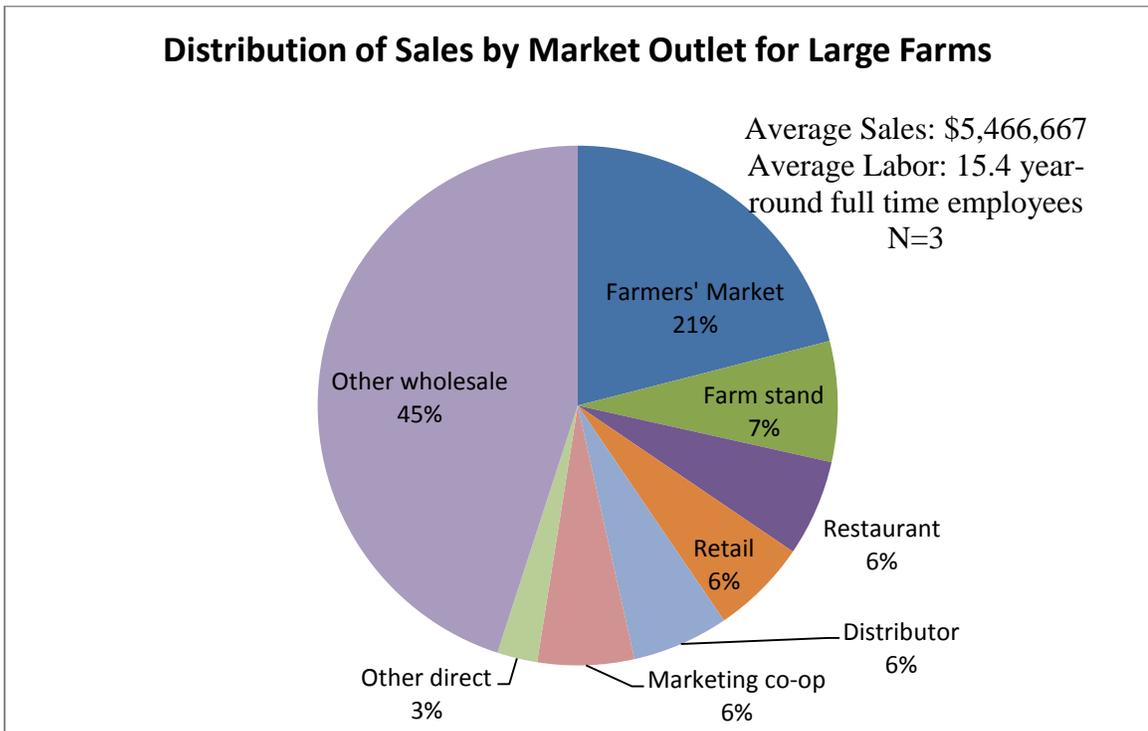
**Figure 4.4. Distribution of Sales by Market Outlet for Medium Farms**



**Figure 4.5. Distribution of Sales by Product Type for Large Farms**



**Figure 4.6. Distribution of Sales by Market Outlet for Large Farms**



**Figure 4.7. Potential suppliers to distribution hub, by sales volume and wholesale experience**

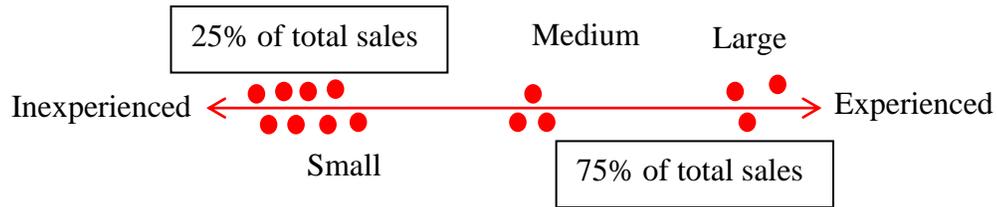


Figure 4.7 describes the breakdown of the type of farms that will supply the distributor. Those farms that are interested and that have previous experience selling wholesale will make up the bulk of the business, about 75% of sales. This portion will be mostly the large and mid-size farms. The remaining 25% of sales will be from smaller farms that might have little experience selling to the wholesale market but would like to expand their business and have the flexibility to develop cropping plans that fill needed product categories in demand by buyers. The dots represent the proportion of farms in each category, with small farms having the largest number of farms and medium and large having fewer farms.

### **Online Demand Survey Results**

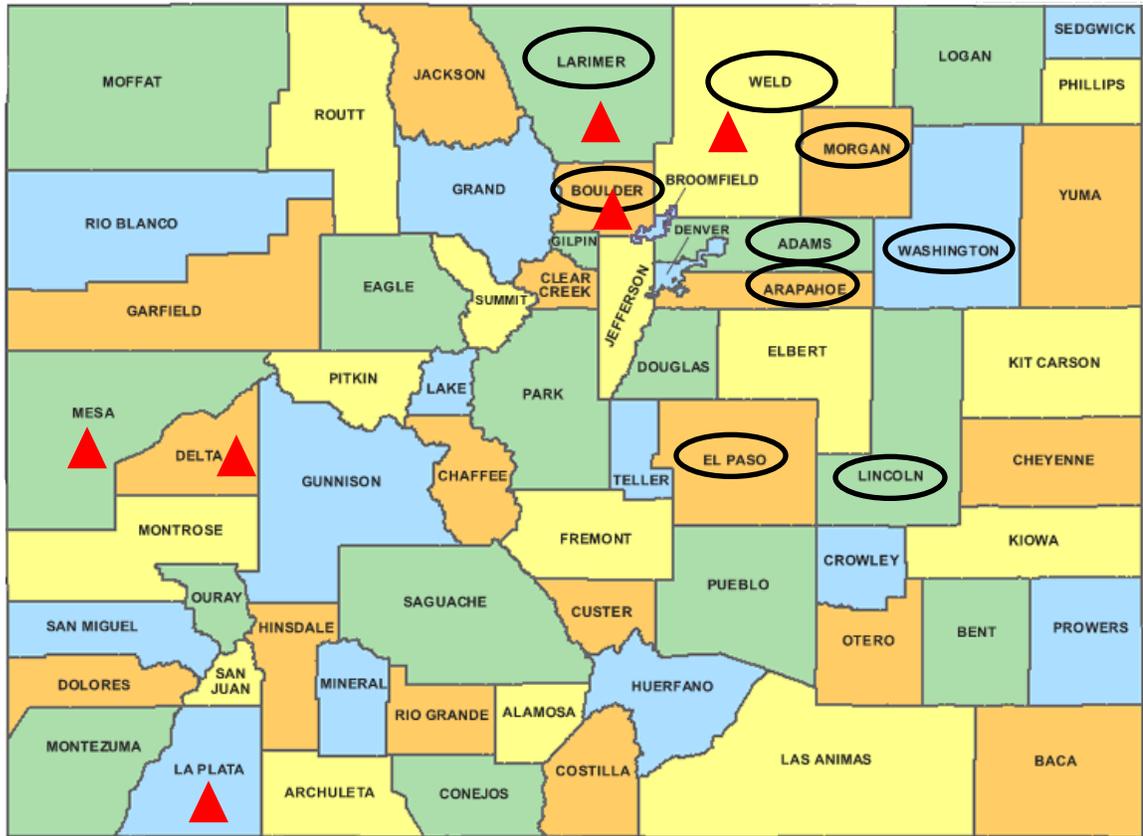
*What are the types of institutions that will be purchasing from the food hub?*<sup>7</sup>

Twenty-eight institutional buyers filled out the survey, 24 were complete and used for analysis. 88% of respondents were K-12 schools, 4% Universities, and 8% Hospitals. All responding organizations are located along the Front Range; four in Weld, four in Denver, three in Adams, three in Boulder, three in El Paso, two in Morgan, two in

<sup>7</sup> Detailed results available in Appendix C

Arapahoe, two in Larimer, one in Lincoln, and one in Washington. A map of the location of all producers (represented by red triangles) and institutional buyers (represented by the black circles) included in the survey results are in Figure 4.8.

**Figure 4.8. Map of Buyers and Sellers Represented in the Survey Results**



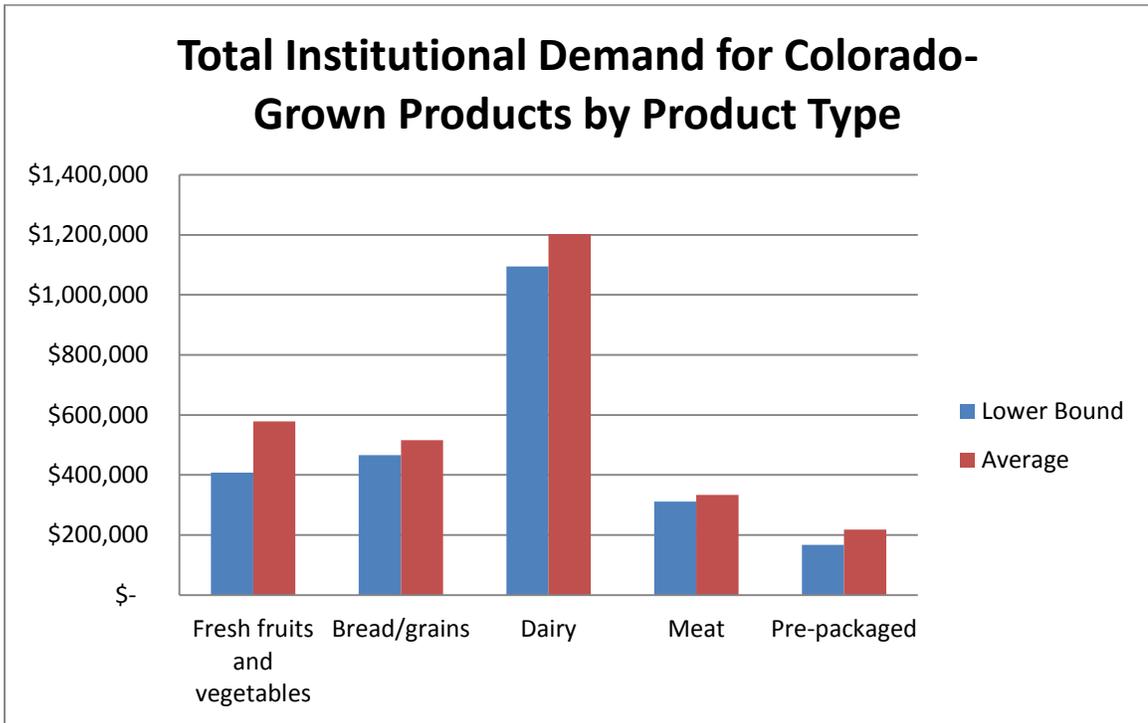
-  Location of institutional buyers
-  Location of producers

The average institutional buyer has 17, 087 students or residents and serves a total of 2,192,210 meals per year, with an average of 12, 625 breakfasts per week and 36,351 lunches per week. Fifty-eight percent of the institutions currently have a direct from farmer purchasing program, the majority of which began in 2009. Eighty-seven percent

