

FY 2012 Specialty Crop Block Grant Program – Farm Bill

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Final Report

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-1244 Project 1: Food Service – Promoting New Mexico Specialty Food and Beverage Products, Final Report

Project Summary

The project, Promoting New Mexico Specialty Food and Beverage Products, achieved its purpose. The project, through promotion, addressed the need for New Mexico Foods Service (NMFS) companies to grow their business, not only within New Mexico (NM), but out-of-state, especially in the southwestern U.S. The objectives, to introduce products old and new to existing and new markets, was achieved through the projects various promotional activities. The project demonstrated the importance of funding assistance and NMDA expertise to the beneficiaries, thus making them more competitive while working with and being involved with NM specialty crops.

Project Approach

The project approach was to build on prior food service projects by continuing with marketing strategies and trade and promotional activities. The funds were used solely to enhance the competitiveness of NM specialty crops. The approach was to work with growers, processors, distributors, operators, and associations working and involved with NM specialty crops food and beverage products.

Most of the promotional activities started in March 2012 and carried through February 2013. Monthly activities involved meeting with operators and processors within New Mexico and its surrounding states to promote New Mexico specialty crops and to identify ways NMDA might be of assistance in helping them procure items. NMDA also met with processors to help them in promotional and sales activities. Trade show assistance was most needed by processors whereas NMDA would assist companies through the processors involved with trade shows; distributor and association shows, booking, set-up, merchandising, staffing, selling, lead retrieval, cooking demo, potential customer introductions/contacts, collateral materials, and show follow-up. Financial assistance to help processors get involved with the tradeshow was and is critical to their presence in gaining market share and sales.

We were involved with assisting processors and growers at many distributor trade shows, such as: SYSCO, Shamrock, Ben E Keith, US Foods, and LaBatt in New Mexico, Texas, Arizona, Nevada, California, Utah, and Colorado.

Goals and Outcomes Achieved

The activities for the Food Service Project under SCBG 12-25-B-1244 started in February 2012. NMDA, through the project, continued to work with growers, processors, distributors, operators, and associations to promote New Mexico Specialty Crops and marketing value-added food and beverage product to the food service industry and conducting trade and promotional activities.

GOALS ESTABLISHED	ACTUAL ACCOMPLISHMENTS
<p>Work with five (5) food distributors.</p>	<p>Distributors worked with to promote and sell New Mexico Food and Beverage Specialty Crops were: SYSCO, Ben E Keith, US Foods, LaBatt, Glazier, Core-Mark, Statewide, Southwest Wines, and Southern Wine & Spirits.</p> <p>New markets introduced through distributors were: Southern California; Northern California; Reno, Nevada; Salt Lake City, Utah; Arizona; Southern Colorado; Houston, Texas; and Michigan.</p> <p>New products introduced to distributors were: Frozen red and green chile sauces, tamaletos, variety of New Mexico grape wines, and pecans.</p> <p>Distribution of New Mexico Specialty Crops Foods and Beverages grew by 100 percent.</p> <p>NMDA was involved at all of the mentioned distributor trade shows</p>
<p>Work with fifteen (15) New Mexico food manufacturers.</p>	<p>NMDA worked with in excess of fifteen (15) food manufacturers using New Mexico Specialty Crops for value-added products.</p> <p>NMDA continued to work with/and support large manufacturers including Bueno Foods, Foods of New Mexico, El Pinto, Southwest Wines, NM Wine Growers' Association, Apple Canyon, and Authentic New Mexico Foods to help grow their business. All companies grew their business by 10 to 27 percent.</p> <p>NMDA continued to develop relationships and support for smaller start-up manufacturers working with the South Valley Economic Development Center, NM Piñon Coffee, Los Poblanos, and SW Heritage Mill.</p> <p>Over thirty (30) manufacturers were represented and promoted through the New Mexico State Fair Country Store and the National Fiery Foods Show.</p>
<p>Set-up and work a booth at three (3) national and international food shows.</p>	<p>NMDA has coordinated the set-up and work to promote New Mexico Specialty Crop Foods & Beverages at seven (7) national/international food shows. Highlights were: Foods and beverage at the Global Gaming Expo in Las Vegas; Produce Marketing Association Fresh Summit in Anaheim, and Food Service in Monterey, CA; Wine and Spirits Wholesalers of America, Institute of Food Technologists Annual Conference, Southwest Expo, Texas Restaurant Association, and The International Chile Society.</p>
<p>Conduct workshops and in-store demonstrations in four (4) regional markets.</p>	<p>NMDA conducted workshops and in-store demonstrations to promote New Mexico Specialty Crops Foods & Beverages in the regional markets of Southern California; Northern California; Reno, Nevada; Phoenix, Arizona; Austin, Texas; and Salt Lake City, Utah. Twelve (12) New Mexico green chile roasting demo/promo events in four (4) states were conducted with help from the project.</p> <p>The workshops and demos were conducted for large volume operators and contractors, chef associations, restaurant associations, national restaurant chains, casino/resort/hotel operations, and school districts.</p>

Expectations Exceeded:

Goal	Actual
Work with five (5) food and beverage distributor trade shows.	Worked with nine (9) distributor shows.
Work with fifteen (15) processors involved with NM specialty crops.	Worked with over forty-five (45) processors.
Set-up and work a booth at three (3) national/international food and beverage trade shows.	Worked seven (7) national/international food and beverage trade shows
Conduct workshops/in-store demos in four (4) regional markets.	Conducted in six (6) regional markets.

Through cooperative and promotional efforts between NMDA and the beneficiaries of the project, some new sales successes are as follows which include products made with NM red and green chile, beans, potatoes, onions, grapes, lettuce, and pecans.

Venue	New Sales
Food Service Contractors (Institutional)	1.3 M
Stations, Harrah's/Caesars (Hotel/Casino F&B)	2.1 M
Sprouts (Retail)	1.6 M
Smith's (Retail)	1.2 M
Wal-Mart/Costco (Retail)	1.6 M
New Geographical Markets (Foods Service Distribution)	2.5 M
Restaurant Operations (Food Service)	3.1 M

Beneficiaries

The Beneficiaries of the project were the growers, processors, distributors, and operators involved and working with New Mexico specialty crops. The project helped all of the beneficiaries to grow their business and enhance competitiveness in the food and beverage industry.

Working to benefit processors of specialty food and beverage products, whereas, the processors growth benefits the growers and distributors. The operators also benefit by providing local, sustainable, and quality value-added food and beverage products.

Lessons Learned

There continues to be a great need from growers and processors for support from NMDA through the Promotion of NM Specialty Food and Beverage products. The NMFS companies realize the benefits of the assistance, trade, and promotional activity; whereas they might not have been able to participate in such trade and promotional activities. Also, learned is new NMFS companies are reaching out to NMDA recognizing NMDA expertise in helping them market product and grow business. Through the work of the project, NMDA and MMFS companies realize the enormous potential business that exists for them in other states, especially in the U.S. southwest.

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-1244 Project 2: The Feasibility of Establishing a Regional Wholesale/Retail Produce Market Facility in Central New Mexico, Final Report

Project Background

In 2013, roughly 80% of the food consumed (including fruits and vegetables) in the greater Albuquerque metropolitan area (consisting of Sandoval, Bernalillo, Torrance, Valencia and Socorro counties, population – roughly 920,000, U.S. Census, State and County Quick Facts), valued at \$960 million annually (U.S. Census Consumer Expenditure Surveys), came from outside New Mexico. (Farm to Table, 2013) In 2012, households in the greater Albuquerque metropolitan area consumed \$107.6 million of fresh fruits and vegetables, with only 16.3% (\$17.5 million) coming from local producers. (IMPLAN, 2012) The distribution of locally grown fresh fruits and vegetables was: local consumers (79.4%), state and local government/non-schools (0.7%), state and local government/public schools (1.1%), and export outside the metro area (17.3%). (IMPLAN, 2012)

The demand for safe, nutritious, affordable local food is rising in the greater Albuquerque metropolitan area, particularly for fresh fruits and vegetables. For example, the number of farmers' markets in the greater Albuquerque metropolitan area has increased by 58%, from 12 in 2006 to 19 in 2014, while the number of vendors has increased by 61%, from 248 in 2006 to 538 in 2014, and sales have increased 142%, from \$908,045 in 2006 to \$2.2 million (estimate) in 2014 (New Mexico Farmers' Marketing Association, 2014).

Increasingly, small farm operators in the greater Albuquerque metropolitan area counties are seeking information and assistance for converting their small hay and grain operations over to specialty crops including fresh fruits and vegetables that can provide them with a higher return on their investment. According to national statistics, the average return at the farm gate on an acre of hay is \$1,545 compared to \$7,071 on an acre of selected fruits and \$7,387 on an acre of vegetables. (USDA Vegetable 2013 Summary Report and USDA Noncitrus Fruits and Nuts 2012 Preliminary Summary Report, Table 1)

In 2012 (most recent data), 4,935 farm operations in the greater Albuquerque metropolitan area counties cultivated 71,508 acres (41.2% were small acreage operators with less than 9 acres). Grain and forage crops dominated accounting for 97.8% of total cropland (77.4% of the total cropland was in hay). Fruit and vegetable production accounted for only 2.2% of total cropland. (2012 Census of Agriculture – New Mexico)

Motivation for the Project

The project seeks to determine the feasibility of establishing a food hub - regional whole/retail market facility to meet the growing consumer demand in the greater Albuquerque metropolitan area for locally grown fresh fruits and vegetables.

Not only would a food hub contribute to meeting the growing consumer demand for fresh, nutritious, affordable fruits and vegetables in the greater Albuquerque metropolitan area, it will provide local growers with an opportunity to earn a higher return on their investment and use of land and water, at the same time contributing their conservation and protection in the face of significant population and urbanization pressures occurring in the area.

Across the U.S., food hubs are making it possible for small and mid-sized farmers to reach commercial markets they could not reach before. Food hubs, by providing aggregation, processing and distribution services, fill a critical niche for farmers and ranchers whose operations are too small to compete in traditional wholesale markets. These are producers who would like to sell to larger buyers such as institutions and grocery stores, but who lack the capacity to pack and process products to meet buyer specifications. They also lack the time and infrastructure to market and distribute the products. Local food hubs have been shown to provide higher returns to the farmer, create opportunities for new businesses and jobs in the supply chain, and bring healthy food to communities that lack it. (The Role of Food Hubs in Local Food Marketing, 2013)

Regional food hubs, beyond providing access a local markets, can connect small and mid-sized producers with conventional supply chains and national food distributors expanding their market opportunities. National distribution companies like Sysco are beginning to view food hubs as critical partners instead of competitors. Regional food hubs add significant value to conventional supply chains by providing a reliable supply of source-identified and often branded local products that conform to buyer specifications and volume requirements. (Clarifying the Regional Food Hub Concept, 2012)

Project Approach

The goal of the project is twofold – (1) to determine the feasibility (market, technical, and financial) of establishing a food hub (regional wholesale/retail produce market facility) centrally located in the greater Albuquerque metropolitan area, and (2) to estimate the economic impact on the local economy of replacing non-locally grown fresh fruits and vegetables (primarily from out-of-state sources) with locally grown fresh fruits and vegetables (in the five counties constituting the greater Albuquerque metropolitan area).

Market Feasibility – Can supply of locally produced fresh fruits and vegetables meet the local demand for fresh fruits and vegetables? This is a supply and demand question. To answer this question, existing production data (2012 Census of Agriculture – New Mexico) was reviewed and surveys/interviews were completed with producers in the greater Albuquerque metropolitan area counties of Sandoval, Bernalillo, Torrance, Valencia and Socorro. (A more detailed explanation/presentation of the quantitative and qualitative data and information obtained is presented in the Goals and Outcomes Achieved Section.)

