



**FY2009 Specialty Crop Block Grant  
FINAL Report  
Agreement #12-25-B-0911**

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(Projects in bold were previously approved in the 2011 Progress Report. Non bold projects are new final reports.)

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## **Background**

The United States Department of Agriculture (USDA), through the Agricultural Marketing Service (AMS), awarded Specialty Block Grant Program funding during FY09 in the amount of \$629,443.00 to the Colorado Department of Agriculture (CDA) for the period, October 1, 2009-September 30, 2012. CDA allocated the funds into 16 projects. These projects supported CDA's over-arching goal of increasing the competitiveness of Colorado's specialty crops. The projects, as well as the start and end dates for each are:

### Market Development and Promotion

- Farm To School Year 1 (*February 2, 2010-December 31, 2010*)
- Farm To School Year 3 (*March 11, 2011-September 30, 2012*)
- Promotion of Colorado Certified Seed Potatoes (*January 25, 2010-September 30, 2012*)
- Colorado Proud (*October 1, 2009 – December 1, 2010*)
- Colorado Pavilion at PMA Fresh Summit (*October 1, 2009 – December 1, 2010*)
- Strengthening Colorado's Farmers' Markets (*October 1, 2009 – July 30, 2012*)
- Developing New Market Opportunities for Colorado Onions (*July 8, 2010-February 11, 2011*)

### Research

- Development & Commercialization of a "Branded" Colorado Potato (*February 5, 2010-January 31, 2011*)
- Farm to Table Food Safety Training for Colorado Produce Crops (*January 12, 2010-July 1, 2011*)
- Efficacy of Irrigation Systems on Diverse Market Classes of Dry Beans in Colorado (*January 4, 2010-December 31, 2010*)
- Marketing, Research & Technical Support for Colorado's Small Acreage, Socially Disadvantaged & Beginning Specialty Crop Producers (*January 1, 2010-September 30, 2012*)
- Specialty Crop Water Test Plots (*February 9, 2010-December 31, 2010*)

### Education

- Culinary Training & Outreach to Celebrate Produce Harvest (*February 2, 2010-December 31, 2010*)
- Veggies in Colorado Reader (*December 22, 2009-December 31, 2010*)
- Educating Consumers about the Benefits of Sod (*February 2, 2010-December 31, 2010*)
- Colorado Produce Growers Food Safety Plan Workshop Series (*January 31, 2012-June 30, 2012*)

## **Farm To School Year 1 – Final Report**

**Note:** This is the final report for Year 1 of this project. Work completed in Year 1 is being used to complete objectives in Years 2 and 3 (separate contracts). Year 2 is funded through FY10 SCBGP and Year 3 through FY09 SCBGP (final report below). Years 2 and 3 have different goals and objectives from Year 1. Information from those years will be reported in their respective reports.

**Project Summary:** The time has never been better to create local specialty crop markets aimed at the one of the largest public institution entities: Colorado K-12 schools. Research shows that schools across the nation and in Colorado are ready to change their school food services to offer local, fresh produce in school breakfast and lunch programs. The impetus for change



is the escalating health epidemic of childhood obesity, which is now considered one of the most pressing health problems facing the U.S. Across the nation, state efforts to address the epidemic include curriculum standards for physical education, increased support for local agriculture (including transportation infrastructure to move local produce to local markets), marketing/advertising of local foods (e.g., via farmers markets, or labeling such as “Colorado Proud”), and K-12 school meals. By far, the most common efforts are aimed at building local agricultural markets to provide fresh, nutritious foods for K-12 school lunches and snacks. At the local level in Colorado, a 2007 survey of school board candidates across the state found over 50% supported the position that “all foods and beverages in the school should be healthy.” Colorado school administrators, teachers, and parents have a heightened awareness about the importance nutritious fresh food and are strong advocates for Farm to School (FTS). Legislators, local and county officials, Colorado state agencies, and Colorado foundations are allies and often spearhead these efforts to raise awareness of unhealthy eating and design policies in response to the problem. For example, the Colorado Department of Agriculture website, *Colorado MarketMaker*, [www.comarketmaker.com](http://www.comarketmaker.com), is an interactive mapping system to locate businesses and locally grown/raised products available in Colorado. The site can facilitate schools in identifying Colorado grown produce and information to contact the farm directly but is not designed to build system-wide FTS.