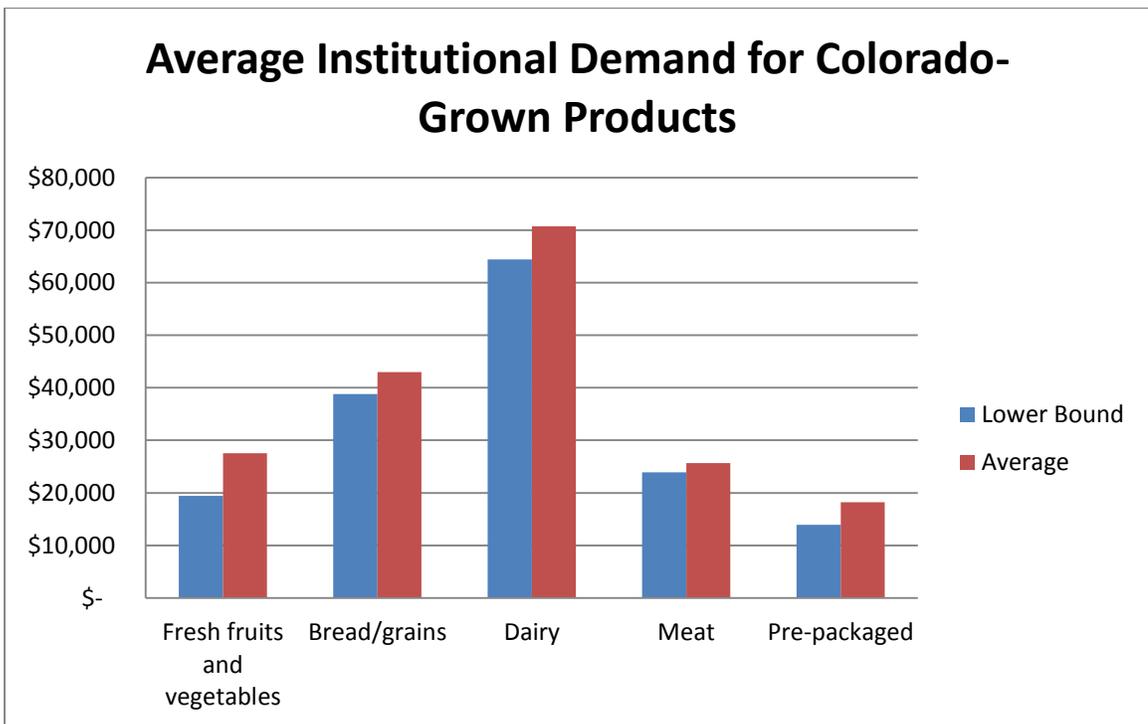
of buyers said that their main food service vendors provide Colorado-grown products, when in season, and 65% of those respondents said they purchased Colorado-grown products through their major provider the previous year.

To obtain estimates of the current demand for Colorado-grown products, survey recipients were asked to estimate how much Colorado-grown products they purchased last year in each product category, within a specified range (\$1 to 1,000, \$1,001-5,000, etc.). It was assumed that asking the purchase amount within a range allowed for respondents to provide more accurate estimates. In order to convert these ranges to point estimates, a very conservative estimate was made using the lowest dollar amount of the range, and a less conservative estimate using the mid-point of the spending category. Tables 4.9 and 4.10 show the current total institutional demand for Colorado-grown products and the average demand, respectively. Table 4.11 shows the current proportion of Colorado-grown purchases that are being spent in each product category.

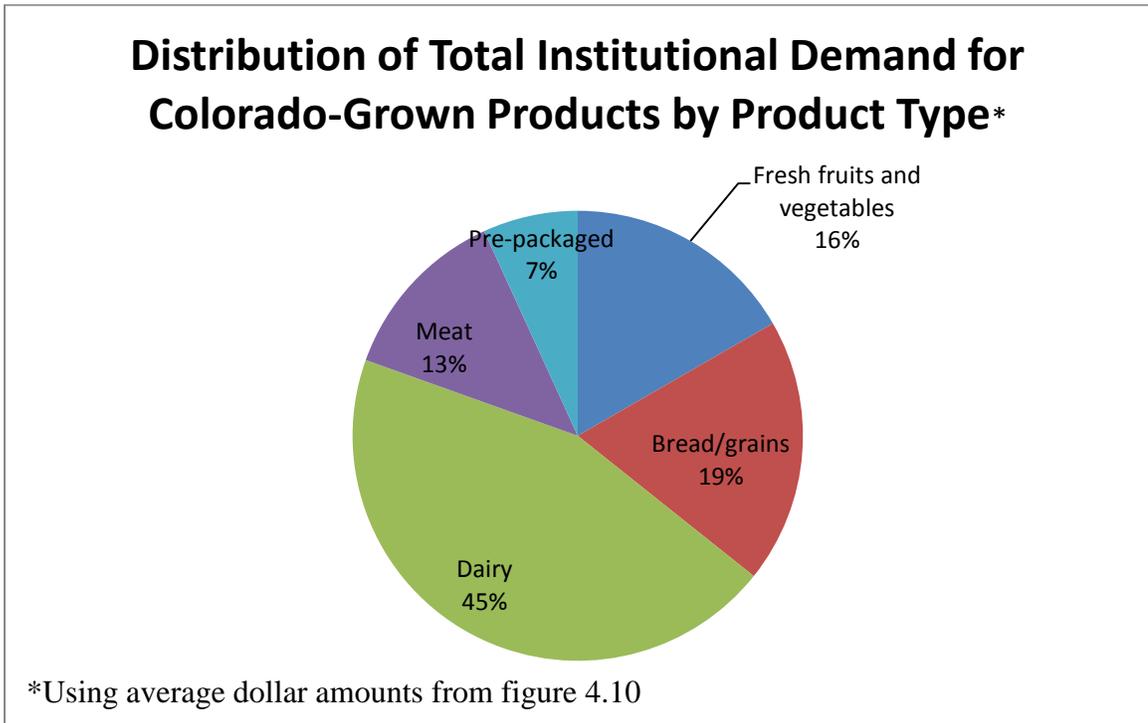
**Figure 4.9. Total Institutional Demand for Colorado-Grown Products by Product Type**



**Figure 4.10. Average Institutional Demand for Colorado-Grown Products**



**Figure 4.11. Distribution of Total Institutional Demand for Colorado-Grown Products by Product Type**



### **Conclusion**

The data gathered in the surveys helps to provide information on the market environment on the Front Range of Colorado. The remaining analysis is based on the assumption that the data gathered from the farmers who responded to the survey is representative of farmers in the area who are currently involved in direct marketing. Data on current sales, sales outlets and sales categories will be essential in conducting the economic impact study. Farmers focused on direct marketing as well as smaller scale farmers tend to have very different production functions than traditional large scale producers that utilize the supply chain for marketing. Knowledge of these producers, based on survey results, will help to create more accurate production functions and to model how these farmers fit into the rest of the farming industry.

## CHAPTER 5: ECONOMIC IMPACT OF A FARM TO SCHOOL PROGRAM

Increased sourcing of local food by large wholesale buyers indicates potential for new strategies to localize food systems since many communities lack mid-scale, aggregation and distribution systems that move local food into mainstream markets in a cost-effective manner (Day-Farnsworth, McCown, Miller, & Pfeiffer, 2009). But given the necessary investments in research and infrastructure, should communities invest in these mid-scale supply chains? This chapter seeks to answer this question by analyzing one of the proposed benefits of mid-scale value chains: is there the existence of a positive economic impact within communities when food supply chain activities occurring within a region are increased or shifted to more locally owned and controlled enterprises. More specifically, this thesis will explore the local economic impact of a specific school district's local food purchasing program using marketing data on purchases, likely suppliers and the assumed linkages within the community's businesses and the new distribution enterprise. This analysis is not only driven by absolute sales, but also seeks to capture the added economic activity that occurs when the activities of the middlemen occur within the region.

The Front Range region of Colorado has seen limited small scale supply chain development. One of the wholesale buyers in the area that have demonstrated a desire and commitment to purchasing locally grown foods are K-12 schools. They represent an important market for producers as they are able to provide large, reliable, and consistent sales and could act as the anchor buyer for a food hub.

Additionally, K-12 schools have demonstrated an interest in participating in research and have reached out to researchers for assistance. The procurement of local products from local farmers by K-12 schools is called a Farm to School program. “Farm to School connects schools (K-12) and local farms with the objectives of serving healthy meals in school cafeterias, improving student nutrition, providing agriculture, health and nutrition education opportunities, and supporting local and regional farmers” (Farm to School, 2011). There are currently an estimated 2,352 farm to school programs in the U.S., a huge growth from the 400 that existed in 2004 (Farm to School, 2011). In Colorado, we have seen a similar commitment by schools. In a survey conducted by the Colorado Farm to School Initiative, 41% of the 56 school districts surveyed currently had programs in place to purchase locally grown products directly from producers (Kathlene & Shepherd, 2011, p. 1). And in the first annual Farm to School conference in January 2011 hosted by Real Food Colorado (a local consulting firm focused on farm to school) and Colorado State University, there were over 200 participants, 55 of which were schools.

In Colorado, there are a few standout districts leading the way in Farm to School through innovation and dedication; the Weld 6 School District is one of those leaders. Their Farm to School program began in the 2008/2009 school year with \$240 in purchases and in the 2010/2011 school year, purchases reached \$56,500 (beyond those purchases of Colorado products already occurring through conventional distribution channels, but not labeled so that it is possible to track their source of production). Even with this growth, it is important to note that several barriers (such as a lack of facilities to handle raw agricultural products) have kept the purchase volumes from growing even

more quickly. The district recently received grant funding to renovate a central kitchen, allowing for increased processing capabilities; including \$273,000 from the Colorado Health Foundation and \$144,000 from the Nutrition Services Fund and the district's Capital Investment Fund (West & Sample, 2011).

Weld 6 serves the towns of Greeley and Evans in Weld County. These cities are part of a rural, agricultural county that is one of the largest agricultural producing counties in the US with almost all production is in agricultural commodities (beef, wheat, dairy) for export, but very little innovation in redeveloping supply chains targeted at local institutional buyers. In the Weld 6 school district, 91% of breakfasts served and 80% of lunches served in the district were either free of cost for the student or sold for a reduced cost in the 2009/2010 school year. The school district has a total of 28 schools serving 19,500 students (West & Sample, 2011). Based on the rural nature of the Weld 6 school district and the relatively high rates of poverty, the significant drivers of farm to school efforts have been public health and food security concerns by public health NGO's.

Although public health has been one of the main drivers of the Weld 6 Farm to School program, the food service team and others involved in the food system are also interested in the direct impacts the program is having on the local economy. Similarly, on Farm to School programs across the country, the benefits to public health and the economic development opportunities connected with buy local campaigns have been identified as motivation for the support of these programs. Colorado State University researchers were contacted to help quantify the direct impact of the Weld 6 Farm to School program on the local economy.

## **Background of IMPLAN**

Because this study was careful to consider the direct and indirect linkages that a relocalized food system might have within a community, this section of the report will be dedicated to explaining how a common economic development tool, IMPLAN, was customized to suit this research question. An economy is a complex system; a change in production in one industry has a direct effect, but it also has many other effects. The production of support industries will be affected, wages and number of workers will be affected, taxes will be affected, and many others aspects of the economy will effected. Input-output models were designed to enable users to make an accurate assessment of how a change in one industry will affect the rest of an economy. Input-output models provide a framework to help the user to track the flow of money from one entity to another throughout the economy.

The widely used input-output software package program, IMPLAN, was utilized to determine the economic impact of the Weld 6 Farm to School program. This modeling system describes the economy as a series of accounting transactions that occur within and between producers and consumers. It is a general equilibrium model that shows the circular flow of all actions within an economy. Software packages like IMPLAN are input-output models that are used to simulate how the economy of a given area will be affected by a change or event that occurs in that economy. “Successive rounds of transactions stemming from the initial economic stimulus (such as a new plant or community business) are summed to provide an estimate of direct, indirect, induced (or consumer-related) and total effects of the event” (Otto & Varner, 2005, p. Appendix II). In addition, IMPLAN produces a set of multipliers used to describe how much the overall

economy changes per unit change in a dollar of output, a dollar of personal income, a dollar of value added, or a job (Otto & Varner, 2005).