Market Feasibility Findings – In 2012, (latest available data) locally grown fresh fruits and vegetables was only meeting 16.3% (\$17.5 million) of the local demand (\$107.6 million) for fresh fruits and vegetables in the greater Albuquerque metropolitan area. (IMPLAN, 2012)At the same time, only 2.2% of cropland acreage in the greater Albuquerque metropolitan area counties was dedicated to the production of fruits and vegetables. Over 75% of the cropland acreage was producing hay. Converting cropland from hay production to the production of fruits and vegetables can potentially increase returns to producer significantly. According to national statistics, the average return at the farm gate on an acre of hay is \$1,545 compared to \$7,071 on an acre of selected fruits and \$7,387 on an acre of selected vegetables. (USDA Vegetable 2013 Summary Report and USDA Noncitrus Fruits and Nuts 2012 Preliminary Summary Report, Table 1)

Market Feasibility Conclusions and Recommendations

- Demand for locally produced fruits and vegetables in the greater Albuquerque area is strong and growing.
- The potential exists to increase the local production of fruits and vegetables in the greater Albuquerque area.
- Education and training is needed to address producer perceived barriers and concerns including capitalization, technology knowledge, business acumen and entrepreneurial capacity, market access and managing growth.

Technical Feasibility – Can the supply of locally grown fresh fruits and vegetables be connected to local demand? This is a logistics and organizational question. To answer this question, published national, state and sub-state studies and reports on establishing food hubs were reviewed and an assessment of current food hub related activities in greater Albuquerque metropolitan area was conducted. (A more detailed explanation/presentation of the quantitative and qualitative data and information obtained is presented in the Goals and Outcomes Achieved Section.)

Technical Feasibility Findings

- A number of successful food hub activities are underway in the greater Albuquerque metropolitan area including the La Montanita Co-op Trade/Food Shed Initiative, the Skarsgard Cooperative CSA, and the Mixing Bowl.

Technical Feasibility Conclusions and Recommendations

- Food system agents (producers, consumers and support organizations) should proactively seek to evaluate and adopt the food hub model that best fit the current circumstances and long term needs of the greater Albuquerque metropolitan area. A number of options are discussed in this report in the Goals and Outcomes Achieved Section.

Financial Feasibility – Can locally grown fresh fruit and vegetables to meet local demand be done so profitably? This is a business (legal, revenue generating) model question. To answer this question, published national, state and sub-state studies and reports on alternative food hub business models were reviewed. (A more detailed explanation/presentation of the quantitative and qualitative data and information obtained is presented in the Goals and Outcomes Achieved Section.)

Financial Feasibility Findings

A number of successful food hub activities are underway in the greater Albuquerque metropolitan area including the La Montanita Co-op Trade/Food Shed Initiative, the Skarsgard Cooperative CSA, and the Mixing Bowl.

Financial Feasibility Conclusions and Recommendations

As the current efforts to establish a food hub in the greater Albuquerque metropolitan evolve consideration needs to be given to the adoption of appropriate legal structures and revenue/financing strategies. A number of options are discussed in this report in the Goals and Outcomes Achieved Section.

Economic Impact – To estimate the economic impact of on the local economy of replacing non-local sourced fresh fruits and vegetables with locally grown fresh fruits and vegetables the IMPLAN model was used. IMPLAN is an input-output model that provides estimates of employment, labor income, total value added and output impacts resulting from a change in economic activity. (A more detailed explanation/presentation of the quantitative and qualitative data and information obtained is presented in the Goals and Outcomes Achieved Section.)

Economic Impact Findings – In 2012 (latest available data), the production of fruits and vegetables in the great Albuquerque metropolitan counties contributed to local economy: 83 jobs, \$24.9 million in labor income, \$9.1 million in total value added and \$17.5 million in total output. If local producers could capture 10%, 25% or 50% of greater Albuquerque metropolitan area consumers’ current purchases of non-local fresh fruits and vegetables the impact on the local economy could be significant. For example, a 10% increase in sales of locally produced fruits and vegetables in the greater Albuquerque metropolitan area would result in the creation of 151 additional jobs and an \$18.8 million increase in labor income; a 25% increase in sales would result in the creation of 379 additional jobs and an \$46.9 million increase in labor income; a 50% increase in sales would result in the creation of 757 additional jobs and an \$93.9 million increase in labor income. (Table 2, 3, & 4)

Economic Impact Conclusions and Recommendations

- Increasing the volume of locally grown fruits and vegetables in the greater Albuquerque metropolitan counties will have a positive impact on the local economy in terms of employment, labor income, total value-added, and output.
- Increasing the volume of locally grown fruits and vegetables will require developing education and training programs that address the producer perceived barriers and concerns including capitalization, technology knowledge, business acumen and entrepreneurial capacity, market access and managing growth.

Goals and Outcomes Achieved

The goal of the project is twofold – (1) to determine the feasibility (market, technical, and financial) of establishing a food hub (regional wholesale/retail produce market facility) centrally located in the greater Albuquerque metropolitan area, and (2) to estimate the economic impact on the local economy of replacing non-local fresh fruits and vegetables (primarily from out-of-state sources) with locally produced fresh fruits and vegetables (in the five counties constituting the greater Albuquerque metropolitan area).

Market Feasibility

Can supply of locally grown fresh fruits and vegetables meet the local demand for fresh fruits and vegetables? To answer this question the demand for and supply of locally produced fresh fruits and vegetables in greater Albuquerque Metropolitan area were estimated.

- Demand for Locally Grown Fresh Fruits and Vegetables

In 2013, roughly 80% of the food consumed (including fruits and vegetables) in the greater Albuquerque metropolitan area (consisting of Sandoval, Bernalillo, Torrance, Valencia and Socorro counties, population – roughly 920,000, U.S. Census, State and County Quick Facts), valued at \$960 million annually (U.S. Census Consumer Expenditure Surveys), came from outside New Mexico. (New Mexico Farm to Table, 2013) In 2012, households in the greater Albuquerque metropolitan area consumed

\$107.6 million of fresh fruits and vegetables with only 16.3% (\$17.5 million) coming from local producers. (IMPLAN, 2012)

A consumer survey was conducted at eleven of Albuquerque metropolitan area's largest farmers' market in August and September of 2013. (Table 5) Over 1,000 consumers participated in the survey. The consumers were unanimous in their satisfaction with the selection and quality of food items at the markets. They were also unanimous in their desire to have year around access to local (in season) fresh food. In response, Albuquerque's largest farmers' market is experimenting this year with a winter market (November – December and February – April). The regular season is May – October.

The demand for locally grown fresh fruits and vegetables in the greater Albuquerque metropolitan area is strong and growing stronger. For example, the number of farmers' markets in the greater Albuquerque metropolitan area has increased by 58%, from 12 in 2006 to 19 in 2014, while the number of vendors has increased by 61%, from 248 in 2006 to 538 in 2014, and sales have increased 142%, from \$908,045 in 2006 to \$2.2 million (estimate) in 2014 (New Mexico Farmers' Marketing Association, 2014).

Restaurants and public schools, senior centers and detention centers in the greater Albuquerque metropolitan area are also expressing a desire to purchase locally grown fruits and vegetables. (Farm to Restaurant Albuquerque: Recommendations for Implementation, 2012; The Power of Public Procurement, 2014)

- Supply of Locally Grown Fresh Fruits and Vegetables

In 2012 (latest available data), locally grown fresh fruits and vegetables was only meeting 16.3% (\$17.5 million) of the local demand (\$107.6 million) for fresh fruits and vegetables in the greater Albuquerque metropolitan area. At the same time, only 2.2% of cropland acreage in the greater Albuquerque metropolitan area counties is dedicated to the production of fruits and vegetables. Over 75% of the cropland acreage is currently producing hay. Converting cropland from hay production to the production of fruits and vegetables can potentially increase returns to producer significantly. According to national statistics, the average return at the farm gate on an acre of hay is \$1,545 compared to \$7,071 on an acre of selected fruits and \$7,387 on an acre of selected vegetables. (USDA Vegetable 2013 Summary Report and USDA Noncitrus Fruits and Nuts 2012 Preliminary Summary Report, Table 1)

The primary source of fresh fruits and vegetables currently sold in the greater Albuquerque metropolitan area comes from vendors at the farmers' markets. In response to the strong growth in demand for safe, nutritious, affordable food in the greater Albuquerque metropolitan area, the number of farmers' markets in the greater Albuquerque metropolitan area has increased by 58%, from 12 in 2006 to 19 in 2014, while the number of vendors has increased by 61%, from 248 in 2006 to 538 in 2014, and sales have increased 142%, from \$908,045 in 2006 to \$2.2 million (estimate) in 2014 (New Mexico Farmers' Marketing Association, 2014). In 2012, for example, 311 vendors at eleven of Albuquerque metropolitan area's largest farmers' markets sold product to over 8,000 consumers. (Table 6) A large variety of fresh fruit (16 types), vegetables (36 types), and meat & cheese products (12 types) are currently being sold in Albuquerque metropolitan farmers markets. (Table 7)

During March 2013, workshops were conducted with farmers in Sandoval, Bernalillo, Torrance, Valencia, and Socorro counties. Of the 62 participating farmers, less than 25% indicated they were currently selling fresh fruits and vegetables at area farmers' markets and other direct markets; 100% however said they would like to. Currently producers are selling a broad range of fruits and vegetables. (Table 8) The

main barriers the producers identified to increasing production were labor, water and financing. The county extension agents in Sandoval, Bernalillo, Torrance, Valencia and Socorro counties confirmed producer interest in increasing their current production levels and the barriers they were facing. (Table 9)

Local producers, however, face many barriers in their efforts to scale-up and capture a larger share of the growing fresh fruit and vegetable market in the greater Albuquerque metropolitan area including capitalization, technology knowledge, business acumen and entrepreneurial capacity, market access and managing growth.

Technical Feasibility

Can the supply of locally grown fresh fruits and vegetables be connected to local demand? This is a logistics and organizational question. To answer this question, published national, state and sub-state studies and reports on establishing food hubs were reviewed and an assessment of current food hub related activities in greater Albuquerque metropolitan area was conducted.

According to USDA (Findings of the 2013 National Food Hub Survey, 2013), “a regional food hub is a business or organization that actively manages the aggregation, distribution and marketing of source identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail and institutional demand.” (pg. 6) Food hubs have great potential to meet the needs of midsized agriculture, in part due to the localized scale on which they operate, compared to most conventional, large-scale food distribution businesses. Sourcing products from multiple producers, food hubs aggregate (or coordinate the aggregation of) local foods, making them available to customers in wholesale-scale volumes. Food hubs, by definition, accomplish this while also retaining identification of the food’s origin, including any special practices or circumstances under which the food was grown. Retaining this information is important, not only for food chain transparency but also because it carries a value that food hubs and producers can potentially use to realize premium prices for their products. (pg. 7)

The increasing demand for local food helps to explain the large numbers of food hubs that have recently emerged across the country. Almost all food hubs participating in the national survey believe that the demand for their products and services is growing. The review of several studies (see Appendix A) suggests, however, that most food hubs face challenges in getting established, growing and achieving sustainability. Most often, food hubs report struggles with managing growth, balancing supply and demand, and overcoming operational barriers, such as accessing capital.