The goal of the project was for CDA to cooperate with the Center for Systems Integration (CSI) to develop a model for a cohesive statewide Farm to School (FTS) Program. The FTS program will be a statewide system of local and regional programs where schools purchase locally grown fruits and vegetables. The program will establish stronger local food systems by creating new market opportunities for producers while promoting a healthier lifestyle for students and faculty.

The Colorado legislature established the Farm to School Task Force in 2010. Though it is not directly related to this project, results may eventually be utilized to develop the state’s commitment to Farm to School.

**Project Approach:** The project approach includes significant results, accomplishments, conclusions and recommendations for the five tasks outlined for the project:

1. Identification of LiveWell Communities (LWC) to participate.
2. Developing and distributing FTS toolkits.
3. Conducting school district and producer assessments.
4. Analyze and produce baseline report on FTS opportunities for participating LWC school districts.
5. Distributing updated FTS toolkits and maintaining ongoing dialogue with school districts and producers.

### **Task #1: Identification and partnership with LiveWell Communities**

Colorado Farm to School (COFTS) goal was to recruit two school districts within LiveWell Communities to work with us. In the first year, we were able to initiate partnerships with six school districts: St Vrain; Greeley-Evans Weld County 6; Garfield RE-2; Adams 14; North Conejos; and, Montezuma-Cortez. There are active LiveWell community partnerships with all of these districts except for Garfield RE-2. Tasks and accomplishments achieved include:

- Secured partnerships with the food service directors in all six school districts, as well as with multiple community and producer partners in each district.
- Received feedback and guidance on the draft school district assessment tools and COFTS Toolkit from all partner communities.
- Provided technical assistance and resources to all partner communities concerning how to start farm to school, where to find additional partners, where to look for funds, etc.
- Completed introductory phone calls, checklists/overviews of existing district activities, and in-person site visits with all six districts and their community partners.
- Consulted LiveWell Community coordinators before, during and after all site visits to help promote strong community partners invested in farm to school.

Based on these activities and experiences, several conclusions emerged:

- In many cases across the state, forming a relationship directly with the Food Service Director may be the most efficient and effective way to affect change, rather than partnering with an external community partner such as a LiveWell community.
- School districts and community partners are eager for “how to” resources, one-stop shopping for information and resources, and other existing models they can apply to growing their farm to school program. Their feedback and interests will help inform future activities of this grant.

### **Task #2: Developing and distributing Farm to School Toolkits**

COFTS developed several tools for bringing school districts, producers, and community partners together in year one. Draft tools and other elements already developed include a series of “how to” guides; marketing materials for districts; a crop calendar; and, best practice case studies. These tools were developed with extensive engagement with district and community partners. The majority of the toolkit elements identified early on by COFTS have already been developed. COFTS also identified the need to develop a website to house these various tools and provide a go-to resource for FTS in Colorado. The development of the website exceeds the tasks outlined in the scope of work, and includes national resources, but also focuses on the tools and resources either missing from national efforts or very tailored to Colorado. Specific tools developed in year one include:

- Basic Tools – “How to...” resources
- FTS Case Studies & Best Practices
- Other Toolkit elements, including an extended Colorado Crop Calendar and several “how to” fact sheets
- FTS Marketing Materials
- FTS Specialty Crop Grant flyer
- COFTS website: [www.coloradofarmtoschool.org](http://www.coloradofarmtoschool.org), which also includes these, and other, tools and guides

Based on these activities and experiences, conclusions include:

- Collecting feedback and receiving guidance on the various tools has been rewarding but also very time-consuming. We believe the tools developed will strongly reflect the diverse needs and interests of districts around the state, but the development of some tools has taken longer than anticipated.

Outcomes include:

- A packet of 7 COFTS Case Studies were developed and disseminated to all districts across the state and included in multiple e-newsletters (e.g., CSU Extension Local Foods Newsletter; LiveWell Colorado e-newsletter) and websites.
- COFTS Case Studies were highlighted on the main page of National Farm to School.
- COFTS staff were asked to be presenters and key informants at multiple events including the January 28<sup>th</sup> 2011 Real Food Colorado producer workshop and the 2<sup>nd</sup> meeting of the state’s FTS Task Force.