IMPLAN is a useful tool for researchers, but it is not without its weaknesses. “Modeling results often depend on the way in which the IMPLAN model is structured, as well as the extent to which disaggregated data are available for building the input-output model” (Liu & Warner, 2009, p. 74). Because IMPLAN estimates are based on regional and sometimes national averages, for businesses that behave differently from the average (like a small farmer involved in direct marketing), IMPLAN does not always provide accurate estimates of how these types of sectors truly behave. Swenson (2006) notes that the production functions are biased towards existing fruit and vegetable commodities, but due to lack of cost-of-production data available, production functions in his study were not changed. The study did however create a new sector to capture direct marketing efforts by making marketing activities a value-added enhancement for the producer. Haynes (2010), on the other hand, took the approach of creating new sectors and modifying production functions to more accurately represent the small farms participating in Farm to School activities.

Lazarus, Platas, and Morse (2002) investigate the accuracy of IMPLAN’s production functions and regional purchase coefficients (RPCs) in describing hog production in Martin County, Minnesota. They find that the production functions and RPCs (based on national averages) are for the most part different than those found using survey data from local producers. They conclude that “production function changes are much more important than changes in the regional purchase coefficients...[but] the

regional purchase coefficient for a single major input can outweigh the impacts of all the other production functions and RPCs combined” (Lazarus, Platas, & Morse, 2002, p. 47).

In addition to weaknesses, IMPLAN also suffers from common misuse or application of data. “Many people naïvely use the findings of input-output studies, usually reduced to a multiplier value, to infer broad-based causality...” (Swenson, 2006). IMPLAN does not describe a causal relationship nor does it provide a cost-benefit analysis, it simply describes how money changes hands within an economy. Another common misuse is using only the output multiplier as a measure of success. The output multiplier shows the effect of an extra dollar of spending on the economic activity within the region, i.e. sales revenues in different sectors. But as Crompton (2001) points out, the personal income multiplier is a much better measure of the project’s benefit to the community as it describes the effect of an extra dollar spent in the economy on the level of personal income for the people that live in that economy (Crompton, Lee, & Shuster, 2001, p. 81). In short, exploring IMPLAN, and how primary data can improve some of its weaknesses (the use of national averages, inaccurate production functions) will enable this thesis to more accurately use IMPLAN as a tool for analysis, but even then, interpretation will be carefully framed to assure that any implications are not overstated.

### **Customization**

IMPLAN data is the default information in IMPLAN that describes the average cost allocations within an industry based on a variety of regional and national sources. But the farmers who provide fruits and vegetables for the Weld 6 school district are not the average fruit and vegetable farmer. They are generally much smaller and more diversified, and they provide most of the marketing and distribution services themselves.

As discussed above, modeling non-traditional sectors like these is not a strongpoint of IMPLAN, so similar to Haynes (2010) we created two new sectors. We customized the Study Area Data, Industry Production, and Regional Purchase Coefficients of these new sectors to more accurately capture the role of Farm to School producers in the economy. Survey data and secondary data were utilized where possible and IMPLAN data was used where no other data was available.

The first step of customization was to aggregate the 440 industrial sectors into 29 industry sectors with the intention of simplifying future customization. Sectors of particular interest, such as vegetable and melon farming and fruit farming, were left disaggregated from the rest of the agriculture sector where sectors of less interest, such as mining, were left in their aggregated form. In addition, two new sectors were created (FTS Vegetable and melon farming and FTS Fruit farming) utilizing unused sectors in the economy (tobacco farming and cotton farming).

The next step was to customize the Study Area Data for the new FTS sectors. The Study Area Data allows the user to customize the employment, output, and value-added in a sector. It was assumed that FTS producers purchased their inputs as do their IMPLAN counterparts. Total output (value of production) was determined using this study's survey data and 2007 Census of Agriculture data. The survey found that the average fruit and vegetable producer sold 10% of total sales to wholesale buyers. We used this as a proxy to determine the percentage of direct sales (reported for all Colorado producers in the Census) that could to be sold to schools. This proxy assumes that all of the fruits and vegetables marketed wholesale would be sold to the schools; they would not be sold to other wholesale outlets (but ultimately, this distribution enterprise could

serve all institutional buyers). Assuming total direct sales in Colorado are \$22.25 M (NASS, 2007), we multiplied \$22.25 M times 10% to determine total output of the FTS sectors to be \$2.25M.

The allocation of sales between vegetables and fruit was determined by the Weld 6 purchasing data, with 53% of purchases to vegetables and 47% to fruit; for a total output (value of production) of \$1,192,500 for FTS Vegetable and melon farming and \$1,047,500 for FTS Fruit farming. We utilized Weld 6 purchase data instead of the allocation in IMPLAN because it is a more accurate representation of Farm to School purchasing and the direct market in Colorado. Although the fruit sector in Colorado employs fewer workers and has lower sales than the vegetable and melon sector, the fruit sector represents a significant amount of the direct sales in the state and particularly with Farm to School. To be realistic, this same amount in sales was subtracted from the Vegetable and Melon sector and the Fruit sector, respectively, to indicate that production simply shifted from land previously growing the same crops to a new enterprise that produces and distributes those same products.

The number of employees was determined using a combination of survey data and the total output determined above. Survey participants were asked the number of full-time employees they have in each of the four seasons. Those numbers were averaged to get an average year-round full-time employment figure for each farm. Utilizing employee data and sales data, we determined the average labor needs per dollar of sales by fruit and vegetable farms in our sample. Given total sales of \$2.25M in the sector, we determined the employment needed to provide this amount of sales is 65 full-time year-round employees. The allotment of employment between vegetables and fruit was also

determined by the Weld 6 purchasing data; giving us 34 employees in FTS Vegetable and melon farming and 31 employees in FTS Fruit farming. Again, the same number of employees were removed from the Vegetable and Melon farming sector and the Fruit Farming sector, so as to not double count employment.

Value added levels, which includes employee compensation, proprietor income, other property type income, and indirect business tax was determined using IMPLAN data. To determine employee compensation, we took an average of the percentage of output that employee compensation uses for retail store food and beverage, and vegetable and melon farming/fruit farming from the IMPLAN data to act as a proxy for the FTS sectors. Because the FTS farmer both grows and sells their own products, we assumed the marketing activities were important to capture (as a proxy for retained transaction costs), instead of only the agricultural production activities. This idea is the most common claim for why we need localization, so this customization is very important for the model.

Proprietor income, other property type income and indirect business tax were determined utilizing their respective percentages of output in IMPLAN for both vegetable and melon farming and fruit farming. These modifications shifted intermediate expenditures to employee compensation, providing a more accurate representation of FTS farms by integrating middlemen activities directly into operations. Table 5.1 provides the Study Area Data for the newly created FTS sectors.

**Table 5.1. Study Area Data Customization<sup>8</sup>**

	<b>FTS Vegetable and melon</b>	<b>FTS Fruit</b>
<b>Employment</b>	34	31
<b>Output (Value of Production)</b>	\$1,192,500	\$1,057,500
<b>Employee Compensation</b>	\$346,939	\$307,663
<b>Proprietor Income</b>	\$364,402	\$469,256
<b>Other Property Type Income</b>	\$15,230	(\$75,694)
<b>Indirect Business Tax</b>	\$13,695	\$24,936
<b>Total Value Added</b>	<b>\$740,266</b>	<b>\$726,161</b>

The next customization was in Industry Production, where changes to the production functions of the FTS sectors were made. Because the typical fruit and vegetable producers utilize other companies for marketing and distribution activities, customization of the production function is essential so the new sectors reflect the fact that the majority of these activities are occurring on the farm. We first imported the production functions from the respective IMPLAN sectors, Vegetable and melon farming and Fruit farming. The next step was to move marketing activities that occur outside the farm for the typical producer, and make those activities occur on the farm. This was accomplished by reducing the coefficients on certain sectors and increasing the coefficient on the FTS sector by the same amount. Table 5.2 provides a detailed description of these changes.

---

<sup>8</sup> Note that employment and output figures listed in the FTS sectors were subtracted from their respective sectors. This table represents gross changes, not net.

**Table 5.2. Production Function Customization**

<b>Commodity Description</b>	<b>% Shift to FTS Sector</b>
<b>Ag, forestry, fishing, hunting</b>	100% <sup>9</sup>
<b>Livestock</b>	100%
<b>Ag support</b>	50%
<b>Other manufacturing</b>	25%
<b>Transportation and warehousing</b>	75%
<b>Retail trade</b>	50%
<b>Wholesale trade</b>	50%

The final customization was in Trade Flows, where Regional Purchase Coefficients (RPCs) for FTS sectors were modified. RPCs measure the percentage of local demand that is met by local production and they are determined using “a variety of secondary data means including quotients, supply-demand pooling, and econometric estimates” (Lazarus, Platas, & Morse, 2002, p. 33). Because all production and purchases of the FTS sector occur in the region, we modified the RPC to be 100% for the FTS sector. The other sectors were given RPCs similar to those listed for their respective IMPLAN sectors.

### **Scenarios**

Once representative FTS sectors were created, the next step was to decide how to use IMPLAN to determine the economic impact of Farm to School. In the national discussion of localized food systems, there is a debate on exactly what local means. “Though ‘local’ has a geographic connotation, there is no consensus on a definition in terms of the distance between production and consumption. Definitions related to geographic distance between production and sales vary by regions, companies,

---

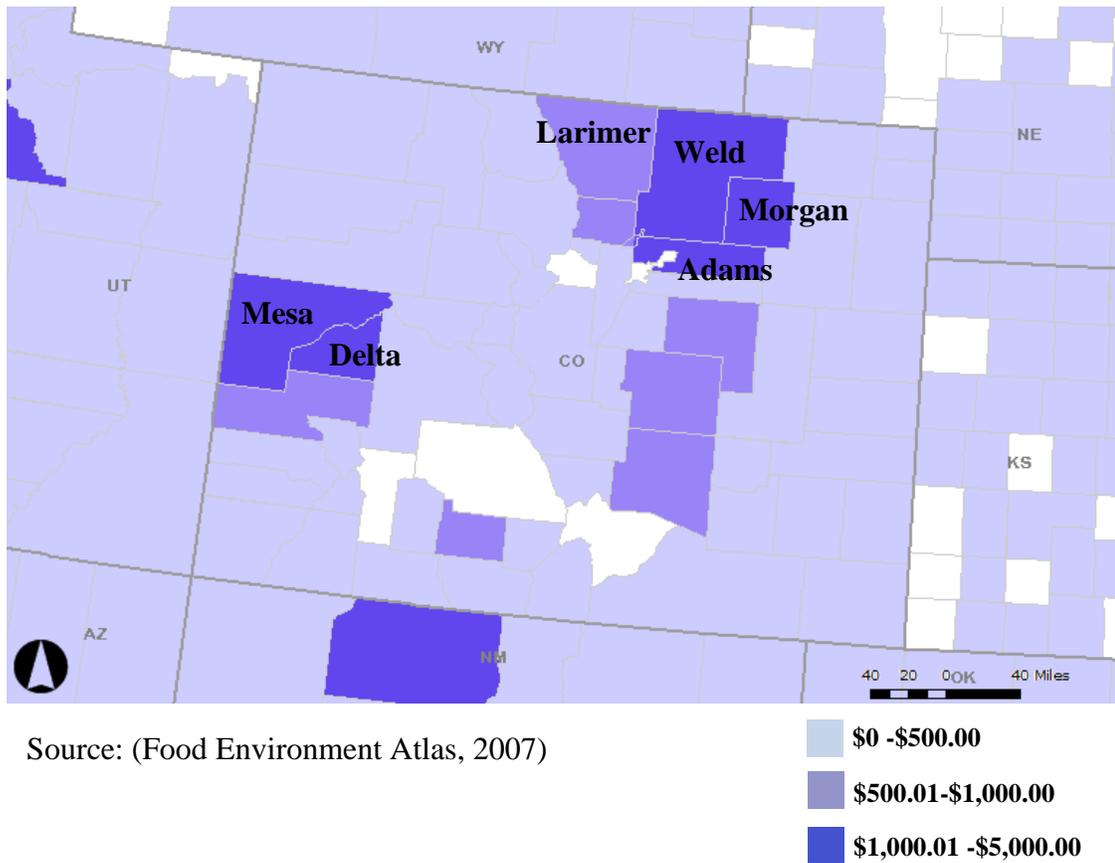
<sup>9</sup> Only in the FTS Fruit sector

consumers, and local food markets. According to the definition adopted by the U.S. Congress in the 2008 Food, Conservation, and Energy Act (2008 Farm Act), the total distance that a product can be transported and still be considered a locally or regionally produced agricultural food product is less than 400 miles from its origin, or within the State in which it is produced” (Martinez, et al., 2010, p. iii). A survey by Onozaka et al. (2010) found this definition to be appropriate.