Food hubs do many things – aggregate products from small and midsized farms; many provide packing and processing services, market the products to regional buyers, and even coordinate local and regional distribution. Access to the infrastructure that it takes to carry out these functions can open up tremendous opportunities for the local economy. Infrastructure can include things like a warehouse and cold storage facility to sort, grade and store food, and keep it fresh; processing operations to prepare products for schools, grocers or other buyers; and refrigerated trucks to transport local food. Access to refrigerated storage space means that a farmer wait for a competitive price for his or her product rather than having to sell immediately after harvest. Buyers can more easily source from many small farms without the burden of additional paperwork if the farmers have a warehouse in which to aggregate and cooperatively market their products. (Building Successful Food Hubs, 2012)

Food hub models include aggregation centers, packing houses, processing centers, and web-based aggregators (Building Successful Food Hubs, 2012) –

- **Aggregation Centers** – are facilities that bring together products from any number of local growers, usually within a radius of 100 miles, but sometimes within a few hundred miles. By aggregating and storing produce across multiple farms, the aggregation center becomes an attractive supplier for wholesalers who purchase in large quantities. These centers may offer a variety of different services including cooling, cold storage, marketing and distribution. However they do not offer the services traditionally associated with packing houses such as washing, grading, sorting, packing, or re-packing. Produce delivered to the aggregation facility is already packed with farm-specific branding and labeling.
- **Packing Houses** – are facilities that receive unpacked fruits and vegetables from local growers to be packed and sold to wholesale customers. Packing house business models vary based on the needs of the grower community, wholesale buyers, and goals of the packing house owner. Potential services include cooling, washing, sorting, grading, packaging, labeling, cooled storage, processing, sales and distribution. Packing houses and aggregation centers can vary greatly in size, from a facility serving hundreds of farmers with tens of thousands of square feet of packing and cooling space, to a single farmer serving fewer than ten local farmers from a converted farm shed. Both play important roles in a vibrant local food system.
- **Processing Centers** – because the infrastructure needs among small growers and entrepreneurs are relatively consistent, a single shared-use commercial kitchen or contract processor can meet the needs of many local businesses and growers. The facilities have the necessary equipment, infrastructure (including ventilation, drainage and cooling), and food safety qualifications necessary for users to create and market value added products. The same processing operation can serve the needs of a number of different types of users – growers with produce, food artisans, caterers, and buyers looking for preserved produce.
- **Web-Based Aggregator** – connect growers and customers through an online marketplace. These serve smaller-scale customers, such as individual restaurants or households. Some of these technology solutions are producer-driven, where a single grower or a group of growers post their available products in a given week and buyers can place direct orders, while others are run by entrepreneurs outside the grower community. These sites either regularly drop off a delivery to a remote collection point or manage direct delivery services. Creating an online marketplace could be a viable first step toward creating a brick-and-mortar aggregation center.
- **Core Business Services** – differ by food hub model. A packing house typically will provide a complete range of services that cause a product to move from the field to the consumer. Some packing houses may even offer harvesting services. Aggregation

facilities and web-based aggregators do not handle the product to the same degree, but common to all models is aggregation, sales and marketing, and distribution (although this may be outsourced).

Three food hub related activities are in development in the greater Albuquerque metropolitan area – the La Montanita Co-op Trade/Food Shed Initiative, the Skarsgard Cooperative CSA and the Mixing Bowl. They are briefly described here.

- ***La Montanita Co-op Trade/Food Shed Initiative*** – The La Montanita Co-op, established in 1976, is a community-owned, consumer cooperative with three retail stores in Albuquerque, one in Santa Fe, and one in Gallup. All stores offer fresh natural and organic produce, bulk foods, local organic beef, lamb and other meats and cheeses, fair trade products and a wide variety of natural and organic groceries, freshly prepared deli foods, natural body care, vitamins and supplements.

In 2006, the co-op initiated the beginnings of a regional food hub (the La Montanita Co-op Trade/Food Shed Initiative), with the establishment of the Cooperative Distribution Center (CDC). The CDC began with a leased 7,000 sq. ft. warehouse with coolers and freezers installed and a refrigerated truck to service a distribution network of moving product from the local farms and ranches to the warehouse and retail stores. In 2012, the CDC moved to a new larger 18,000 sq. ft. facility to attain economies of scale necessary to grow the regional food system. Sales reached \$3.5 million to over 100 customers including their five retail stores and a wide variety of local restaurants, educational institutions, other co-ops, independent grocers, Whole Foods stores, and Sysco Distributing. To fill the gaps where local products are scarce or unavailable, the CDC distributes quality national brands, including Applegate Farms, Organic Valley, Organic Prairie, Natural Value, Crystal Geyser and others.

Today, La Montanita Co-op works with 1,348 local producers (in a 300 mile radius) and local products account for 20 percent of its \$32 million in total sales. Research shows that the CDC needs to increase its annual sales to \$5 million from its current \$3.5 million to reach its breakeven point. To achieve its breakeven sales goal, co-op and CDC staff are working with long-term producers on product development, providing support for new entrepreneurs (both farmers, ranchers and value-added producers), helping smaller producers scale up existing production, and working closely with New Mexico State Cooperative Extension Service county agents to facilitate the transition of interested small acreage grain and forage producers in the greater Albuquerque area over to the production specialty crops for sale at the local farmers' markets and directly to the co-op's retail stores and the CDC. As part of the facilitation process, the co-op has established the La Montanita Fund to provide loans to new and experienced producers for everything from refrigerated delivery trucks to crop diversification and herd expansion, seed supplies, irrigation, fencing, and other equipment.

- ***Skarsgard Cooperative CSA*** – According to Monte Sharsgard, food hubs, regional aggregation points, local distribution centers are not “new concepts or ideas”. They are just different names for the tried and true practice of cooperation. He is not talking about cooperation as a noun like in Co-Ops or some federally recognized business structure, he talking about it as a verb, to cooperate. Monte believes farmers shouldn’t try to grow everything rather grow what you can grow well and cooperate with other farmers to get your products to market. Monte believes it is not enough to just be a bunch of independent producers. Rather he sees the need to form groups, teams and networks to enjoy the market strength in numbers and solidarity.

The Sharsgard farm has taken shape as a cooperative CSA model where he grows a lot of food on 40 acres, but also brings some diversity in from regional growers. Sharsgard farm serves as a food broker between a wide range of growers and his CSA members. This model allows him to grow and sell produce on a year-round basis and provide his members with diverse fresh food offering 52 weeks a year. But Monte notes that the cooperative partnership does not have to stop with growers. “We work with local bakers, ranchers, dairymen/women, value-added providers and coffee roasters. Additionally, working within a family of providers is completely scalable. It can work with only two businesses working together and it can work with 20 businesses.” (Cooperation: The Final Frontier – A Farmers’ Perspective, 2012)

- ***The Mixing Bowl*** provides South Valley and Albuquerque residents interested in starting their own food-related businesses with a facility that serves as a launch pad for a food-based business. The kitchen is an FDA licensed commercial kitchen and is outfitted with the modern, commercial-grade cooking and filling equipment. The kitchen help lower the costs of launching a food-based business and provide the necessary equipment for your business to reach the scale it needs to succeed.

As part of the South Valley Economic Development Center, Mixing Bowl clients have access to training, mentoring, and coaching both in-house and through our partners. The Mixing Bowl assists clients with the writing of the operational plan required for food businesses based in Bernalillo County, and it helps clients navigate getting their acidified food product approved by the New Mexico Process Authority. The Mixing Bowl also provides clients with opportunities to collaborate and network with other food producers, distributors, co-packers, and buyers. Access to these networks greatly enhances the likelihood that the client’s food-based startup will succeed.

The South Valley Economic Development Center (SVEDC) opened in 2005, the result of collaborative effort between the Rio Grande Community Development Corporation and Bernalillo County to further the economic development and empowerment of the South Valley. The result of the collaboration brought a business incubator and shared-use commercial kitchen facility in the heart of the South Valley.

The commercial kitchen at the SVEDC was officially renamed in 2012 as The Mixing

Bowl. As of September 2012, the kitchen supports over 60 active users and meets with over 160 prospective food entrepreneurs a year. The Mixing Bowl continues to evolve as it grows its community of food entrepreneurs. (Mixing Bowl, 2014)

Financial Feasibility

Can locally grown fresh fruit and vegetables to meet local demand be done so profitably?

This business model (legal, revenue generating) question. To answer this question, published national, state and sub-state studies and reports on alternative food hub business models were reviewed. The information provided in this section is taken primarily from the report - Building Successful Food Hubs (2012, pgs. 22-30).

Food hubs can operate under a number of different business entities—the legal structure under which a business operates. There is no one model that would work best for food hubs. The decision about what type of business entity to establish should be decided with the input from legal counsel, grower needs, community culture, existing leadership, and financing options.

Legal Structure

Different business entities to consider include an agricultural cooperative, for-profit business, nonprofit business, and a public/private partnership.

- **An agricultural cooperative (co-op)** is owned and operated by a group of producers. Profits are distributed to members based on amount of usage. Co-ops elect a board of directors and make major decisions through democratic voting. There are different methods of financing the cooperative:
 - Direct contribution through membership fees or stock purchases
 - Agreement to withhold a portion of net earnings
 - Assessments based on units of product sold or purchased.

Advantages: Many experts believe that the single biggest driver of food hub success is the level of investment and support of its growers. Cooperative models inherently lead to stronger grower support, given that growers are investors and profit sharers in the business, and have equal voice in decision making.

Considerations: Producer groups may not be able to generate funding to invest in the necessary infrastructure. The collaborative nature of cooperatives can slow down and even hinder effective decision-making processes; key marketing, operations, or financial decisions are made by the group rather than by specialized experts.

- A **for-profit** venture's primary function is to generate profit for stakeholders. There are several business entity choices for for-profit:
 - Sole Proprietorship: Business owned and operated by one individual.
 - Corporations: Consists of shareholders who finance and own the business, and who elect a board of directors to govern the business. S-Corporations and C-Corporations are two common examples.

- Partnerships: An association of two or more people who co-own and are personally liable for the company obligations. Limited Liability Companies (LLC) and
- Limited Liability Partnerships (LLP) are partnerships in which partners are personally shielded from company obligations.

Advantages: For-profits can more easily attract interested investors to fund the high start-up infrastructure costs. Additionally, with a for-profit structure, owners and board of directors may pursue business strategies that generate more profits for all stakeholders— owners, staff, and producers.

Considerations: For-profits are ineligible for most grants, which can help fund necessary start-up costs. Additionally, for-profits are subject to a high corporate tax rate. It is important to consult a lawyer to determine which business entity a for-profit should adopt.

- Though a **nonprofit** food hub will generate income, its function is to advance a social or environmental mission. Therefore, all profits are invested in advancing the organization’s mission. Many nonprofit food hubs invest profits in farmer technical support, beginning farmer training, marketing support, consumer education, and many other initiatives. Nonprofits must have a board of directors, file articles of incorporation, and apply for both nonprofit status with the IRS and liability insurance.

Advantages: Nonprofits can apply for a myriad of government grants and individual foundation funding. Nonprofits are not subject to corporate tax. Additional tax benefits include sales tax exemption and postal rate discounts. Because the profits cannot be distributed to the organization’s members, reinvested profits can help educate and strengthen the local agricultural community, ultimately resulting in high revenues for individual growers.

Considerations: Setting up a nonprofit takes more time than setting up a for-profit. Producers and partners may not feel that a mission-based nonprofit has the business acumen and produce industry knowledge needed to successfully run their business. If organizational leaders are not financially rewarded by the success of their food hub, they may not be incentivized to maximize its profitability, resulting in lower sales and revenues for member growers.

- A **public/private partnership** takes into consideration the public interest in investing in the facilities and infrastructure that will increase rural farmer access to markets. Public/private partnerships can take many different forms. For instance, a municipality can provide needed infrastructure (land, packing house, packing equipment, etc.) and a private company might own and operate the facility as a tenant without seeking full ownership of the property.

Advantages: Public funding can be used to purchase the equipment and the building. Additionally, by garnering support from both public and private entities, this business form may be likely to more easily withstand difficult, less profitable seasons.

Considerations: A public municipality needs to be invested in local food systems and the positive impact of a food hub. Feasibility studies are often required to accurately assess need and measure the impact of this initiative on a public need. Any venture that has some stream of public funding will be subject to shifts in government budgets and fiscal policies.

Revenue Model

The revenue model is the manner in which the company generates sales. One company may have a number of different profit centers, or separate business units that generate sales using different revenue models.