### **Task #3: Conduct school district and producer assessments**

In year one, two primary assessments have been developed:

1. School District Self-Review Tool: Choose Your Own Farm to School Adventure! Reviewing and refining this draft tool was a primary activity of each site visit with the six district partners. School partners received copies and reviewed the tool in great detail. Two districts piloted a “final draft” tool and provided additional changes. We have changed the terminology from “assessment” to “review” based upon feedback from schools that indicated the term “assessment” did not entice them to use it. COFTS School Review Tool was finalized in December 2010.
2. Producer Self-Review Tool. COFTS has developed a draft of the Producer Review Tool.

Based on these experiences, conclusions include:

- Developing an assessment tool for districts -- entities with “assessment fatigue” -- has required COFTS to be particularly sensitive to the needs of districts and the need to create an interactive tool rather than strictly an evaluative assessment.

**Task #4: Analyze and produce baseline report on FTS opportunities for participating LiveWell Colorado school districts**

COFTS assessed the baseline needs and interests for FTS through a variety of qualitative and quantitative means. As mentioned above, COFTS collected pre-site visit checklists of current and desired FTS activities from each district, and also documented extensive conversations with each district partner during the site visit, which included their review of the draft assessment tool and revealed a wealth of information about where each district was at, and what tools they were most interested in to help them advance FTS.

COFTS also developed a web-based survey that went to over 170 food service directors or their staff around the state in June 2010. Over 70 directors completed the FSD survey, providing COFTS with rich information on what activities and tasks to focus on the most.

COFTS also collected a good deal of baseline information from conversations with community partners around the state. COFTS has met with Integrated Nutrition Education Program, CSU faculty, Extension staff, Colorado School Nutrition Association, Real Food Colorado, leaders of the Northern Colorado Regional Food Assessment, and many others to more fully understand the opportunities and barriers to advancing FTS.

Specific products completed include:

- District checklists of existing activities for each partner district
- Notes from site visits with 6 school district partners
- Notes/feedback from 6 partner school districts on the draft self-assessment tool
- State-wide survey school district food service directors and summary results and report of survey findings

Based on these activities, several conclusions emerged:

- COFTS Survey results are being used and integrated into multiple school food and FTS efforts, including in the ARRA-funded School Food Primer and school food procurement report, FTS Task Force efforts, and more.
- Directly influencing or engineering contracts between districts and producers has also proved challenging. The focus has shifted from developing immediate contracts between districts and producers to working closely with these stakeholders to build tools that will allow them to come together for the long term, on their own.
- There are several critical interim steps for districts to enhance and/or initiate contracts with local producers (rather than simply helping to establish contracts), e.g., initiating partnerships through Colorado Proud School Meal Day, as well as working with districts with existing contracts so that they can add to or enhance existing contracts.
- COFTS technical assistance has looked different from site to site. For some sites, simply reviewing and refining FTS marketing materials and/or connecting districts to more local partners was sufficient. For other districts, COFTS began connecting them to more formal resources or processes.
- The lack of an established statewide nutrition as well as the lack of a USDA-approved nutrition education program that integrates food systems and/or FTS has impeded the ability of COFTS to infuse new curricula with our district partners during the first year.

Other Outcomes:

- COFTS Survey results are being used and integrated into multiple school food and FTS efforts, including in the ARRA-funded School Food Primer and school food procurement report, FTS Task Force efforts, and more.

**Task #5: Distributing updated FTS toolkits and maintaining ongoing dialogue with school districts and producers**

COFTS has maintained consistent and frequent contact with all six district partners and their community partners, providing on-going links to new funding opportunities and other resources via email and phone. The COFTS website has also been developed as the go-to site for FTS resources. To support these efforts, COFTS developed a comprehensive inventory of districts, producers, and other stakeholders interested in FTS by region of the state.

In response to multiple requests for peer learning and sharing of best practices, Colorado FTS brought on two interns (one to conduct interviews and one to write up the case studies) and hired a professional graphic designer to develop a series of FTS case studies that address some of the most critical issues of FTS, including food safety, establishing contracts, developing schools gardens, and more. Each case study included an interview of a school district partner as well as extensive lists of best practices and other resources from across Colorado and the country. These case studies were then placed on the COFTS website, emailed to all school districts, shared through many e-newsletters, and disseminated nationally through national listservs and National Farm to School.

CO FTS has provided TA for local schools and local producers to participate in various local food awareness events such as Colorado Proud Day and Apples Days in southwestern Colorado. This has resulted in new FTS contracts between school and producers. For example Ignacio and Durango schools made first time purchase of apples from Chimney Rock Farms in Pagosa Springs.