In Colorado, the majority of the population lives along the Front Range. In this region as well as just east of the Front Range there are vegetable and melon, grain, meat, poultry and dairy producers. These farmers sell their products at local farmers markets, CSAs and other direct markets and make up a significant portion of the direct sales in the region. But based on the climate in Colorado, almost all of the tree fruit production occurs on the West Slope (about 250 miles away). It should be noted that, currently, West Slope fruit producers participate in farmers’ markets and CSA’s all along the Front Range and make up a significant portion of the direct market, including Farm to School.

Given the disjointed discussion of local and exactly what it means, we decided to study the economic impact in two different regions. To get a sense of the hyper-local impact, the first region includes only Larimer and Weld counties. Then, to look at a more regional impact, the second region includes the 5 counties with the highest dollar value of direct sales (Mesa, Delta, Adams, Morgan, Weld), plus Larimer. By including these counties, fruit sales of the West Slope producers were captured while at the same time relying only on the counties that already have infrastructure and distribution capabilities. Figure 5.1 is a map showing the locations of the counties across the state.

**Figure 5.1. Map of Direct Farm Sales in Colorado, 2007**



Utilizing these two regions, scenarios were developed to determine outcomes based on differing assumptions. Scenario one is the most simplistic; it includes Larimer and Weld counties, no modifications to the IMPLAN model, and assumes that all purchases made by Weld 6 are all new demand (no money was taken away from any other sector in the region). Because this region only includes vegetable producers, none of the money spent on fruit will be included. The assumption of all new demand could be reasonable; all distributors that work with the school are located outside the region, mostly in Denver, and support activities for the wholesale sector are also located mostly outside the region. But, it should be noted that this is a zero sum game for any entity that is similarly concerned with Denver and the Weld communities.

Scenario two is exactly the same, but we move from only Larimer and Weld counties to include the larger six county region. This allows for an increase in purchasing, since fruit purchases can now be included. Here, the assumption of all new demand is harder to rationalize. Given the larger region and possibility of wholesale activities occurring in the region, money being spent on vegetable and melon farmers and fruit farmers is most likely money not being spent on other sectors in the region. Given this shortcoming, scenario three attempts to more accurately model by assuming demand simply shifts from wholesalers in the region to producers in the region. The same positive shock occurring in the vegetable and melon farming and fruit farming sectors is made negative in the wholesale sector. This result produces a net impact rather than the gross impact provided in scenario two.

The fourth and final scenario is both the most complex but likely the most accurate. Similar to scenario three, the fourth scenario will include the countervailing effect of demand shifting from the wholesaler to the producer, but this time the producer is the newly created FTS sector. Given the more accurate representation of how FTS farmers function in the economy in the created sectors, this scenario should provide the most realistic results of all the scenarios. Figure 5.3 provides a visual map of the scenarios, changing assumptions with each step.

**Figure 5.3. Scenario Map**

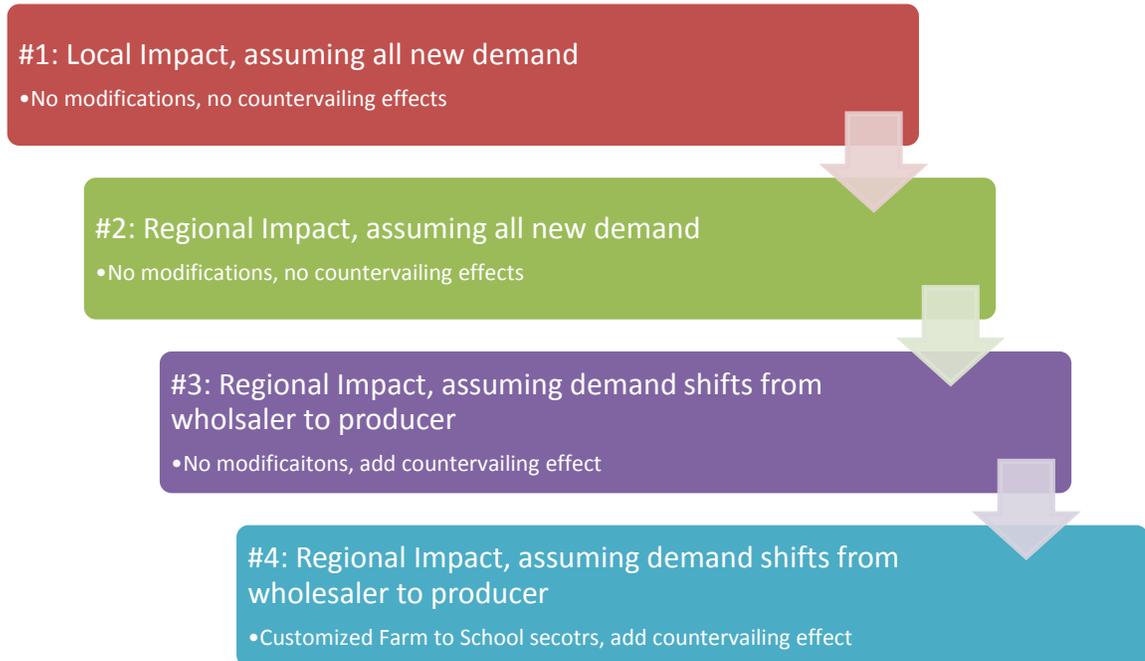
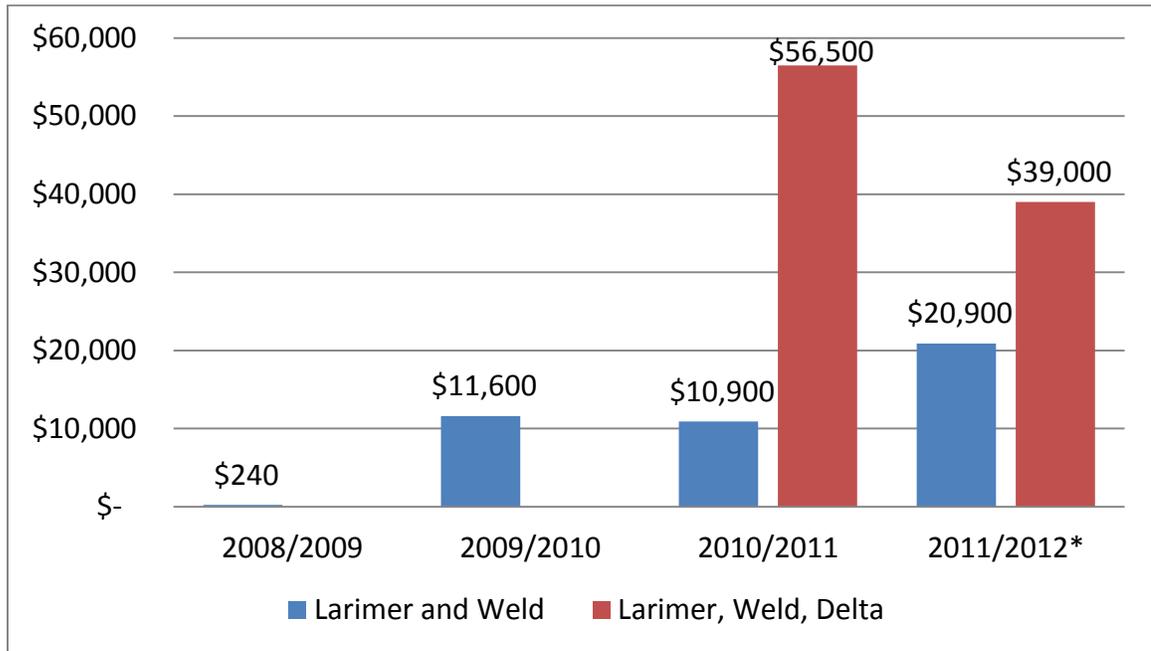


Figure 5.4 illustrates the purchase history of the Weld 6 Farm to School program and the counties where producers are located. All purchases from Weld and Larimer counties are from vegetable and melon farmers and all purchases from Mesa and Delta counties are from fruit farmers. The sales numbers from the 2011/2012 school year will be utilized for each of the scenarios as the change in final demand that will shock the system, resulting in the economic impact of the Weld 6 Farm to School program.

**Figure 5.4. Purchasing History of the Weld 6 Farm to School Program**



\*represents planned bid purchases, actual sales will be higher

**Results**

The results of the direct, indirect, induced and total impact on labor income and output from all four scenarios are listed in tables 5.3, 5.4, 5.5, and 5.6. In scenario one, the hyper-local region assuming all new demand, the purchase of \$20,900 by Weld 6 created a total output of \$33,077 and labor income of \$12,898. As to be expected, the highest impact is found in scenario two where the purchase of \$39,125 by Weld 6 created a total change in output of \$59,733 and \$25,909 in labor income. Scenario three, where the purchase of \$39,125 is offset by decreasing purchases to wholesalers by the same amount, resulted in little impact; the change in output is \$918, and the change in labor income is \$3,094. The final scenario, where customized FTS sectors are utilized and the purchase from the FTS sector is offset by a decrease in the wholesale sector, result in a change in total output of \$7,880 and a change in labor income of \$16,106. Job creation

was less than one in all scenarios except scenario four in which one full-time job was created. These very low numbers are due to the small direct impact of the FTS program.