- **Aggregation Facility or Packing House:** These brick-and-mortar facilities will have a number of profit centers depending on the business model. Generally, these include three core functions: packing, marketing, and distribution. Each may have a different revenue model, whether commission, margin, or markup.

The packing operation earns revenue by charging a flat fee for cooling and packing. The fee schedule covers direct costs, which vary based on packaging and cooling required for each crop, indirect costs, and a profit margin.

The marketing operation will handle two types of sales: consignment and direct purchase. In a consignment sale, the food hub facilitates the sale to a buyer on a commission basis but does not purchase the product from the grower. Commission ranges widely from less than 5% to as much as 20%. In a direct purchase the food hub buys the product from the grower at a set price and strives to sell it to a customer at a profit, generating a gross margin that ranges from 18 to 25% or more.

The distribution operation handles logistics of farm and customer pickups and deliveries. Delivery fees are added to the invoice if handled by the packing house. The fee generally covers the labor and transportation cost for the delivery plus a profit margin. This function is often outsourced and may not be included as a profit center in the business model.

In a for-profit business entity, these revenue models incent the food hub to maximize price and volume, and to boost profit margin by minimizing direct and indirect overhead costs. Growers are incented to improve quality to attract a higher price and increase percent pack-out for product graded and packed at the food hub.

Compared to the business models surrounding aggregation services of food hubs, there are a greater variety of models that processing services can adopt.

- Contract Processing – the kitchen maintains professional staff to produce food products for clients, either as a contract packager or manufacturer (also known as co-packing or co-manufacturing). Co-packing generally involves assembly and packaging, whereas co-manufacturing includes food processing as well.
- Private Labeling – is most likely a contract processor that also produces a line of products under its own label. The kitchen purchases ingredients directly from farms and other suppliers and manufactures/processes private label products, or branded products based on their own recipes.
- Shared-Use Kitchen for Farmers – is a rent-by-the-hour or membership-based commercial kitchen serving primarily local farmers to conduct value-added processing of excess produce and/or seconds. These kitchens are used primarily for production of packaged products as opposed to catering. This model is often combined with contract processing and private labeling.
- Shared-Use Kitchens for Others – is a rent-by-the-hour or membership-based commercial kitchen fully equipped for catering, pastries, and storage.
- Food Business Incubator – supports and fosters entrepreneurs in the food processing industry. In addition to providing certified kitchen space, incubators have a strong commitment to providing technical and business support to entrepreneurs whose businesses are being incubated at their facilities. Technical support includes recipe development label development, taste testing, and ingredient sourcing. Business support include input on marketing and sales and financing.

Beneficiaries

The goal of the project is twofold – (1) to determine the feasibility (market, technical, and financial) of establishing a food hub (regional wholesale/retail produce market facility) centrally located in the greater Albuquerque metropolitan area, and (2) to estimate the economic impact on the local economy of replacing non-local fresh fruits and vegetables (primarily from out-of-state sources) with locally produced fresh fruits and vegetables (in the five counties constituting the greater Albuquerque metropolitan area).

The project has established that there is opportunity for increasing the local production of fruits and vegetables in the greater Albuquerque area. The beneficiaries from doing so would be producers and consumers in the area.

- In 2012, households in the greater Albuquerque metropolitan area consumed \$107.6 million of fresh fruits and vegetables, with only 16.3% (\$17.5 million) coming from local producers. At the same time, only 2.2% of cropland acreage in the greater Albuquerque metropolitan area counties was dedicated to the production of fruits and vegetables. Over 75% of the cropland acreage was producing hay. Converting cropland from hay production to the production of fruits and vegetables can potentially increase returns to producer significantly. According to national statistics, the average return at the farm

gate on an acre of hay is \$1,545 compared to \$7,071 on an acre of selected fruits and \$7,387 on an acre of selected vegetables.

- The demand for safe, nutritious, affordable local food is rising in the greater Albuquerque metropolitan area, particularly for fresh fruits and vegetables. For example, the number of farmers' markets in the greater Albuquerque metropolitan area has increased by 58%, from 12 in 2006 to 19 in 2014, while the number of vendors has increased by 61%, from 248 in 2006 to 538 in 2014, and sales have increased 142%, from \$908,045 in 2006 to \$2.2 million (estimate) in 2014.
- In 2012 the production of fruits and vegetables in the great Albuquerque metropolitan counties contributed to local economy: 83 jobs, \$24.9 million in labor income, \$9.1 million in total value added and \$17.5 million in total output. If local producers could capture 10%, 25% or 50% of greater Albuquerque metropolitan area consumers' current purchases of non-local fresh fruits and vegetables the impact on the local economy could be significant. For example, a 10% increase in (capture of) sales of locally produced fruits and vegetables in the greater Albuquerque metropolitan area would result in the creation of 151 additional jobs and an \$18.8 million increase in labor income; a 25% increase in (capture of) sales would result in the creation of 379 additional jobs and an \$46.9 million increase in labor income; a 50% increase in (capture of) sales would result in the creation of 757 additional jobs and an \$93.9 million increase in labor income.

Lessons Learned

Building a food hub to serve the greater Albuquerque metropolitan area will require the sustained collaborative work of producers, consumers and supporting public and private organizations.

New Mexico State University and key New Mexico agencies and organizations could take the lead in forming a New Mexico Food Hub Partnership to promote, develop and support the establishment of food hubs, not only in the greater Albuquerque metropolitan area, but across the state to facilitate New Mexicans access to locally produced food by connecting New Mexican producers and consumers.

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Table 1: 2012 New Mexico - Farm Gate Prices per Acre* for Selected Fruits and Vegetables (estimates)

	(\$Dollars)
Hay	1,545
Cantaloupes	4,903
Watermelon	4,309
Honeydews	5,047
Bell Peppers	12,463
Carrots	9,334
Cucumbers	5,286
Lettuce (head)	8,213
Lettuce (leaf)	8,736
Lettuce (Romaine)	9,922
Onions	5,601
Potatoes	4,269
Snap Beans	16,944
Spinach	6,997
Squash	5,862
Tomatoes (medium)	10,744
Tomatoes (cherry)	18,520
Apples	8,297
Peaches	5,498
Pears	7,417
All Fruits - Average	7,071
All Vegetables - Average	7,387

*National averages -USDA 2012-13 data

Source: USDA Vegetable 2013 Summary Report

& USDA Noncitrus Fruits and Nuts 2012 Preliminary Summary Report

Table 2: Estimated Impacts of a 10 percent Capture of Gross Demand Value Satisfied from "Outside" the Greater Albuquerque Area 1/

Impact Summary	<i>Vegetable and melon farming</i>		Capture value =	\$4,244,435
Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	22	\$6,006,360	\$2,228,679	\$4,244,435
Indirect Effect	12	\$357,757	\$644,027	\$1,049,697
Induced Effect	37	\$1,452,353	\$2,741,072	\$4,346,631
Total Effect	71	\$7,816,470	\$5,613,778	\$9,640,763

Impact Summary	<i>Fruit farming</i>		Capture value =	\$5,025,273
Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	12	\$8,466,309	\$2,664,792	\$5,052,273
Indirect Effect	17	\$453,860	\$708,738	\$1,186,696
Induced Effect	52	\$2,035,447	\$3,841,490	\$6,091,636
Total Effect	80	\$10,955,617	\$7,215,019	\$12,330,605

Impact Summary	<i>"Combined" farming activities</i>		Capture value =	\$9,269,708
Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	34	\$14,472,669	\$4,893,471	\$9,296,708
Indirect Effect	29	\$811,617	\$1,352,765	\$2,236,393
Induced Effect	89	\$3,487,801	\$6,582,561	\$10,438,267
Total Effect	151	\$18,772,087	\$12,828,797	\$21,971,368

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1/ The Greater Albuquerque Area includes the following counties:
Bernalillo, Sandoval, Socorro, Torrance and Valencia.

Table 3: Estimated Impacts of a 25 percent Capture of Gross Demand Value Satisfied from "Outside" the Greater Albuquerque Area 1/

Impact Summary	<i>Vegetable and melon farming</i>		Capture value =	\$10,611,088
Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	55	\$15,015,900	\$5,571,698	\$10,611,088
Indirect Effect	31	\$894,393	\$1,610,068	\$2,624,243
Induced Effect	93	\$3,630,884	\$6,852,680	\$10,866,577
Total Effect	178	\$19,541,176	\$14,034,446	\$24,101,909

Impact Summary	<i>Fruit farming</i>		Capture value =	\$12,630,683
Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	30	\$21,165,774	\$6,661,979	\$12,630,683
Indirect Effect	42	\$1,134,650	\$1,771,845	\$2,966,739
Induced Effect	130	\$5,088,618	\$9,603,724	\$15,229,092
Total Effect	201	\$27,389,043	\$18,037,548	\$30,826,514

Impact Summary	<i>"Combined" farming activities</i>		Capture value =	\$23,241,771
Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	84	\$36,181,674	\$12,233,677	\$23,241,771
Indirect Effect	72	\$2,029,043	\$3,381,913	\$5,590,983
Induced Effect	222	\$8,719,502	\$16,456,404	\$26,095,669
Total Effect	379	\$46,930,219	\$32,071,994	\$54,928,423

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1/ The Greater Albuquerque Area includes the following counties:
Bernalillo, Sandoval, Socorro, Torrance and Valencia.

Table 4: Estimated Impacts of a 50 percent Capture of Gross Demand Value Satisfied from "Outside" the Greater Albuquerque Area 1/

Impact Summary	<i>Vegetable and melon farming</i>		Capture value =	\$21,222,177
Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	109	\$30,031,801	\$11,143,397	\$21,222,177
Indirect Effect	61	\$1,788,786	\$3,220,136	\$5,248,487
Induced Effect	185	\$7,261,768	\$13,705,360	\$21,733,156
Total Effect	355	\$39,082,354	\$28,068,893	\$48,203,820

Impact Summary	<i>Fruit farming</i>		Capture value =	\$25,261,399
Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	59	\$42,331,549	\$13,323,958	\$25,261,366
Indirect Effect	83	\$2,269,300	\$3,543,690	\$5,933,479
Induced Effect	259	\$10,177,237	\$19,207,449	\$30,458,184
Total Effect	402	\$54,778,086	\$36,075,096	\$61,653,029

Impact Summary	<i>"Combined" farming activities</i>		Capture value =	\$46,483,576
Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	169	\$72,363,350	\$24,467,355	\$46,483,543
Indirect Effect	144	\$4,058,086	\$6,763,826	\$11,181,966
Induced Effect	444	\$17,439,005	\$32,912,809	\$52,191,340
Total Effect	757	\$93,860,440	\$64,143,990	\$109,856,849

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1/ The Greater Albuquerque Area includes the following counties:
Bernalillo, Sandoval, Socorro, Torrance and Valencia.

**Table 5: Greater Albuquerque Metropolitan Area Farmers' Markets Survey
(Conducted August 6 – September 24, 2013)**

<u>Location</u>	<u>Date</u>	<u># Consumers Surveyed*</u>
ABQ Presbyterian	Tuesday, August 6	82
ABQ Academy	Tuesday, August 6	29
Armijo Village	Saturday, August 17	32
Zia Bernalillo	Friday, August 23	54
ABQ Downtown	Saturday, August 24	320
Corrales	Sunday, August 25	175
Los Lunas	Tuesday, August 27	75
Belen	Friday, August 30	67
Bosque Farms	Saturday, August 31	67
Los Ranchos	Saturday, September 7	162
ABQ Uptown	Saturday, September 14	0 (rained-out)
Total		1,063

*Number of people who participated in the voluntary dot survey. It is estimated that they represent roughly 40% of the consumers at the market on that day.