**Table 5.3. Scenario 1: Local Impact (all new demand)**

	<b>Output</b>	<b>Labor Income</b>	<b>Employment</b>
Direct	\$20,900	\$9,139	0
Indirect	\$5,352	\$1,541	0
Induced	\$6,825	\$2,218	0.1
<b>Total</b>	<b>\$33,077</b>	<b>\$12,898</b>	<b>0.2</b>

**Table 5.4. Scenario 2: Regional Impact (all new demand)**

	<b>Output</b>	<b>Labor Income</b>	<b>Employment</b>
Direct	\$39,125	\$19,135	0.1
Indirect	\$8,330	\$2,631	0.1
Induced	\$12,277	\$4,143	0.1
<b>Total</b>	<b>\$59,733</b>	<b>\$25,909</b>	<b>0.3</b>

**Table 5.5. Scenario 3: Regional Impact (offset to wholesale sector)**

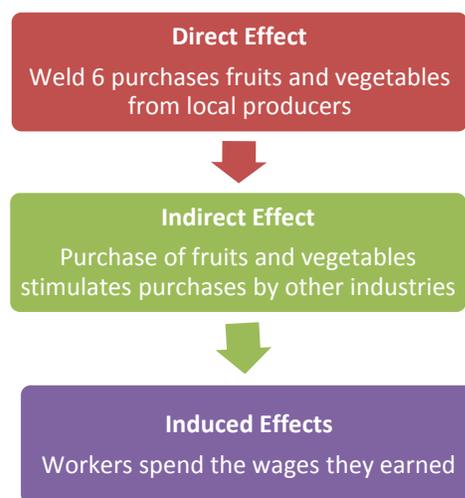
	<b>Output</b>	<b>Labor Income</b>	<b>Employment</b>
Direct	\$0	\$3,225	-0.1
Indirect	(\$541)	(\$622)	0
Induced	\$1,459	\$492	0
<b>Total</b>	<b>\$918</b>	<b>\$3,094</b>	<b>-0.1</b>

**Table 5.6. Scenario 4: Regional Impact (offset to wholesale sector, customized FTS sectors)**

	<b>Output</b>	<b>Labor Income</b>	<b>Employment</b>
Direct	\$0	\$12,281	1
Indirect	\$267	\$1,256	0.1
Induced	\$7,613	\$2,569	0.1
<b>Total</b>	<b>\$7,880</b>	<b>\$16,106</b>	<b>1.2</b>

The variation in results from each scenario is a result of the different multiplier values. Multipliers describe how much endogenous variables change in response to a change in an exogenous variable, where values are based on the interdependency of sectors within an economy and therefore differ depending on the industry and region in question. The FTS purchase by Weld 6 is the change in final demand (exogenous variable) that causes a change in output, employment, and labor income (endogenous variables). Two commonly used multipliers are Type I and Type II; Type I multipliers<sup>10</sup> treat households as exogenous and therefore only include the direct and indirect effects, whereas Type II multipliers<sup>11</sup> incorporate the household into the model and include the induced effects of household spending. For the sake of space, only Type II multipliers will be presented. Type II multipliers are reported because they capture the effect of the additional money that stays on the FTS farms in the hands of proprietors and employees that can be spent in the local economy. Figure 5.5 describes each of these effects.

**Figure 5.5. Direct, Indirect and Induced Effects**



<sup>10</sup> Type I=(Direct Effect + Indirect Effect)/Direct Effect

<sup>11</sup> Type II=(Direct Effect + Indirect Effect + Induced Effect)/Direct Effect

Table 5.7 shows the type II multipliers for the hyper-local region (local) and the larger region (regional). For every \$1 spent by Weld 6 on vegetables in Larimer and Weld, the gross output is \$1.54, gross number of jobs is 3.3 and employees earn a gross of \$1.41. As to be expected, when the larger region is considered output multipliers in the non-customized sectors decrease. In a larger region there is more economic activity so any change in final demand is more spread out, thus creating a smaller multiplier. In the customized sectors, the regional impact is larger than in the non-customized sectors. One dollar spent by Weld 6 on FTS vegetables creates gross output of \$1.63, gross number of jobs is 1.27, and employees earn a gross of \$1.39.

As discussed in the scenario section, gross effects do not take into account countervailing effects and therefore overstate the true impact of the Weld 6 Farm to School purchasing program. Table 5.8 describes the net impact by subtracting the impact of the wholesale sector from farming sector. Output multipliers are slightly larger in the non-customized than the wholesale sector and significantly larger in the customized sectors. This positive net output multiplier is the main driver of the positive net impact the Weld 6 Farm to School program has on the economy. Net employment multipliers are positive in the non-customized sectors but negative in the FTS sectors, most likely due to the very small size of the FTS sectors. Labor multipliers are negative in all cases, but very near zero, producing a net zero effect on the economy.

**Table 5.7. Gross Type II Multipliers**

	(Local) Veg and Melon farming	(Regional) Vegetable and Melon farming	(Regional) Fruit farming	(Regional) FTS Veg and melon farming	(Regional) FTS Fruit farming	(Regional) Wholesale
Output Multiplier	1.54	1.48	1.49	1.63	1.67	1.47
Employment Multiplier	3.30	2.67	2.57	1.27	1.28	1.69
Labor Income Multiplier	1.41	1.39	1.32	1.39	1.36	1.43

**Table 5.8. Net Type II Multipliers: Regional (Larimer, Weld, Morgan, Adams, Mesa, Delta)**

	Veg and melon - wholesale	Fruit - wholesale	FTS Veg and melon - wholesale	FTS Fruit - wholesale
Output Multiplier	0.01	0.02	0.16	0.20
Employment Multiplier	0.98	0.88	-0.42	-0.41
Labor Income Multiplier	-0.04	-0.11	-0.04	-0.07

### **Conclusion and Discussion**

The goal of this study was to provide insight into the claim that increased local food purchases have a positive direct impact on local economies. As with other research, this study found a positive economic impact on the local community from increased purchasing of locally produced foods. But rather than the specific results, the most significant contribution of this study to the body of research in how the study was conducted. Through sector modification and showing net rather than gross effects, this

study provides a framework for future research on innovations in the direct marketing sector.

The direct marketing sector is not well represented in IMPLAN, even though IMPLAN is the most common tool used to determine the economic impact of any new sector or event are having on the local economy. This study provides a guide for how a researcher might begin to customize sectors to more accurately represent the direct marketing food sector, while at the same time recognizing that money spent on local farms is money not being spent in other sectors. This provides results that are both more accurate and defensible than the simple “plug and chug” method often utilized in IMPLAN.

The direct market sector development in this study is just a start, there is much more work to be done if IMPLAN is going to be the tool used to determine economic impact. The data used to create the new sectors in this study is from a survey of a small group of farmers located in a specific region in Colorado. Future research regarding the production functions of small, direct market farmers is needed to more accurately customize IMPLAN. The exploration of other tools, such as equilibrium displacement models and computable general equilibrium models, should also be considered as a means to more accurately answer questions regarding the economic impact of local foods.

## CHAPTER 6: CONCLUSION

The direct marketing sector has seen significant growth in recent years, but still accounts for less than 1% of all food purchases. This is due in part to supply chain constraints; the small and mid-size farms involved in direct marketing do not have the product volume or consistency necessary to access traditional distribution channels. Farmers are beginning to organize more appropriately sized enterprises that can meet the unique needs of their local market and allow them to compete at smaller scale by capturing transaction costs and marketing margins.

The research community has identified value chains as one of the most successful ways for these more appropriately sized enterprises to structure their businesses. The concept of value chains is still relatively new, so by conducting case studies of successful value chains researchers have been able to provide insight into the best practices for new value chains.

This thesis discusses case studies of ten value chains from the Western United States. Although most value chains target multiple customers, the majority has a main target customer and that main customer has a significant influence on many key aspects of the business. By utilizing the customer focus frameworks, this thesis provides guidance for future value chains to determine which aspects of the business are essential given the main customer focus of their business.

After determining some of the ways in which local food producers can successfully access the wholesale market, the next step is to determine the impact that is having on the community. For this study, we use economic tools to answer one particular research question: Is the program accomplishing the positive outcomes that its proponents claim? This research provides insight into one of the claims made by local food proponents: that increased local food consumption has a positive impact on the economy of a community. The local school food procurement program studied in this paper provides evidence that yes, the direct impact on the local economy is positive when there is an increase in local food purchasing. But that impact is quite small and may or may not cover the cost of investment necessary to build the necessary infrastructure. Moreover, that positive impact is dependent on some important linkages between the new food distribution enterprise and other economic actors (workers, owners) in the community.

Purchasing local food is simply shifting purchasing from one sector to another; it is not fundamentally changing the amount of money being spent in an economy. Our model is built on one particular tenet: there are benefits of purchasing from a local farmer because the better off they are the more money they spend in the community (compared to a distributor with corporate headquarters in another community). But because the direct economic benefit to the community is only in the marginal difference between a purchase from a farmer and a wholesaler, that impact is going to be relatively small. In short, it is similar to the marketing margins and transactions costs of food distribution that would otherwise “leak” outside the community where raw agricultural products are sourced.

I would like to pose an alternative claim of a benefit of more localized food system; the real economic impact on an economy from increased local food consumption is a much longer term, more in-depth and more ambiguous discussion. The idea of increased local food consumption involves a change in our food culture, a long term idea that is hard to measure. Many hope and believe this change in culture will create healthier people who are less of a burden on the healthcare system and a healthier environment, thus providing a significant, positive economic impact on the economy. The real economic driver is in the long-term, indirect benefits not in the short-term, direct benefits as well as the entrepreneurial activity related to food innovation.

## DATA AND LITERATURE

- (2007). *2007 Census of Agriculture: Agricultural Diversification*. Fact Sheet, US Department of Agriculture, National Agriculture Statistical Service.
- Food Environment Atlas*. (2007). Retrieved 7, 22, 2011, from USDA Economic Research Service: <http://www.ers.usda.gov/FoodAtlas/Atlas/>
- NGFN Summary Document*. (2009-2010). Retrieved 6, 22, 2011, from National Good Food Network: [http://ngfn.org/NGFN\\_Overview%202010%2010%2020.pdf](http://ngfn.org/NGFN_Overview%202010%2010%2020.pdf)
- Farmers Market Growth: 1994-2011*. (2010). Retrieved 8, 10, 2011, from Agricultural Marketing Service: <http://www.ams.usda.gov>
- Ag of the Middle*. (2011). Retrieved 6, 7, 2011, from Ag of the Middle: <http://agofthemiddle.org>
- Chef Survey: What's Hot in 2011*. (2011). Retrieved 6, 19, 2011, from National Restaurant Association: [http://www.restaurant.org/pdfs/research/whats\\_hot\\_2011.pdf](http://www.restaurant.org/pdfs/research/whats_hot_2011.pdf)
- Farm to College*. (2011). Retrieved 6, 19, 2011, from Farm to College: <http://www.farmtocollege.org/survey#profiles>
- Farm to School*. (2011). Retrieved 6, 19, 2011, from Farm to School: [www.farmtoschool.org](http://www.farmtoschool.org)
- Food and Community Program*. (2011). Retrieved 6, 7, 2011, from W.K. Kellogg Foundation: <http://www.foodandcommunity.org/>
- Food Desert Locator*. (2011). Retrieved 7, 20, 2011, from Food Desert Locator: <http://www.ers.usda.gov/data/fooddesert/fooddesert.html>
- Know Your Farmer, Know Your Food*. (2011). Retrieved 5, 31, 2011, from US Department of Agriculture: [http://www.usda.gov/wps/portal/usda/knownyourfarmer?navtype=KYF&navid=KYF\\_MISSION](http://www.usda.gov/wps/portal/usda/knownyourfarmer?navtype=KYF&navid=KYF_MISSION)
- LiveWell Colorado*. (2011). Retrieved 6 22, 2011, from LiveWell Colorado: <http://about.livewellcolorado.org/what-is-livewell/who-we-are>
- Local Harvest*. (2011). Retrieved 5 29, 2011, from Local Harvest: <http://www.localharvest.org>