**Table 6: Greater Albuquerque Metropolitan Area Farmers' Markets
2012 Average Number of Vendors and Consumers on Market Day**

<u>Location</u>	<u># Vendors</u>	<u># Consumers</u>
ABQ Presbyterian	23	375
ABQ Academy	18	830
Armijo Village	6	263
Zia Bernalillo	22	250
ABQ Downtown	88	2,566
Corrales	40	2,050
Los Lunas	14	130
Belen	15	250
Bosque Farms	12	184
Los Ranchos	48	1,047
ABQ Uptown	25	800
Total	311	8,745

Source: New Mexico Farmers' Marketing Association

Table 7: Greater Albuquerque Metropolitan Area Farmers' Markets Product Availability

Vegetables

Arugula	Kohlrabi
Asparagus	Leeks
Beets	Lettuce
Bell Peppers	Okra
Black-eyed Peas	Onions
Broccoli	Peas
Cabbage	Potatoes
Carrots	Pumpkins
Cauliflower	Radishes
Chile (green)	Salad Greens
Chile (red)	Spinach
Corn	Squash (summer)
Cucumbers	Squash (winter)
Eggplant	Sweet Potatoes
Fennel	Tomatoes
Garlic	Tomatillos
Greens	Turnips
Herbs & Spices	Zucchini

Fruits and Nuts

Apples	Pears
Apricots	Pecans
Blackberries	Pistachios
Cherries	Plums
Figs	Raspberries
Grapes	Rhubarb
Melons	Strawberries
Peaches	Watermelons

Meat & Dairy Products and Other

Beef	Lamb
Buffalo	Ostrich
Chicken	Turkey
Cheese	Breads
Eggs	Jams & Syrup
Emu	Flowers
Goat	Oils and Soaps
Honey	Crafts

Source: New Mexico Farmers' Marketing Association

**Table 8: Connecting Local Food Producers with Local Markets Workshops
March 4-6, 2013**

Farmers Markets|Other Direct Markets

County Workshop	# Farmers	% Currently Selling	% Would like to Sell	Currently Would Like to Sell
Bernalillo & Sandoval (March 4)	21	10%	100%	<u>Fruits:</u> apples, grapes, peaches, blackberries, raspberries, apricots, strawberries, pears, plums, cherries, watermelons, walnuts, figs
Torrance (March 5)	16	50%	100%	
Socorro, & Valencia (March)	25	20%	100%	
				<u>Vegetables:</u> chile, onions, greens, tomatoes, corn, carrots, beets, kale, garlic, herbs, beans, squash, chard, eggplant, mushrooms, orka, wheat, oats, alfalfa sprouts, bean sprouts, cucumbers, peppers, zucchini
				<u>Other:</u> honey, eggs

Table 9: Fruits and Vegetables Currently Being Produced in the Greater Albuquerque Metropolitan Area – Sandoval, Bernalillo, Torrance, Valencia, and Socorro Counties as Reported by County Extension Agents (March 2013)

Fruits: apples, apricots, blackberries, grapes, melons, peaches, pears, plums, watermelons

Vegetables: arugula, asparagus beets, bell peppers, broccoli, cabbage, carrots, cauliflower, chile (green and red), corn, cucumbers, eggplant, garlic, greens, herbs, kohlrabi, leeks, lettuce, okra, onions, peas, potatoes, pumpkins, radishes, spinach, squash (summer and winter), tomatoes

Other: cut flowers, honey, sunflowers, wheat grass

Where Sold: roadside stands, local grower/farmers markets, local schools, local restaurants, local grocery stores

Largest Barriers to Increased Production: Labor, water and financing (in order of importance)

Source: Interviews with county extension agents

-1244 Project 3: New Mexico Green Chile Promotion, Final Report

Project Summary

Although demand for fresh green chile is fairly constant within and surrounding the production areas, the desire to expand marketing channels regionally and nationally presents new challenges to current marketing practices. These challenges center on effectively marketing a product to a consumer base with no experience of the appeal and versatility of green chile. Introduction of a traditional local product into non-traditional regional and national markets will require direct exposure to the aroma and taste of green chile prepared by experienced roasters.

New Mexico chile is the coveted crop of New Mexico. New Mexico long green chile has been around since the early 1900's, when Dr. Fabian Garcia developed and released the first varieties to the states' citizens. The tradition of flame roasting fresh green chile, frozen and consumed throughout the rest of the year, continues throughout the region. Because of the New Mexico Department of Agriculture's marketing and educational efforts, in conjunction with green chile shippers and retailers, this tradition is being embraced by consumers throughout the United States and western Canada.

After the introduction and release of chile, the industry enjoyed many years of success and growth. Acreage continued to increase throughout the years and the industry saw the creation of commercial processing plants for both green and red varieties. In the 1980's acreage reached an all-time high of over 30,000 acres. The crop was profitable with plenty of land and resources available to insure continued success.

As with any crop, too much success can lead to other regions in the United States and other countries entering into the marketplace and competing with New Mexico's niche market. In the early 2000's when petroleum products and inputs associated with petroleum (fertilizers, fuel for tractors and pumping) skyrocketed, the states growers found it increasingly difficult to compete in the world market. Along with the increase fuel costs, the cost of labor became a real issue. Other countries who could pay pennies on the dollar compared to U.S. farmers began to take more market-share from our New Mexico producers and processors. Chile processors were locked into contract prices and were unable to pay growers more money for their chile. Even though the development of new varieties and cultural practices have improved yields drastically, acreage decrease from a high of 30,000 acres to just over 9,000. The only market where chile was not being sold on a contract and had the flexibility to negotiate pricing, was the fresh market. This is when the New Mexico Department of Agriculture began working with fresh market green chile growers and shippers to expand the marketplace.

This project is a continuation of the 2010 SCBG "New Mexico Green Chile Promotion". The project first began with a single chain of 143 stores in northern California, and has since grown to over 2,300 stores from California to New York, and Vancouver, British Columbia, Canada to Florida. Many small and large chile farmers have been able to stay in the industry as a result of these marketing efforts.

While commercial contract prices have increased and made it profitable enough for some large growers to sell to them, the fresh market prices (which are higher than commercial contract prices) have enabled the smaller produces to stay in business without having to increase their acreages for economies of scale.

Project Approach

2012

The goal of this project was to increase market share for New Mexico Green Chile by identifying new markets, both regionally and nationally. The objective in new market expansion was projected at four new markets for 2012. Four new markets were identified with three located in the continental United States ; the Los Angeles metro area on the west coast and on the east coast, Newark, New Jersey and Annapolis, Maryland. Our first international market, Vancouver, British Columbia, Canada was the fourth new market. This market was targeted as a potential international expansion during our 2011 Green Chile Promotion conducted in the Pacific Northwest. The Whole Foods Markets in Canada represented 12 selected stores which were targeted for green chile roasting promotions. To penetrate these new markets effectively, we instituted pre promotion programs, which included technical assistance and educational seminars (aka 'Chile Boot Camp – 101') at selected locations in early August. This 'Chile Boot Camp 101' provided historical data, common misconceptions of green chile, event planning, roasting and preparation strategies, cross merchandising, promotional materials and educational outreach for consumers. Consumers were also targeted during roasting demonstrations and in store demos which focused on sampling of fresh roasted green chile. The proper training and education of the store personnel conducting these demonstrations was an integral component in establishing a one on one connection with the consumer. Educational outreach was expanded in the form of our "Get Your Fix" DVD's which provided consumers with instruction on roasting chile at home and several easy to prepare dishes using green chile.

Goals and Outcomes Achieved

2012 Activities Performed

- Developed first international market by introducing chile into 12 retail stores in Vancouver, British Columbia, Canada.
- Developed new markets with a major produce distributor in southern California. The distribution company sold fresh green chile into two major retail chains and several smaller chains in California.
- Developed a new retail market with stores located in the eastern United States. Headquarters for the retail chain is located in North Carolina.
- Developed a new retail market with stores in the northeastern United States. Headquarters for the retail chain is located in New Jersey.
- Provide Point of Purchase material to chile shippers for distribution to retailers throughout the United States.

Our target of four new markets was reached. The chains in the newly developed markets consist of 446 stores. Not all had a roasting program, but did carry New Mexico chile. Although a formal survey to evaluate cases sold was not conducted, we can confidently say an additional 12,000 cases were sold as a result of our market expansion efforts.

Due to the success in the fresh retail market and the limited number of personnel available to work the project, efforts to penetrate the restaurants was postponed until 2013.

Beneficiaries

The New Mexico chile growers were the main beneficiaries in this project. The whole objective in this project is to find new markets for producers who have chosen not to sell to large commercial processing facilities due to profitability in the industry. The chile shippers have also benefited from this project as it

has enabled them to grow their businesses and hire additional labor to handle logistics, pack and ship product.

Shippers are actively attending tradeshow and meeting with new retailers to develop future business relations. Lastly, foodies and ex-pats from New Mexico are benefiting from this project as they are now able to find their beloved green chile throughout the United States.

Lessons Learned

The biggest lesson learned from this project is there continues to be a growing demand for New Mexico green chile. As new retailers become engaged in the program, their competitors also become interested in green chile as well.

While working with retailers to develop new markets for fresh green chile, the idea of incorporating former alumni from New Mexico universities was investigated. An invitation was sent out to alumni inviting them to come by the events and purchase their chile. This proved to be a huge success and the ideas was expanded the following season.

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-1244 Project 4: Unifying New Mexico's Nursery Industry, Educating Its Staff, and Expanding Its Customer Base, Final Report

Project Summary

The focus of this project was to increase the sales of New Mexico grown plant material and selling in state. New Mexico nursery industry has suffered in recent years because of several concurrent problems, some more obvious than others. The halt in construction that brought on the recession also prompted people to turn away from landscaping plants. People have purchased more material from big box stores rather than the independent retail locations. The project is important and timely because many large, nationwide distributors of plant material have shrunk or disappeared altogether, as well as many small local growers going out of business. This is the first time this project had been submitted for grant funding.

Project Approach

CNGA has offered two webinars in 2013; an OSHA webinar and one on Collections, neither one had any attendance. Due to the lack of interest in this area, we didn't offer any other webinars nor did we secure a contract with a webinar hosting company.

The current Colorado certification committee chair was contracted to work with the New Mexico members to rewrite chapters of the manual that needed to be adjusted and to create new chapters specifically for the New Mexico members, test questions were written, a test bank of questions were created and added to the current certification test banks.

Since an extension horticulturist in New Mexico doesn't exist an approved instructor was identified to teach the certification training seminars, the Colorado Certification committee chair went to New Mexico to help the instructors with the teaching of the seminars, for the first seminars and exam they were held at an extension office, the rest of the seminars and exams were held at chapter member locations. For the first round of testing we had eight participants register for the seminars, six people registered for the exam with three participants passing and receiving their certification. The second round of seminars had 7 people taking the seminars, 9 people taking the exam with three people passing and receiving their certification. The third round of seminars had 4 people taking the seminars with five people taking the exam. No one received their certification.

Due to the declining chapter membership a New Mexico Chapter webpage was created and added to the current CNGA Website instead of a New Mexico Chapter website. To this web page we added a calendar of events, the New Mexico certification information, certification study tools and a member directory. We are hopeful that the increased presence on the website will help the New Mexico members better connect with each other and increase their business awareness to the public.
<http://coloradonga.org/new-mexico.php>

Goals and Outcomes Achieved

The goal for CNGA and the Chapter first and foremost was to get the certification training seminars up and running, this training would make the staff at independent plant wholesalers and retailers as well as nurseries, garden centers and greenhouses in New Mexico more knowledgeable in their field, and after holding three sets of seminars and exams, and with the help of the chapter members in promoting and championing this program within their own companies the program is established and moving forward.

Currently we are able to schedule Certification Seminars for New Mexico at least once a year, with the next set of seminars to start in February of 2015.

Quantitative data for the sales of New Mexico grown plant material is unmeasurable. The 15 members that were involved at the start of the grant period were only a small portion of the New Mexico plant industry as a whole and as the grant period went on the chapter membership decreased to only 7, not a measureable quantity for New Mexico. As the membership has decreased by more than half it is impossible to determine if the benchmark could have been met. This goal was determined to be one that couldn't be measured and so not achievable.

The addition of the New Mexico webpage on the website will help to promote and support the New Mexico certification program as well as add a level of connectivity and awareness for the New Mexico members.

Beneficiaries

The largest beneficiary group to date is the New Mexico Chapter members themselves. The certification program directly affects them and their staff by creating an increased knowledge base within their staff. This certification program lends itself to promotion throughout the industry as an increased knowledge of plant material as well as professionalism and customer service skills and a dedication to the industry itself.

The public as a whole will become a beneficiary as they learn to value and trust the knowledge of a New Mexico Certified Nursery Professional, a key step to developing customer loyalty and in turn repeat business. The website will also benefit the public, as they will be able to look for upcoming events and find members in their area.

Quantitative data is unmeasurable as the initial chapter benchmarks were based on 15 chapter member companies; over the course of the grant period that membership group has decreased to only 7 current members.

Lessons Learned

It was determined that hosting the seminars at the extension office was not as effective as hosting the seminar at a member location. A member location is preferable as it gives the student an opportunity to see more live plant samples and to tour a facility and get another aspect of the industry. The chapter members have agreed to host split the hosting of future certification seminars.

It is difficult to gather the members to attend seminars in one area as the member companies are wide spread throughout the state. The chapter members have decided to try to split locations and do two seminars in Albuquerque and two seminars in Santa Fe, with the hopes of alleviating this issue to some degree.

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-1244 Project 5: Certification Program for New Mexico Grown Chile -- Evaluation & Development, Final Report

Project Summary

New Mexico chile industry stakeholders have indicated interest in exploring a region of production (ROP) certification program. The certification program includes industry supported marketing efforts and the development of a certification mark used to identify product sourced from participating New Mexico producers and/or processors. This report summarizes (a) research undertaken to identify important certification components found in existing programs used in other agricultural industries, (b) information obtained via an on-line panel survey regarding potential consumer preferences related to geographically based certification, and (c) industry stakeholder, e.g., grower, processor, retailer attitudes toward certification obtained via focus groups.

A number of certification programs emphasizing ROP exist in other U.S. agricultural industries. These programs operate at various geographic levels including national (country of origin labeling), regional, and local levels and have varying organizational and administrative structures, e.g., programs run via Federal marketing orders, programs run through state-level departments of agriculture and programs run through non-profit industry organizations. Varying levels of success have been reported for these marketing efforts.

Previously published research regarding geographical branding of agricultural products suggest that in order to be successful the certification effort must (1) differentiate the product from competing products, (2) use effective marketing and promotion to establish and maintain product distinction, i.e., added value in the minds of consumers, and (3) control supply of branded product in the market, e.g., enforcement of proper certification mark use (Carter et al., 2006).

Industry focus groups held through the state highlighted challenges and opportunities related to stakeholder buy-in. Areas that will require attention, in the minds of industry stakeholders and potential participants in a certification program include: program organization and administrative structure, allocation of benefits between program participants, e.g., growers, processors, and retailers as well as program “early adopters” and “laggards”, management of costs, and insuring product quality. These challenges have been identified in previous research, which suggests that both certifying agency (organization structure) and stakeholders may play a role in program success.

In order to better understand factors important to consumers’ preferences with regards to chile products, a nation-wide on-line panel survey conducted with 1,121 individuals. These individuals, participating in a commercial panel survey company program, have agreed to take on-line, internet-based surveys and receive various incentives, e.g., airline miles for their participation. Responses were received from all 50 states.

One-quarter of survey respondents (28.0%) indicated that they do not currently purchase New Mexico-type chile peppers. Respondents indicated that both a vegetable’s growing region and its processing region were important factors in their purchase decision. Respondents indicated a willingness to pay more for California-grown chile (followed by New Mexico-grown fresh green or dried red chile). Questions within the survey were used to ascertain the premiums that consumers may be willing to pay for New Mexico grown chile. Nearly 10% of the survey participants indicated that they would pay a 40%

premium for New Mexico grown/processed chile. An experiment conducted within the survey suggested that educating individuals about the New Mexico chile industry can help motivate consumers to select New Mexico grown and/or processed chile products. Respondents preferred state-validated (over farmer or federally-validated) grade or quality certification and region of production certifications on chile. Unique features of the survey methodology and the limitations imposed by these features are discussed in the report.

Based on the sources identified above, it appears that, contingent upon confirmation of assumptions made in the analysis described within the body of the report, a New Mexico grown certification program may be successful if properly developed and implemented. Study limitations and cautions are identified within the body of the report.

Project Approach

Year 1: Activities & Tasks Performed

During the first year researchers focused on developing a market research survey to explore consumer preferences toward certifications and a region of production certified chile pepper. Specific activities included:

- Conducted a comprehensive review of existing literature surrounding certification in other food products. More specifically, the price premiums related to certification, differentiation and certification strategies, and the influence of marketing, product mix, product form/state, certifying agency, and industry stakeholders on the potential for a certified product's success were explored using secondary sources. Significant conclusions from this activity include: Previous research in other industries has identified certification price premiums, differentiation and certification strategies, and the influence of marketing, product mix, form/state, certifying agency, and stakeholders on program viability and success. This information can be valuable for industries looking to develop a region of production certification program of their own.
- Interviewed leaders from three U.S.-based region of production certification programs regarding their development and implementation experiences. NMSU researchers used information from these interviews, along with additional information from secondary sources (e.g., scholarly research, USDA data), to develop an Agricultural Experiment Station publication titled *Developing and Managing a Certification Program as an Agricultural Marketing Tool*. This publication is available from NMSU's College of Agricultural, Consumer, and Environmental Sciences (online at <http://aces.nmsu.edu/pubs/research/economics/RR780.pdf>).
- Information collected during the first year was used to develop a survey instrument. Project researchers developed a web-based market research survey to, among others, quantify the possible premiums associated with product certification and identify the most preferred types of certification (e.g., type of certifying agency, type of certification). This survey was submitted to and approved by the NMSU Institutional Review Board.
- A local focus group of potential chile consumers was organized to pre-test the market research survey to increase its clarity and relevancy.

Year 2: Activities & Tasks Performed

During the second year researchers conducted a number of primary data collection activities. Specific activities included:

1. A market research study of 1,121 U.S. food consumers was conducted to collect data on consumers' fruit and vegetable purchases, spicy pepper purchases, chile pepper purchases and preferences, and demographic characteristics of the respondent.

2. Data from the consumer market research study was analyzed using a variety of qualitative and quantitative methods (e.g., simple descriptive statistics, conditional logit modeling). Results were organized into four working papers, scheduled for publication in scholarly journals. Results were also organized into a briefing packet to be distributed to focus group participants (see below). Significant results from this research include:
 - New Mexico-type chile peppers were the second most popular type of fresh pepper purchased by survey participants (behind Jalapeños).
 - If provided educational, varietal, or novelty support, more than half of respondents who do not currently purchase New Mexico-type peppers would be somewhat or very interested in purchasing New Mexico-type peppers.
 - On average, respondents placed more trust in an individual farmer to certify a vegetable's region of production than in any of the other agencies identified.
 - The most valued certifying agency varied according to the product attribute being certified (quality, region of production, or safety). Educating respondents about the New Mexico chile industry provided additional utility to consumers purchasing a New Mexico-grown chile pepper.
 - Results from the study suggest targeting a specific subset of food consumers for a potential niche market of certified New Mexico chile: "foodies," fans of spicy foods, consumers who spend more per person on food, consumers who enjoy cooking at home, consumers with higher incomes, consumers with ties to the southwest, and consumers who purchase other regionally certified fruits and vegetables regularly.
 - Respondents were more likely to purchase a certified fresh green chile pepper at a 20% premium if they enjoyed some spicy foods or loved spicy foods.

3. Researchers organized and conducted a series of grower outreach workshops across the state to solicit feedback from more than 35 industry participants regarding their interest in and ability to participate in a prospective New Mexico grown chile certification program, as well as the potential costs and benefits to individual producers and processors. Several recurring themes or concerns were identified:
 - *Stakeholder buy-in.* A successful program would require organizers to show growers and other stakeholders, e.g., wholesalers and retailers that there is or would be value in participating. Additionally, questions concerning how to incentivize early adoption to avoid free-riding in the early years of a certification program were raised.
 - *Organization.* Who would be in charge of the program? The organizational structure (e.g., third party) and requirements (e.g., food safety) would also influence interest in participating. In general, attendees seemed more interested in having a third-party agency involved in the administration of the program rather than a governmental agency, although there appeared to be support for government participation by way of enforcement.
 - *Unequal benefits.* A mark may benefit growers more than processors or vice versa. Similarly, a mark may benefit certain types of chile more than others (e.g., red v. green).

- *Unequal or increased costs.* For a certification used on a fresh chile product, seasonality will prove challenging for restaurants to consistently participate. For all types of stakeholders, the “paperwork” costs were identified as a specific concern.
- *Quality issues.* Developing quality standards across the different types of chile will be very challenging. This may be important, however, as the value of the certification can be made or broke by one “bad egg.”

Based on these efforts, the following conclusions are made regarding the potential of a region of production certification program for New Mexico chile:

- Geographical production certifications can be and have been instituted at many production levels. That is, agricultural products can be labeled as products of a nation, region, or local production area. Defining the production region most preferred by consumers can have important consequences for a certification program’s success.
- The level at which a certification program is administered, e.g., national or local often impacts the way in which the program is administered, e.g., Federal or state government administration or industry-led administration. Effective administration, regardless of the type or source is an important component to the success of a certification program.
- Stakeholders play an important role in the success of a certification program, both during and after its development. To this point, some certification program administrators and stakeholders indicated in interviews that in order to be successful it was important to be able to “force” participation. Often Federal Marketing Orders were instituted for this purpose.
- A statewide region of production certification mark may be too generic for the needs of an industry with multiple product varieties: collectively, New Mexico chile may be too diverse to be appropriate for an industry-wide certification.
- Certification programs in the United States have had various levels of success in terms of their effectiveness in commanding price premiums as well as garnering support from industry participants.
- Often region of production certifications may imply other types of food product standards, e.g., traceability, food safety, or quality. To the extent that these attributes are valued by consumers, inclusion of these attributes in a certification program will improve program success.

Goals & Outcomes Achieved

Project outcomes included:

1. *Quantified the willingness to pay for certified chile and chile products.* Accomplished through the use of discrete choice experiments with U.S. food consumers.

Surveyed consumers were willing to pay \$1.03 per pound for New Mexico grown green chile (\$0.12 less than chile sourced from California, but more than chile grown in other parts of the world). Surveyed consumers were willing to pay premiums for various safety, quality, and region of production certifications. Specific to region of production, surveyed consumers were willing to pay an additional \$0.11 to \$0.18 per pound for chile that contained a region of production certification (\$0.11 per pound for farmer certified region of production, \$0.16 per pound for a Federal agency, e.g., USDA certified region of production, and \$0.18 per pound for a state agency, e.g., NMDA certified region of production).

2. *Identified consumer program preferences toward potential certification programs.* Accomplished through the use of a market research survey of U.S. food consumers.

Slightly less than one-half of surveyed respondents (45%) indicated that a chile's growing region was either important or very important to the purchase decision (based on a 5-point likert-type scale ranging from very unimportant to very important). When asked about concerns with New Mexico chile, only 4% of respondents identified "non-certification" as a concern, compared to price (13%), safety (11%) and quality (8%). When asked to rate the trust they placed in varying certifying agencies (on a 5-point likert scale, on being least trust and five being most trusted), surveyed respondents indicated the most trust with an individual farmer or farmer association (3.5 rating) compared to a Federal or state agency (3.3 rating), and a third-party certifying agency (3.1). When limited to three potential certifying agencies (farmers, state government, and Federal government) surveyed producers, via a discrete choice experiment, tended to value a state agency's region of production certification over the other two certifying bodies (see figures from Goal 1).