- Adam, K. L. (2006). *Community Supported Agriculture*. Retrieved May 29, 2011, from National Sustainable Agriculture Information Service (ATTRA): <http://attra.ncat.org/attra-pub/PDF/csa.pdf#xml=http://search.ncat.org/txis/search/pdfhi.txt?query=community+supported+agriculture&pr=ATTRA2010&prox=page&rorder=500&rprox=500&rdfreq=500&rwfreq=500&rlead=500&rdepth=0&sufs=0&order=r&cq=&id=4d9d8b682bd>
- Barham, J. (2011). *Regional Food Hubs: Understanding the Scope and Scale of Food Hub Operations*. Presentation, US Department of Agriculture, Agriculture Marketing Service.
- Bloom, D. J., & Hinrichs, C. C. (2010). Moving local food through conventional food system infrastructure: Value chain framework comparisons and insights. *Renewable Agriculture and Food Systems*, 26(1), 13-23.
- Brown, D. W., Brown, C., Miller, S., & McConnell, T. (2008). Evaluating the Economic Impact of Farmers' Markets Using an Opportunity Cost Framework. *Journal of Agricultural and Applied Economics*, 40(1), 253-265.
- Buck, K., Kaminski, L. E., Stockmann, D. P., & Vail, A. J. (2007). *Investigating Opportunities to Strengthen the Local Food System in Southeastern Michigan*. University of Michigan, School of Natural Resources and Environment.
- Canning, P., Charles, A., Huang, S., Polenske, K. R., & Waters, A. (2010). *Energy Use in the U.S. Food System*. U.S. Department of Agriculture, Economic Research Service.
- Cantrell, P. (2010). *Sysco's Journey from Supply Chain to Value Chain: 2008-2009 Final Report*. Wallace Center @ Winrock International.
- Chomitz, V. A., McGowan, R. J., Wendel, J. M., Williams, S. A., Cabral, H. J., King, S. E., et al. (2010). Healthy Living Cambridge Kids: A Community-based Participatory Effort to Promote Healthy Weight and Fitness. *Obesity*, 18(1s), S45-S53.
- Clancy, K., & Ruhf, K. (2010). Is Local Enough? Some Arguments for Regional Food Systems. *Choices*, 25(1).
- Conner, D. S., & Levine, R. (2006). Circles of association: the connections of community-based food systems. *Journal of Hunger & Environmental Nutrition*, 5-25.
- Conner, D. S., Knudson, W. A., Hamm, M. W., & Peterson, H. C. (2008). The Food System as an Economic Driver: Strategies and Applications for Michigan. *Journal of Hunger & Environmental Nutrition*, 3(4), 371-383.

- Crompton, J. L., Lee, S., & Shuster, T. J. (2001, August). A Guide for Undertaking Economic Impact Studies: The Springfest Example. *Travel Research*, 40, 79-87.
- Day-Farnsworth, L., McCown, B., Miller, M., & Pfeiffer, A. (2009). *Scaling Up: Meeting the Demand for Local Food*. University of Wisconsin-Extension and Center for Integrated Agricultural Systems.
- DeMuth, S. (1993). *Defining Community Supported Agriculture*. U.S. Department of Agriculture.
- Feenstra, G., & Visher, D. (2011). *Developing Values-Based Distribution Networks to Enhance the Prosperity of Small and Medium Size Producers: California Case Studies DRAFT 8/1/11*.
- Gillpatrick, T. R., & Shubert, N. (2011). *Developing Values-Based Distribution Networks to Enhance the Prosperity of Small- and Medium-Sized Producers: Oregon Results DRAFT 8/1/11*.
- Gunter, A., & Thilmany, D. (2011). *Developing Values-Based Distribution Networks to Enhance the Prosperity of Small and Medium Sized Producers: A Case Study of High Plains Food Co-op*. Agricultural Marketing Fact Sheet, Colorado State University, Department of Agriculture and Resource Economics.
- Gunter, A., & Thilmany-McFadden, D. (2011). *Developing Values Based Distribution Networks to Enhance the Prosperity of Small and Mid Size Producers: A Case Study of La Montanita*. Agricultural Marketing Report, Colorado State University, Agricultural and Resource Economics.
- Gunter, A., & Thilmany-McFadden, D. (2011). *Developing Values Based Distribution Networks to Enhance the Prosperity of Small and Mid Size Producers: A Case Study of Colorado Homestead Ranches*. Agricultural Marketing Report, Colorado State University, Agricultural and Resource Economics.
- Haddad, H., Nyquist, K., Record, L., & Slama, J. (2010, July). *Ready to Grow: A plan for increasing Illinois fruit and vegetable production*.
- Haynes, M. (2010). *Farm-to-School in Central Minnesota-Applied Economic Analysis*. University of Minnesota, Twin Cities Applied Economics Department.
- Kathlene, L., & Shepherd, J. (2011). *Colorado Farm to School Food Service Nutrition Directors 2010 Survey*. Center for Systems Integration.
- King, R. P., Hand, M. S., DiGiacomo, G., Clancy, K., Gomez, M. I., Hardesty, S. D., et al. (2010). *Comparing the Structure, Size, and Performance of Local and Mainstream Food Supply Chains*. U.S. Department of Agriculture, Economic Research Service.

- Lazarus, W. F., Platas, D. E., & Morse, G. W. (2002). IMPLAN's Weakest Link: Production Functions or Regional Purchase Coefficients? *Regional Analysis & Policy*, 32(1), 33-49.
- Lea, E. (2005). Food, health, the environment and consumers' dietary choices. *Nutrition & Dietetics*, 62(1), 21-25.
- Liu, Z., & Warner, M. E. (2009). Understanding Geographic Differences in Child Care Multipliers: Unpacking IMPLAN's Modeling Methodology. *Regional Analysis & Policy*, 39(1), 71-85.
- Lyson, T. A., Stevenson, G. W., & Welsh, R. (2008). *Food and the Mid-Level Farm: Renewing an Agriculture of the Middle*. Massachusetts Institute of Technology.
- Mariola, M. J. (2008). The local industrial complex? Questioning the link between local foods and energy use. *Agriculture and Human Values*, 25(2), 193-96.
- Martinez, S., Hand, M., DaPra, M., Pollack, S., Ralston, K., Smith, T., et al. (2010). *Local Food Systems: Concepts, Impacts and Issues*. U.S. Department of Agriculture, Economic Research Service.
- Matson, J., & Sullins, M. (2011). *Food Hubs: Local Food Marketing Solution?*
- Melone, B., Cárdenas, E., Cochran, J., Gross, J., Reinbold, J., Brenneis, L., et al. (2010). *California Network of Regional Food Hubs: A vision statement and strategic implementation plan*. Regional Food Hub Advisory Council.
- Merrett, N. (2009, March 20). *Buy Local message requiring promotion push, says Mintel*. Retrieved 6 19, 2011, from Food Navigator: <http://www.foodnavigator-usa.com/Business/Buy-local-message-requiring-promotion-push-says-Mintel>
- Moore, L. V., Diez Roux, A. V., Nettleton, J. A., & Jacobs, Jr., D. R. (2008). Associations of the Local Food Environment with Diet Quality—A Comparison of. *American Journal of Epidemiology*, 167(8), 917-924.
- NASS. (2007). *Market Value of Agricultural Products Sold Including Direct Sales: 2007 and 2002*. State Data, National Agricultural Statistical Service, U.S. Department of Agriculture.
- Onozaka, Y., Nurse, G., & Thilmany McFadden, D. (2010). Local Food Consumers: How Motivations and Perceptions Translate to Buying Behavior. *Choices*, 25(1).
- Otto, D., & Varner, T. (2005). *Consumers, Vendors, and the Economic Importance of Iowa Farmers'*. Iowa State University, Department of Economics.
- Sharp, J. S., Clark, J. K., Davis, G. A., Smith, M. B., & McCutcheon, J. S. (2011, April). Adapting Community and Economic Development Tools to the Study of Local Foods: The Case of Knox County, Ohio. *Journal of Extension*, 49(2).

- Slama, J., Nyquist, K., & Bucknum, M. (2010). *Local Food System Assessment for Northern Virginia*. FamilyFarmed.org and Wallace Center.
- Stevenson, G. W., & Pirog, R. (2008). Values Based Supply Chains. In T. A. Lyson, G. W. Stevenson, & R. Welsh, *Food and the Mid-Level Farm: Renewing and Agriculture of the Middle* (pp. 119-143). Massachusetts Institute of Technology.
- Stevenson, S. (2000). *Values-based food supply chains: Executive summary*. CIAS.
- Stevenson, S. (2009). *Values based food supply chains: Red Tomato*. CAIS.
- Swenson, D. (2006). *The Economic Impacts of Increased Fruit and Vegetable Production and Consumption in Iowa: Phase II*. Leopold Center for Sustainable Agriculture.
- Swenson, D. (2010). *The Economic Impact of Fruit and Vegetable Production in Southwest Iowa considering Local and Nearby Metropolitan Markets*. Iowa State University, Department of Economics.
- Tuck, B., Haynes, M., King, R., & Pesch, R. (2010). *The Economic Impact of Farm to School Lunch Programs: A Central Minnesota Example*. University of Minnesota, Applied Economics and Extension.
- Ulmer, A., Holcomb, R. B., Woods, M. D., Willoughby, M., & Tilley, D. S. (2005, November). An Assessment of the Economic Impact of Firms Assisted by the Oklahoma Food and Agricultural Products Center. *Journal of Food Distribution Research*, 36(3), 9-17.
- Ver Ploeg, M., Breneman, V., Farrigan, T., Hamrick, K., Hopkins, D., Kaufman, P., et al. (2009). *Access to Affordable and Nutritious Food—Measuring and Understanding Food Deserts and Their Consequences: Report to Congress*. U.S. Department of Agriculture, Economic Research Service.
- Vogel, S., & Low, S. (2010, September). Urban Areas Prove Profitable for Farmers Selling Directly to Consumers. *Amber Waves*.
- West, J., & Sample, K. (2011, February-August). (A. Gunter, Interviewer)
- White, C. (2009). *Farm to Hospital- A movement that is long overdue*. Retrieved 6 19, 2011, from Food First: Institute for Food & Development Policy: <http://www.foodfirst.org/en/node/2466>

## APPENDIX A: INTERVIEW GUIDE

*Collect the following information before the interview*

**Name of Person Interviewed:**

**Date of interview:**

**Title/Position:**

**Contact Info:**

**Legal name of business:**

**Headquarter location:**

**Code:**

Hello. My name is [#####] from the University of California Sustainable Agriculture Program.] We are conducting interviews with people in supply chains in [California] who purchase some food from local producers. Our project hopes to inform financial institutions and local government about what they can do to assist businesses like yours that are supporting local economies. Did you receive a copy of our questions? Do you have about 30-60 minutes to talk with us today about your operation's practices in buying/selling locally sourced foods? All information you provide will be kept confidential. All participants will be provided with copies of the survey results if you like.

### **BASIC SUPPLY CHAIN NETWORK CHARACTERISTICS/ SCOPE**

*(some of these questions need to be modified for producers)*

1. Our study and this interview is focused on values-based supply chains which are business networks that link small and medium sized producers with partners to

develop alternative food systems that are more sustainable economically, environmentally, and socially.

Is your business part of such a values-based supply chain? How is it different from normal chains?