3. *Increased grower awareness of potential benefits and costs of a certification program.* Accomplished through focus groups with industry stakeholders.
4. *Identified level of industry support for certification program.* Accomplished through focus groups with industry stakeholders.

While difficult to quantify via focus groups, a general sense by researchers relative to stakeholder "buy-in" was positive. Participating stakeholders, e.g., producers, processors, and restaurant owners were attentive during focus group discussions and tended to have positive comments regarding a potential certification program, although several recurring themes/concerns were identified by focus group participants. These included: (1) a successful certification program would require broad stakeholder buy-in; (2) Interest in and the success of a certification program would be contingent on its organization, e.g., who would oversee and manage the program, (3) organizers would have to be cognizant of and attempt to manage unequal benefits and costs for different stakeholder groups within the program, and (4) developing quality and safety standards may be an important part of the entire process and could be difficult to develop and manage.

5. *Identified industry members and experts willing to participate in a potential program advisory group.* Accomplished through focus groups with industry stakeholders.
6. *Identified potential costs (both short-run and long-run) of developed certification program.* Accomplished through development of pro forma financial statements for a potential program.

Identifying specific costs for a yet to be developed region of production certification program is difficult as costs vary significantly depending the certification program adopted and on how the program is managed. A pro-forma financial analysis was developed to help industry leaders interested in developing a program to understand potential costs and benefits of a region of production certification program. The base model, which was developed in such a way that assumptions could easily be changed to account for specific program attributes, assumed that in the first year 5% New Mexico production would be included in the certification program.

Program participation was assumed to increase at a constant annual rate such that total participation in year ten doubles to 10% of the 2012 New Mexico crop total. Costs associated with

certification stamps were assumed to equal \$0.022 per pound (\$0.44 per stamp applied to a 20-pound package). Operating costs included those associated with a project director (\$68,640 per year including fringe benefits) and a compliance officer (\$59,400 including fringe benefits). Other operating expenses include office building rent, utilities, and supplies. Marketing expenditures were assumed to equal \$200,000 in the first year of operation, decreasing to \$150,000 in the second year and \$100,000 in subsequent years. Legal fees associated with mark research and development were estimated to equal \$10,000, with an additional \$2,500 per year allocated to legal enforcement of the mark.

Initial funds for program development and operation (\$450,000) were assumed to come from grants (\$250,000) and loans (\$200,000). Borrowed funds were amortized over a ten year period at an annual interest rate of 7.5%. The program, with participation as described above had an IRR of 3.2%, an average return on capital of 7.3%, and a ten-year return on marketing expenses of 43.7%.

The above goals/outcomes do not differ markedly from initially established project goals. Initially, researchers planned to organize a program advisory group and move toward the development of a certification program if research with both industry stakeholders and consumers supported that such a program was viable. Due to the need for additional market research regarding consumer acceptance (quantities of chile that might be sold under a region of production certification program) and associated program costs (primarily marketing costs needed to reach quantity goals) identified during the project, however, researchers felt it was prudent to defer this step in the development process and instead concentrate current financial and human resources toward this end. Due at least in part to this project, several parties within the industry have implemented a chile certification program.

Beneficiaries

The primary beneficiaries of this project's accomplishments include New Mexico chile industry stakeholders (e.g., chile pepper growers, processors, retailers). There are approximately 200 chile pepper growers within the state. If the stated price respondents identified they were willing to pay for region of production certified fresh chile is realistic, this may represent a premium over non-certified chile that can result in an economic benefit to chile pepper stakeholders. U.S. food consumers who obtain utility from a region of production certified chile pepper may also benefit from a certification program for peppers, if one is developed.

Lessons Learned

The potential for a region of production program to be successful will hinge in large part on the ability of stakeholder groups to work together toward a common goal. It is possible that New Mexico chile industry stakeholders are too diverse to make use of a single region of production certification mark. Moreover, it is possible that the industry may be best served by a mark that conveys information about other relevant product attributes (e.g., quality, safety).

Stated preference models, models that use survey respondents' indications of what they would do in a particular situation, have become very popular in marketing research. The research has been found to offer important insights when experimental designs are carefully developed and employed. While providing important insights, it is important to reiterate that what consumers "say they will do" is not always realized in their actions. As such, research of this nature could be improved if combined with other research methods or efforts. These efforts might include: use of additional stated preference models to confirm results observed in this analysis and verification of results using other research methods, e.g., revealed preference experiments and consumer focus groups.

When working with producers, it is important to keep in mind the growing season when implementing a project timeline. Primary data collection – in the form of a market research survey of consumers – was delayed several months in order to allow grower workshops to be held during the non-harvest season. Grower meetings were conducted during early December and early January to avoid holiday scheduling conflicts.

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Additional Information

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-1244 Project 6: Promoting New Mexico Onions and other Specialty Crops at the Produce Marketing Association (PMA) Fresh Summit, Final Report

Project Summary

Formed in 1983, the New Mexico Dry Onion Commission (NMDOC) is the voice for the state's onion industry. The self-supporting commission uses the assessment dollars it collects to fund educational, research, and marketing projects aimed at improving their position in the national and international arenas. However, genetic improvements, ideal growing conditions, and efficient production methods have not been enough in today's highly competitive marketplace. The Commission, made up of growers and handlers, agreed that leveraging funds were needed in order to continue to promote their onions (and other New Mexico specialty crops) at a major national/international tradeshow such as the Produce Marketing Association's annual exposition of which New Mexico has established a unified presence at.

This project, similar to previous PMA projects funded with federal Specialty Crop Block Grant—Farm Bill funds, proves to be worth the investment in terms of maintaining and expanding market share. Another reason for consecutive participation in the show is that the show rotates to approximately six cities across the United States. This rotation helps expose the exhibitors to different buyers (both domestic and international) in each region as well as schedule visits outside of the show with current and potential customers who are based in and around the area.

Project Approach

As a result of securing Specialty Crop Block Grant funding, the New Mexico Dry Onion Commission supported the participation of all specialty crop growers and shippers that wished to participate in the 2011 and/or 2012 PMA Fresh Summit exhibitions.

The **2011 show** was held in Atlanta, Georgia. Nine companies exhibited in the New Mexico Pavilion, of which six sell onions (two exclusively). The other crops represented are pinto beans, pecans, pumpkins, watermelon, green chile, dried red chile, and potatoes. Several months after the show, a survey was sent to each participant. Six out of the nine participants completed the survey. A summary of survey conclusions are as followed:

- “Looking for business” and “Meeting with existing customers” scored equally for being the primary reasons for participating followed by “Trying to maintain market share.”
- The average number of leads gained is 11.
- Total sales per company directly attributed to participation in the show averaged \$110,000, which is comparable to the 2010 average of \$110,500.
- Five out of six responders said they could not participate in the PMA show without funding assistance.
- When asked what the single greatest benefit of having a New Mexico pavilion is, some responses noted were:
 - Showcasing our products
 - Exposure of New Mexico agriculture
 - Getting the New Mexico brands in front of buyers since our companies are generally located miles from decision makers
 - A consistent presence (promoting industry at the same show each year)

- The average of overall satisfaction with the show is 9.3 out of 10
- Four out of six companies are interested in participating in other tradeshow to promote their specialty crops such as international, retail, and foodservice shows. However, no specific shows were noted.

The cost to reserve 1,800 square feet worth of floor space for the New Mexico Pavilion was \$57,600. The cost to rent the actual booth (structure) was \$42,051. Floor space and booth rental are the two largest expenses for the show totaling \$99,651. Other costs include electricity, drayage (cost of getting booth materials off the delivery truck and to the booth space), and freight (totaling \$21,015). Total Cost = \$99,651 + \$21,015 = \$120,666.

Return on Investment = (Avg. new sales per exhibitor \$110,000 x 6 survey responders) / \$120,666 = 5.47
 For every dollar invested in the show, more than five dollars are returned to New Mexico specialty crop growers/shippers. If calculated the same way, the ROI for the 2010 show would have been 6.06 (\$110,500 x 7 = \$773,500 / \$127,690) Therefore, the ROI was slightly lower for 2011 than in 2010. However, if the average total sales were multiplied by the total number of exhibitors (9 each year) the ROIs would be 7.79 in 2010 and 8.2 in 2011 due mostly to a lower total show cost in 2011.

In addition to travel expenses, each company paid the following:

- \$32 per square foot of booth space over a standard 10' x 10'
- Product transportation and drayage based on weight
- Electricity
- Travel expenses for 4 university students to attend the show and help sample

NMDA's contribution included travel, time, and salaries.

The **2012 show** was held at the Anaheim Convention Center on October 27-28, 2012. One day was eliminated from the show schedule, making the two remaining days very busy. PMA reported having a record 21,000+ industry professionals from 61 countries and nearly 4,000 buyers at the show. Nine companies exhibited in the 1,200 square-foot New Mexico Pavilion, including seven past exhibitors and two new exhibitors. Based on suggestions gathered from the 2011 PMA survey, exhibitors suggested delaying the next survey until the summer of 2013 when leads have materialized into sales. However, a written survey was never conducted due to time constraints. However, NMDA reported a new working relationship with a 52 store chain that was interested in implementing a roasting program in some of their stores. The interest later materialized into the chain carrying New Mexico green chile in all of their stores in addition to implementing a roasting program in select stores across the United States. This particular chain is growing and now has plans to open up new stores in at least two states.

NMDA's newest International Marketing Specialist also had his first in-bound trade mission at the 2012 PMA in Anaheim. Six Japanese buyers visited with New Mexico onion growers/handlers to determine if New Mexico onions were a good fit for them. It was decided that New Mexico onions could not ship without refrigeration and that the cost of refrigeration was cost prohibitive. Although sales did not occur from this particular trade mission, the Japanese buyers went away more knowledgeable about what New Mexico has to offer. The exercise also helped the growers/handlers to become more familiar with the process of participating in such in-bound trade missions as plans for another trade mission was set to occur at the 2013 PMA in New Orleans.

As in years past, NMDA played the coordinating role in organizing the New Mexico Pavilion at the show under the direction of the NMDOC. Each exhibitor incurred their own show expenses such as travel,

some floor space, electricity, drayage, and freight. The general consensus from the group was to continue to participate in the PMA show in 2013 (and now 2014), exhibitors are also considering other shows such as the United Fresh Show.

While a formal survey of participants did not occur after the 2012 show, the track record for the show providing a minimum of a 5 to 1 return on investment in addition to the collection of specific success stories from the 2012 show satisfied the Commission. If funds were to be requested in future years, NMDA would most likely suggest to the Commission a potential remedy such as an online survey tool and/or providing an incentive to those who complete it.

Beneficiaries

A total of six New Mexico onion growers/handlers and two additional specialty crop suppliers participated in either or both PMA shows. These companies represent approximately 80 to 90 additional New Mexico growers. If even the conservative ROI of 5 were used for the 2012 show, total sales resulting from participation in both shows would well exceed \$1 million.

Lessons Learned

The main challenge (addressed in the Annual Report) of keeping costs down while maintaining a fresh and unified appearance still remains. Through the Commission and the participating companies, NMDA continues to respond to industry needs by examining all cost saving options as well as looking at other shows. NMDA staff members have attended the PMA Foodservice show and are planning to attend the 2014 United Fresh show in Chicago to determine if it is a viable event for New Mexico specialty crop growers/handlers to participate in.

Additional Information

A copy of the 2011 survey and photos from both shows are included in the Appendix.