2. What is your “value proposition”? Do you have an “elevator speech” that you use to describe your business quickly?
3. Can you briefly describe the process for how your business is involved in handling agricultural products from the field to point of sale? In particular, how does the supply chain you represent source/sell local food from small and mid-scale producers? [*Prompt: how do products travel from farm to warehouse to buyer?*]
4. Do you take title to product or do you broker it?
5. Have your approaches changed in the past year in an attempt to get more diverse, local and/or small suppliers?
6. What is your sourcing/selling (for producers) region [for local designation]? [*Prompt: Do you have a specific mileage limitation (or goal)? How did you decide what is local/regional?*]
  - Within 100 miles
  - Within 150 miles
  - Within 250 miles
  - Within a day’s drive
  - Within multi-county region of the state
  - Within the state
  - National
  - Other: *The high plains food shed. It ends up being within about 300 miles.*

7. How large a percentage of your business is branded or positioned as “local”? How much has that part of your business increased or decreased in the last three years?
8. How do your customers know that your products are local, or grown by a family farmer, or are grown organically or sustainably? How do you prove it? *[Is there any sort of audit or paper trail to ensure authenticity? Need specificity on upfront traceability or retroactive reporting.*
9. Do you participate in a third part certification program? Labeling?
10. What would help you do more business with local, small to mid-scale producers? (particularly consider financial aspects of the operation)?
11. Please complete this table so we can find out the relationships between scale, dollars, and distance among your suppliers.

	Small <\$250K	Medium <\$1M	Large	Local	Distant
Number of (direct) producers					
% of your total purchases (direct and otherwise)					
Dollars spent with each size category both direct and otherwise. (Should equal your total purchases)					

12. Can you tell us what your approximate overall sales were in 2008?

- < \$500K/year
- \$501 - \$1 million/year
- \$1.1 million - \$5 million/year
- \$5.1 million - \$10 million/year
- \$10.1 million - \$30 million/year
- \$30.1 million - \$50 million/year
- \$50.1 million - \$100 million/year
- \$100 million/year

13. What were your overall sales in your “values added” line? [*Values-based supply chain*]

#### **FINANCIAL PERFORMANCE: OPERATIONAL**

14. Considering all of the costs you incur when purchasing from local, small to mid-scale growers for your values based line, are they higher or lower than those for comparable products from larger growers or shippers?

15. Does your strategy of purchasing from local and smaller farmers increase your need for financial capital more than if you just bought from producers or shippers without regard to their location? If so, where does that money come from? (*are your terms different when purchasing from local farmers?*)

16. How are these potentially higher costs managed? How do you compensate for these higher costs in other areas of the operation? Do prices reflect some of these changed costs?

#### **POLICY/REGULATORY/INDUSTRY CONTEXT**

17. Are there any regulations or legal issues preventing you from sourcing more locally?

18. Are there certain regulations that are more difficult to comply with when you are working with these values added producers? What type of regulations?

### **ENTREPRENEURIAL SKILLS/BUSINESS ACUMEN/ INDUSTRY EXPERIENCE**

19. How is your management team suited to develop a values based marketing channel and manage it successfully?
20. In regards to your values based line, what alliances have contributed to your success?
21. What are the greatest challenges that you face in relation to your values based line?

### **FINANCIAL ORGANIZATION/ STRUCTURE/CAPITALIZATION**

22. What kind of legal structure does your business have and why did you choose it?  
*[Prompts: For profit corporation, LLC, Cooperative, , Private-NGO partnership, Nonprofit]*
23. How did you originally finance your business?
24. Was your business plan developed with technical assistance from any entity?  
Which one?
25. What are your biggest financing challenges? *[Prompt: credit availability, terms?]*

*[The following two questions assume independent ownership. Some may have a parent company. Need to distinguish this and be clear about who the answer applies to.]*

26. At the close of your most recent fiscal year, what was your debt/equity ratio?  
*[Prompt: How much of your total capital is debt?]*

### **OVERALL PERCEPTIONS SUPPLY CHAIN NETWORKS SUPPORTING LOCAL AG**

27. On a scale of 1 to 5 where “5” is extremely important and “1” is not at all important, how would you rate the importance of the following on the viability of your organization:

*(Note if the firm has not reached the maintenance or growth phases)*

	<b>During start-up</b>	<b>Growth phase</b>	<b>Maintenance phase</b>
<b>Access to financial capital</b>			
<b>Govt. regs/policies</b>			
<b>Entrepreneurial skills</b>			
<b>Technical assistance</b>			

28. Do you have any other comments?

APPENDIX B: SUPPLY SURVEY

**What is the Supply of Colorado Grown Food for Wholesale Markets Including Retailers, Schools, Hospitals, and University Buyers?**

*General Information*

1. Where is your farm located? (drop down box of all Colorado counties)

\_\_\_\_\_

2. What is your primary role on the farm? (check only one)

- Owner and Operator  
 Production Farm Worker  
 Production Manager  
 Sales and Marketing  
 Other \_\_\_\_\_

3. On average, how many full time employees work on the farm? (If you have 2 full-time and 1 part-time employee enter 2.5)

Winter \_\_\_\_\_

Spring \_\_\_\_\_

Summer \_\_\_\_\_

Fall \_\_\_\_\_

4. How many total acres do you farm? (Round up to the nearest number)

\_\_\_\_\_

5. How many acres did you have in production during the 2010 growing season?  
(Round up to the nearest number)

\_\_\_\_\_

6. Estimate what percentage of your total 2010 **production** was in each of the categories below:

Vegetables/Herbs \_\_\_\_\_%

Fruit \_\_\_\_\_%

Meat/Dairy \_\_\_\_\_%

Grain and Field Crops \_\_\_\_\_%

***Sales and Marketing***

7. In which of the following certification or food safety programs do you participate?(check all that apply):

- Organic
- Good Agricultural Practices 3<sup>rd</sup> party certification program
- Good Handling Practices audit
- HACCP certification
- Other certification program \_\_\_\_\_
- Other food safety program \_\_\_\_\_
- I do not participate in any

8. In which of the following marketing and promotion programs do you participate?  
(check all that apply)

- Colorado Proud
- Edible Front Range or Edible San Juan Mountain publication
- Colorado MarketMaker
- Fair trade
- Marketing cooperative or collaborative
- Regional food or agricultural collaborative
- Other online directories \_\_\_\_\_

- Other printed directories \_\_\_\_\_
- I do not participate in any

9. What were your total gross sales for 2010?

\$ \_\_\_\_\_

10. What percentage of your sales from the **2010 growing season** came from each of the following venues? (each box should filled with a number between 0 and 100)

	Percentage of 2010 sales:
Farmers Market	
CSA	
Farm Stand	
Restaurant	
School/hospital/university	
Retail (grocery store, retail co-op)	
Distributor/broker	
Marketing cooperative	
Other direct _____	
Other wholesale _____	

11. How interested are you in selling your products to the following buyers in 2011 or 2012?

	<b>1</b> Not at all interested	<b>2</b> Slightly interested	<b>3</b> Moderately interested	<b>4</b> Very interested	<b>5</b> Extremely interested
Schools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Universities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hospitals	<input type="checkbox"/>				
Retailers	<input type="checkbox"/>				
Other (food bank, nursing home, ...)	<input type="checkbox"/>				

12. Additional comments regarding sales and marketing:

---

**Barriers**

13. Some farmers perceive barriers to marketing more within their local region. From your perspective, please rate the following barriers that you may face in expanding sales and marketing to new clients based on how much of an obstacle they are to your business.

	Not all an obstacle	Slight obstacle	Moderate obstacle	Considerable obstacle	A great obstacle
Distance from wholesale market	<input type="checkbox"/>				
Knowledge and familiarity with wholesale markets	<input type="checkbox"/>				
Sales and marketing support	<input type="checkbox"/>				
Size of farm limits sustainability of large volume accounts	<input type="checkbox"/>				
Availability of affordable land for production	<input type="checkbox"/>				
Local zoning ordinances	<input type="checkbox"/>				
Local public health regulations	<input type="checkbox"/>				
Labor availability	<input type="checkbox"/>				
Access to capital to expand operation	<input type="checkbox"/>				
Access to capital to purchase necessary	<input type="checkbox"/>				

equipment to make products more market-ready					
Required certifications needed to participate in GAP, HAACP, etc.	<input type="checkbox"/>				
Lack of reliable customers or wholesalers	<input type="checkbox"/>				
Lack of management skills to oversee expansion or changes in existing operations	<input type="checkbox"/>				
Lack of time to oversee expansion or changes in existing operations	<input type="checkbox"/>				
Other (please indicate) _____	<input type="checkbox"/>				

***Distribution***

14. If a small wholesale distributor that focused on marketing local food were to operate in your area, rate your interest in the following services they might offer:

	<b>1</b> Not at all interested	<b>2</b> Slightly interested	<b>3</b> Moderately interested	<b>4</b> Very interested	<b>5</b> Extremely interested
Sales and Marketing services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Packing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cold storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Processing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Full service Transportation:</b> Wholesale distributor picks up product at farm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Limited</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>Transportation:</b> Farm drops off product at wholesale distributor					
---	--	--	--	--	--

15. Comments regarding distribution:

---

***Current and Estimated Future Production***

16. If you had a wholesale buyer that agreed to purchase what you produce, what would be the top 5 products for which you would be most likely to increase production in the 2012 growing season?

*Example: Let's say you think you could sell kale to a wholesale buyer next growing season. In 2010 you planted 1/4 acre and you think you could double production if you had a buyer. You would enter Kale under product, estimate units planted in 2010 would be 0.25, units would be acres, and additional units would be 0.25.*

<b>Product</b>	<b>Estimate units planted in 2010 growing season? (1/2 acre = 0.5; 1/4 acre= 0.25)</b>	<b>Units (acre, gallons, head, etc.)</b>	<b>Estimate how many additional units of this product could you produce next growing season:</b>
1.			
2.			
3.			
4.			
5.			

17. Please leave any comments you may have or additional information you would like to share with us:

---

18. If you would like to be contacted to learn more about how you can work with local schools, universities, hospitals, and retailers please leave your name, email and farm and we will contact you. We will not use contact information for any other purpose.

Name: \_\_\_\_\_

Email: \_\_\_\_\_

Farm: \_\_\_\_\_

APPENDIX C: DEMAND SURVEY

**Local Food Distribution: How can we make it easier to purchase locally grown food?**

**Please share some information about the size of your food program**

1. Classify your organization:  
(n=24)  
88%—K-12 School  
1%—Hospital  
1%—University
  
2. Where is your organization listed?  
(n=24)  
4—Weld  
4—Denver  
3—Adams  
3—Boulder  
3—El Paso  
2—Morgan  
2—Arapahoe  
2—Larimer  
1—Lincoln  
1—Washington
  
3. How many **breakfasts** do you serve per **week**?  
(n=24)  
Average: 12,625  
  
Total: 303,008
  
4. How many **lunches** do you serve per **week**?  
(n=24)  
Average: 36,351  
  
Total: 872,415

5. How many **meals** do you serve per **year**?  
 (n=24)  
Average: 2,192,010
- Total: 52,608,230
6. What is the total number of students in your school district or residents in your facility?  
 (n=24)  
Average: 17,087
- Total: 409,571
7. If you are a school, what was the percentage of students receiving free and reduced meals in your school district during the 2009/2010 school year?  
 (n=21)  
Average: 48%

***Current purchasing process and goals***

8. Is your district or organization part of a buying co-op?  
 (n=24)  
54%—Yes  
46%—No
9. What is your procurement process? (check all that apply)  
 (n=23)  
74%—Bid Process (RFP)  
13%—One-time discretionary spending  
13%—There is no specific ordering mandate  
17%—Other (National contracts through Sodexo, Novation contract, contract)
10. What best describes your food service?  
 (n=24)  
88%—Self-operated  
12%—Contracted
11. (if yes to previous question) Do you participate in purchasing outside your contract?  
 (n=3)

67%—No  
33%—Yes

12. (if yes to previous question) What percentage are you allowed to purchase outside your contract?