-1244 Project 7: Alternative Berry Crops for Tree Fruit Growers and Small Farmers in Northern New Mexico, Final Report

Project Summary

Tree fruit, especially apples, are the traditional fruit crops grown in northern New Mexico. But with the high risk of late frosts, growers may only harvest 5-6 crops every 10 years, greatly affecting orchard profitability. The average farm size in northern New Mexico is 3-5 acres, and most farmers are socially disadvantaged and without frost protection equipment. Some tree fruit growers and small-scale farmers are eager to diversify their operations with other high-value crops like blackberries and strawberries. But growers have limited information about appropriate berry cultivars and management. Both blackberries and strawberries may or may not adapt well to the high-pH soil in New Mexico. This project will evaluate 16 strawberry cultivars to compare their performance in and adaptation to northern New Mexico in a matted-row system and a black fabric covered system; it will also examine several blackberry cultivars both in the field and in high tunnels.

In May 2011, 16 cultivars of strawberries were planted with two planting systems- black fabric covered perennial system and matted row system, with split block design and four replications. Cultivars varied greatly in their tolerance to high pH soil with leaf color ranging from green to yellow/white by the end of July 2011. Cultivars 'Wendy', 'Honeoye', 'Clancy', and 'Brunswick' were the top performers with green leaves and 'Allstar', 'Chandler' and 'Darselect' were the three most sensitive cultivars to high pH soil. In 2012, the top three high yielding cultivars were 'Cavendish', 'Mesabi' and 'Kent' with equivalent yield of 15,000, 14,800 and 11,500 lb/acre. In 2013, 'Mesabi', 'Kent' and 'Cavendish' were still the top three performers but 'Mesabi' and 'Kent' had higher yield than 'Cavendish'. With 2012 and 2013 combined, 'Mesabi' had the highest yield, followed by 'Kent' and 'Cavendish'. There were bad late frosts in both 2012 and 2013 with -7.8°C (18°F) on April 19, 2013, but late flowers compensated the early flower losses and cultivars varied greatly. After experiencing a cold January in 2013 with 10 days in a row with minimums below -10°C and -21.7°C on Jan 16, the top 6 winter hardy cultivars were: 'Kent', 'Mesabi', 'Cavendish', 'Honeoye', 'Brunswick' and 'Cabot', while 'Wendy', 'Chandler', 'Clancy' and 'Jewel' had the worst winter damage among the 16 cultivars tested. Considering their high pH soil tolerance, cold hardiness, late frost tolerance and yield, we would recommend 'Mesabi', 'Kent' and 'Cavendish'; 'Cabot', 'Jewel' and 'Brunswick' as acceptable. 'Earliglow', 'Ovation', 'Annapolis', 'Clancy', and 'Wendy' are not recommended; 'Allstar', 'Chandler' and 'Darselect' should also be avoided due to their low tolerance to high pH soil. With limited frost protection and a good fertilizer program, most strawberry cultivars produced more fruit in heavy late-frosted 2013 than light late-frosted 2012. This is encouraging since almost no tree fruit species in the area had a crop in 2013 except jujubes. With Santa Fe, Albuquerque, and Taos nearby, there is a market for the locally produced strawberries.

For the blackberries, tissue cultured plants of two semi-trailing cultivars (Triple Crown, Chester), three free standing cultivars (Quachita, Natchez, and Navaho), and one primocane cultivar- Prime-Ark[®] 45 were planted in both high tunnels and in the field in May 2011. Plants grew well during the growing season but had encountered winter damage. For field planting, canes were dried to the ground. For those in the high tunnels, all canes were green after winter but flower buds were damaged, delayed in budding or never leafed out. The winter of 2012/2013 was cold with minimal temperatures between 0°F (-17.8°C) to -7°F (-21.7°C) for a week. After this cold winter, Prime-Ark[®] 45 in high tunnel had the greatest yield of 9250 lb/acre with berry size 6-8g, followed by Quachita (4520 lb/acre), Natchez (3560 lb/acre) and Navaho (165 lb/acre). Semi trailing cultivars 'Triple Crown' and 'Chester' yielded 1980

lb/acre and 4644 lb/acre in high tunnel, respectively. Field planting had an average of 10% of the yield of high tunnels for all cultivars. High tunnel did advance/delay the fruit season 2-3 weeks at the beginning or end of the harvest season. Navaho had the poorest growth both in the field and in the high tunnel. Harvested yield for blackberry was well below blackberry high tunnel trials in New York or Pennsylvania. Winter damage was the major cause, the high soil pH, and hot summer weather could also have contributed to their poor performance. Primocane blackberry without winter kill risk is more promising, especially in high tunnels. Growers could grow 'Triple Crown', 'Chester', 'Quachita' and 'Natchez' in northern and central New Mexico but should be prepared for occasional winter damage especially in northern New Mexico.

Project Approach

2011

- Strawberry and blackberry plants were planted in May 2011 with drip irrigation.
- Leaf chlorosis was monitored carefully in 2011. Iron product FeEDDHA was applied twice in August 2011 to correct high pH induced strawberry iron deficiency (leaf chlorosis).
- Routine irrigation and weed management were performed as needed.

2012

- Strawberries were in bloom in April and encountered late frosts.
- Fruit were harvested from May 20 to early June 2012. Despite the late frost damage, we still harvested a reasonable crop but cultivars varied greatly in yield.
- Strawberry leaf samples were analyzed in June 2012. Based on the analysis results, more nitrogen fertilizer and iron product were applied later in the season in 2012.
- Blackberry leaves were sampled in July for nutrient analysis and most nutrients were in normal range without deficiency.
- Tarnished plant bug damage to strawberry fruit was high in 2012. We also noticed disease problem on leaf blade, petiole and fruit and it was identified as strawberry anthracnose (*Colletotrichum acutatum*). Fungicide 'Captan' was applied to manage anthracnose.
- We harvested a small blackberry crop from August to October 2012.
- Weeding and irrigation were done regularly or as necessary.
- An over-head sprinkler system for late frost protection was installed for the strawberry plot in fall 2012.

2013

- Over-head sprinklers were turned on several times for frost protection in the strawberry plot in April and early May 2013, but there was still bad frost damage due to some extremely cold nights.
- A fertigation program to deliver nitrogen and iron was maintained in 2013. Plants of all 16 strawberry cultivars grew well.
- Strawberry fruit were harvested from end of May to June 24 with surprisingly high yield despite the bad late frosts. Late blooms compensated the losses from early bloom.
- A Strawberry Day was hosted on June 10, 2013, at NMSU Alcalde Center.
- Blackberry plots were fertigated with organic fertilizer and vinegar in 2013.
- Blackberry fruit were harvested from late July to mid October 2013.
- We accomplished the work plan of the approved project proposal and the work plan in the extension request. Strawberry cultivars varied greatly in their adaption to high pH soil and yield. Iron deficiency can be managed efficiently with iron product FeEDDHA. Strawberry bloom period will still confront late frosts but late flowers of some cultivars can compensate the early flower losses and still produce high enough yield. Because of this project, cultivars like Mesabi,

Kent and Cavendish are highly recommended to fruit growers or small farmers for northern and central New Mexico. Other cultivars are not recommended due to their high sensitivity to high pH soil (Allstar, Chandler and Darselect) or due to their low yield (Earliglow, Clancy, Annapolis, Ovation, etc.).

- The blackberry cultivars tested in this project grew well during growing season except Navaho but they were not sufficiently winter hardy during this 2011- 2013 study period in northern New Mexico. The high tunnel protected the canes but could not provide enough protection for the flower buds. Fruit yield was low in 2013. High tunnel, however, did extend the fruit harvest season 2-3 weeks on each end. Primocane blackberry, on the other hand, is promising for northern and central New Mexico without winter damage especially when grown in high tunnels. Growers can produce blackberries but should be prepared for occasional winter damage.

Goal and Outcomes Achieved

- Mesabi, Kent and Cavendish strawberry cultivars are recommended as an alternative crop for tree fruit growers or small farmers in northern and central New Mexico. These cultivars had an average yield of over 11,000 lb/acre for 2012 and 2013 with the highest average yield of 16,600 lb/acre for Mesabi. Cabot and Jewel cultivars are next in line but they only produced half or less the yield of Mesabi, Kent or Cavendish. These cultivars experienced the cold of January 2013 and confronted -7.8°C (18°F) on April 19, 2013 and still yielded a good crop while tree fruit in the area were all gone except jujubes. Strawberry cultivars Allstar, Chandler, and Darselect should be avoided due to their high sensitivity to high pH soil (leaf chlorosis).
- Matted row system and black fabric covered perennial system had similar yield and each had its own pros and cons. Matted row system requires more labor for weed management and the black fabric covered perennial system could have bad winter damage after cold winters, especially for sensitive cultivars like Wendy, Chandler and Clancy. Fabric covered system eased fruit picking and conserved water. The matted row system was less vulnerable to winter damage.
- Growers do need a fertility management program to maintain soil fertility and correct strawberry leaf chlorosis induced by high soil pH if the plants are susceptible.
- The 2012 research data have been disseminated at Master Gardener training across the state which reached approximately 100 people. Attendees for the Strawberry Day were surveyed and reported gaining anywhere from 30-70% more new knowledge about strawberries. Furthermore, these results will be used for Master Gardener training and a fruit growers' conference in 2014 which will reach another 100-150 clientele.
- Blackberry grown in high tunnels did experience a growing season extension of 2-4 weeks compared with field planting. The free standing cultivars Quachita and Natchez are more adapted to the high pH soil than Navaho which did not do well either in the high tunnels or in the field. Natchez is earlier than Quachita and the latter one is hardier and more productive than Natchez.
- Primocane blackberry- Prime-Ark[®] 45 is promising for New Mexico since its canes will be pruned down to the ground in the fall each year, with no winter damage risk. Growers can grow floricanne cultivars like Triple Crown, Chester, Quachita and Natchez both in high tunnels or in the field in New Mexico but should be prepared for potential winter damage when January or February minimum temperatures drop to -17.8°C (0°F) and especially if temperatures go lower than -20.6°C (-5°F).

Beneficiaries

Northern and central New Mexico used to be tree fruit producing areas. With global weather change, late frosts are getting worse each year. Growers are frustrated with only 5-6 crops over a ten year period. Our strawberry trial data are encouraging in that the crop was resilient even after a devastating late frost in 2013 that was worse than in 2012. Growers can always get some early revenue with strawberry production and sell them at local markets. The results from this project benefit not only commercial growers but also home gardeners.

Additionally, blackberry cultivar selection and high tunnel practices would benefit local berry growers. They just need to be aware of the possible winter damage risk in some cold winters.

Strawberry Day attendees, current strawberry and blackberry growers, potential berry growers, and home gardeners will all benefit from this project's results. Significant project results have been shared with fruit growers through an electronic list-serve with around 150 people. Detailed results will soon be submitted for research and extension publications and will be shared with fruit growers at the 2014 fruit growers' annual conference.

Lesson Learned

During this project period, we experienced colder than normal January in 2013, our florican blackberry canes were severely damaged for the field planting. In high tunnels, canes were OK in appearance but flowers buds were damaged. We did not harvest significant yield and did not meet our expectations. Growers can grow semi-trailing, free standing and primocane blackberries but should prepare for possible winter damage when temperatures drop to below 0°F and especially below -5°F. Not every winter will have extreme cold but it is also not a rare event for the area.

Surprisingly, some strawberry cultivars were able to compensate for the early frost damage and produced better yield in 2013 than 2012. This is a superior asset for a good alternative crop for this region. Growers should be aware that strawberry production is labor intensive with multiple harvests. Of course, there are examples of "you-pick" strawberry fields in the eastern U.S.

A fertilizer and irrigation program to manage soil fertility and iron deficiency is required to achieve good strawberry yield. An over-head sprinkler system is also highly recommended for late frost protection. Strawberries in matted row had crowded runners later in the season. Runner thinning may be necessary to achieve better fruit size (not tested in this project).

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