(n=1)  
20%

13. Have you or your organization set specific goals regarding local food purchasing?

(n=24)  
58%—No  
42%—Yes

14. (if yes to previous question) What are your organizations specific goals for purchasing locally sources foods? (check all that apply)

(n=10)  
80%—Increasing local purchasing  
70%—Developing strategic partnerships with farmers, ranchers, and food processors  
50%—Adapting menu and food preparation plans to accommodate more seasonally      20%—Requiring a percentage of local food purchasing, if so what percent? (25%, 15%)  
20%—Providing technical assistance for local producers to complete bids available foods  
10%—Other (specifying more sustainable products, including chemicals, plastics, fish, meats)

15. Comments regarding current purchasing process and goals:

- *We have not set goal for local purchasing, however we do try and bring in as much locally grown or processed products that we can.*
- *We try to purchase as much as possible from local sources*
- *scratch cooking*
- *It is difficult to set goals until we establish what is out there for us and what we will be able to purchase. Right now we use a produce company who buys as much local as possible.*
- *Currently at 15%; goal by 2012 is 20%; goal by 2015 is 25%*
- *US Foodservice won the bidding process with Novation for a 5 year span. Our hospital (which also contains a school) is under contract with UHC/Novation so we purchase from US Foodservice. We do have other vendors such as Shamrock for produce - not everything comes from US Foodservice although there are quotas with them that we have to meet to receive the significant rebates.*
- *We like to buy Colorado and local whenever possible.*
- *We have limited venders and even more limited products that can be purchased locally.*

***Product ordering and requirements***

16. How often do you place orders for the following types of products? (check one for each row)

	1 to 2 times per week	Every 2 weeks	Monthly	Quarterly	Annually	Other
Fresh Fruits and Vegetables (n=24)	<b>92%</b>	0	0	0	0	8% (daily, 3-4x per week)
Bread/grains (n=24)	<b>88%</b>	4%	0	0	0	8% (daily, 5-6x per week)
Dairy (n=23)	<b>83%</b>	0	0	0	0	17% (daily, 3-4x per week, every other day)
Meat (n=24)	<b>83%</b>	4%	13%	0	0	0
Frozen or other processed goods (m=23)	<b>87%</b>	4%	9%	0	0	0

17. What is the most common way you place your order?

(n=24)

50%—Website

21%—Email

13%—Sales representative visits your establishment

8%—Other (driver who delivers, CBORD FSS phone)

4%—Phone

4%—Fax

18. How are your current products being delivered? (check all that apply)

(n=24)

71%—Delivery to one location

50%—Delivery to multiple locations

4%—Pick up

0—Other

19. What kind(s) of quality requirements do you/your organization set for the following products? (check all that apply)

	Grade	Uniformity of product	Freshness	Temperature control	No quality requirements for this product
Fresh Fruits and Vegetables (n=23)	61%	61%	87%	65%	0
Bread/grains (n=23)	34%	65%	83%	9%	0
Dairy (n=23)	61%	48%	87%	78%	0
Meat (n=22)	73%	68%	73%	73%	0
Pre-packaged goods (frozen, canned, other processed goods) (n=23)	43%	74%	57%	70%	9%

20. Are organic products a preference for your organization?

(n=23)

78%—No

18%—Yes

4%—Not sure

21. What kind(s) of packaging requirements do you/your organization set for the following products? (check all that apply)

(n=23)

	Single serving	Pre-washed	Ready to use	No packaging requirements for this product
Fresh Fruits and Vegetables (n=23)	4%	35%	30%	48%
Bread/grains (n=23)	8%	0	65%	30%
Dairy (n=23)	61%	0	61%	9%
Meat (n=22)	14%	0	27%	64%
Pre-packaged (frozen, canned, other processed goods) (n=23)	9%	4%	61%	35%

22. Which of the following food safety requirements does your organization set in order to purchase check all that apply)

(n=24)

96%—Specific food safety requirements (e.g. HACCP, GAP, GHP)

75%—Traceability of product

25%—Product liability insurance, if so how much? (\$5 M, \$2M, \$250,000, varies)

8%—Other requirements (food safety inspections, the vendor sets the requirements)

23. Comments regarding product ordering and packaging:

- *We receive meat in bulk from commodities,*
- *There was not an option for our main factor in ordering patient food - we are a hospital that specializes in severe and multiple food allergies so items with multiple ingredients like breads/grains, dairy products and meat are chosen on the basis of their ingredients rather than packaging, serving size, etc...*
- *Must be able to deliver to our warehouse between 6 AM - 1 PM. They must unload truck and place in cooler or freezer if needed.*
- *Purchases are made from reliable vendors*
- *Depending on the vendor and experience we work individually with them to make sure they understand our requirements. For example; with young farmers I try to get them to understand that case weight has to be uniform in order to bring product in centrally and then ship it back out to the sites. For stuff like bread we did have to change packaging requirements in order to help the shelf life of the organic product. Things that come more standardized, like meat or frozen pizza crust, we still give spec feedback to the manufacturers because they are continually trying to upgrade their plant processes as well.*

### ***Current suppliers and product offerings***

24. Do you already have a program in place where you buy directly from Colorado producers?

(n=24)

58%—No

42%—Yes, what year did it begin?

2009-50%

2002-10%

2006-10%

2008-10%

2010-10%

2011-10%

25. (if yes to previous question) Which of the following resourced did you find helpful/useful in procuring locally produced products?

(n=10)

90%—Direct communication with producers

20%—Colorado Proud newsletter

10%—Colorado MarketMaker online directory

3%—Other (working with our distributor, co-op partners, contacts)  
 0—Edible Front Range or Edible San Juan Mountains publication  
 0—Local/Regional food or marketing organization

26. Which of the following vendors do you currently use for the following products?  
 (check all that apply)  
 (n=24)

	Fresh fruits and vegetables	Bread and grains	Dairy	Meat	Pre-packaged goods	Other
Fresh Pack	<b>9</b>	0	0	0	0	0
Other vendor	7	<b>9</b>	4	9	8	5
Sinton	0	0	<b>9</b>	1	0	1
US Foods	5	7	2	<b>13</b>	<b>14</b>	7
Sysco	2	2	1	3	5	4
Shamrock	3	3	2	3	4	3
Federal Fruit	3	0	0	0	0	0
Meadow Gold	0	0	5	1	0	0
Robinson	0	0	3	0	0	0
Direct from producer	7	2	1	4	1	1

*Other vendors: Andrews (3), Labatt Food Service, Many Other Vendors, American Produce, Yancey's, Cash-Wa (3), Sarah-Lee (3), King Soopers, The Bagel Store, Sunlite Donuts, Bimbo Bakeries, East Side Kosher Deli, Snack Club, The Nutty Guys, Coke*  
**Current purchasing of Colorado-grown products**

27. Do your primary vendors offer Colorado-grown/raised products in any product category?  
 (n=23)  
87%—Yes  
9%—Not sure  
4%—No

28. (if yes or not sure to previous question) Did you purchase any Colorado-grown/raised products through a prime vendor during the 2009/2010 school year (if you are a school) or during the 2010 calendar year (if you are a hospital)?  
 (n=23)  
65%—Yes  
13%—No  
22%—Not sure

29. How much Colorado-grown/raised product did you purchase through all sources during the 2009/2010 school year (if you are a school) or during the 2010 calendar year (if you are a hospital)?? (check one box per row, estimates are acceptable)

	None	\$1-1,000	\$1,001-5,000	\$5,001-10,000	\$10,001-50,000	\$50,001-100,000	Over \$100,000
Fresh Fruits and Vegetables (n=21)	2	4	3	3	4	3	2
Bread/grains (n=12)	3	1	1	1	1	1	4
Dairy (n=17)	1	0	0	1	4	1	10
Meat (n=13)	6	2	1	0	1	0	3
Pre-packaged (n=12)	6	0	2	1	1	1	1

***What keeps you from purchasing Colorado-grown products?***

30. There are several issues which may serve as barriers to buying local. From your perspective, please indicate how much of an obstacle it is to purchase Colorado-grown products given the following: (check one and only one box per row)

- 1=Not at all an obstacle
- 2=Slight obstacle
- 3=Moderate obstacle
- 4=Considerable obstacle
- 5=A great obstacle

- *Ensuring adequate supply: 3.4*
- *Varying year-round availability: 3.3*
- *Product price points: 3.4*
- *Contracting with a greater number of vendors: 2.9*
- *Liability/product insurance: 2.7*
- *Consistent food quality: 2.7*
- *Consistent package size: 2.5*
- *Sufficient food storage space: 2.5*
- *Increased preparation time: 2.4*
- *Local and state regulations: 2.3*
- *On-time delivery: 2.3*
- *Sufficient food preparation space: 2.3*

- *Getting approval for new suppliers: 2.1*

***Farm to Institution: What are you doing now and what could the future look like?***

31. Did you purchase Colorado products directly from a producer during the 2009/2010 school year (if you are a school) or during the 2010 calendar year (if you are a hospital)?

(n=23)

48%—Yes

39%—No

13%—Not sure

32. (If yes to previous question) Estimate the percentage of your total food budget you purchased from Colorado growers during the growing season (August-November 2010)

(n=8)

Average: 16.75%

33. What do you perceive are the values of purchasing locally grown products? (check all that apply)

(n=22)

95%—Freshness

73%—Quality

68%—Education by farmer in the classroom or for employees

64%—Customer service

55%—Direct communication with the farmer

23%—Price

14%—Food safety assurance

34. (If yes to Q. 30) Do you advertise your local procurement program?

(n=10)

70%—Yes

20%—No

10%—Not sure

35. If a small wholesale distributor focused on marketing local food were to operate in your area, how interested would you be in working with them?

(n=23)

1=Not at all interested

2=Slightly interested

3=Moderately interested

4=Very interested

5=Extremely interested

3.7 —————> moderately to very interested

36. Comments regarding current food purchasing:

- *Since Andrews Foodservice Systems is a Colorado company, they already have a working relationship with Colorado produces. Our co-op has instructed Andrews to purchase Colorado-grown products when items are available and competitively priced.*
- *We are a Denver metro school district with not enough buying power to do much of the local purchasing without using other school district to purchase with us. Not enough is known about what can be done and how....meeting after meeting, but nothing seems to be accomplished. I don't have time to investigate very much. I am short staffed and not allowed to hire more people to help me do these kind of things!*
- *My Local farmers raise hay and corn for all the dairies in the area and it is very hard to get them to raise vegetables for our schools when they can make more money from the dairy.*
- *Current restrictions in use of USDA Commodity dollars significantly impact local purchasing*
- *I included my milk and bread purchases in the percentage of budget spent on local purchasing. Without Bread/dairy it would only have been 1% of food budget spent on local products.*
- *Increasing Colorado produce would be great but it is a limited market here. We use 100% Colorado milk. We are adding poultry this year but it is unknown whether we can sustain that beyond a year pricing in Colorado meat and poultry is a barrier which is unfortunate because these center of the plate items is what Colorado is the strongest in.*

37. (if yes to 30) Please list the products you purchased from local farmers or co-ops during the 2009/2010 school year (if you are a school) or during the 2010 calendar year (if you are a hospital):

(n=8)

*#1: Produce- Fruit (Apples, Peaches, Pears, Cantaloupe, Watermelon),  
Vegetables (Lettuce, Peppers, Onions, Tomatoes, Carrots, Potatoes)*

*#2: Milk*

*#3: Meat (grass fed beef and bison)*

38. Please list the products you would potentially purchase from local producers if available.

(n=19)

*#1: Fresh fruits and vegetables*

*#2: Meat and dairy*

*#3: Eggs*

*Most respondents indicated that they would be interested in all of the fruits and vegetables that are available locally. Many also indicated an interest in meat (beef, bison, and chicken) and dairy (milk, cheese, and yogurt).*