Specific products developed towards this task in year one included:

- FTS Contacts & Stakeholders
- COFTS website development
- Completion of 7 farm to school case studies
- Provide technical assistance for sites (example, Colorado Proud School Meal Day at Montezuma-Cortez, Local Apple Days in Southwestern Colorado)
- On-going sharing of funding, resources, and other tools

Based on these activities, primary conclusions include:

- A primary challenge to consistent and efficient communication with partners has been the season, in that summer is not the optimal time to engage either districts or producers.

**Partner Events: A-Z Salad Bar**

On October 13, 2010, Greeley-Evans 6 school district in partnership with Farm to School set up a double-sized salad bar with 26 fresh fruits and vegetables representing every letter of the alphabet at Maplewood Elementary school. To the extent possible, local foods were procured.



Local producers included Grant Family Farms, Wise Acres Greenhouse, Fossil Creek Farms, and Wacky Apple. The salad bar was stocked with familiar and less familiar items, giving students a chance to try a wide range of fresh produce.

**Goals and Outcomes:**

Desired Outcome	Performance Measure	Baseline	Goal	Actual	Activities Completed Toward Goals	Future Goals	
			2010	2010		2011	2012
To increase purchasing of locally grown specialty crops by school districts	Number of school districts contracting with local producers for the purchase of specialty crops	No formal district-wide FTS contracts in Colorado	Two school districts	Exceeded goal; at least 3 districts have contracts	Distribution of FTS Toolkit elements, "how to" resources to partner with producers, case studies, and targeted technical assistance (e.g., CO Proud School Meal Day)	Five school districts	Ten school districts
To increase producer participation in Farm to School programs	Number of producers with formal contracts to supply specialty crops to a school district	No producers with formal district-wide FTS contracts in Colorado	Two producers	Exceeded goal; at least 4 producers have contracts	Distribution of FTS Toolkit elements, attendance at producer events, connections to food service directors	Five producers	Ten producers
To expand the educational curriculum of Colorado school districts to include nutrition programming and seed-to-table information about locally grown fruits and vegetables	The number of school districts that offer an integrated nutrition curriculum	No school districts offering an integrated nutrition curriculum	Two school districts	Goal not met; Currently no districts offer district-wide curriculum. Integrated nutrition education was expanded to several individual schools and did incorporate food systems curricula	Met multiple times with CSU Extension and Integrated Nutrition Education Program staff to discuss integrating FTS curriculum;  Worked with INEP primarily to identify existing FTS/food systems curricula from other states;  Derived relevant materials from the Colorado Foundation for Agriculture's series the Colorado Reader.	Five school districts	Ten school districts

**Beneficiaries:** The primary beneficiaries are school districts and producers, particularly those that had not yet developed contracts related to FTS, or had even been aware of FTS opportunities at all.

While COFTS activities alone cannot be credited with a significant increase in contracts between Colorado producers and nearby school districts, COFTS activities regarding school districts have been credited with increasing awareness of where and how to identify producers; increasing awareness of what is “allowed” or not in terms of local purchasing; demonstrating to districts how to identify internal opportunities to include more local produce; and, increasing district knowledge and awareness of the benefits of working with local producers. The net effect is more healthy, fresh produce in school meals, which benefits school staff, parents, and primarily students. Research has shown that when students are connected to their foods and know where it comes from, they will consume more of it on a consistent basis. Increasing opportunities within school districts for farm to school is therefore a critical strategy for increasing nutrition and overall health of our students.

For producers, the benefit of these activities has been an opening and expansion of new, consistent markets with large institutional buyers – area school districts. Precise economic benefits to Colorado producers are still being calculated but each year brings more interest from more producers in securing school district contracts because of the significant, consistent income they provide, as well as other community benefits and new partnerships.

In addition to the 6 district and community partners engaged in year one, and the multiple producers those districts now work with, COFTS has made numerous resources available to schools and producers across the state through its website and presence at multiple events and conferences. This makes a true estimate of the number of beneficiaries difficult, but it easily far exceeds our known partners.

**Lessons Learned:** We have found that for most districts, we were most efficient in working directly with the district food service director, even if there was a strong LiveWell partner. The world of school food is so complex and food service directors are steeped in it, as well as incredibly motivated themselves to make healthy changes in their menus. Working directly with directors proved to be the easiest path for affecting change. This has changed our approach moving forward, which will focus on building direct capacity of food service directors.

Developing an assessment tool for districts -- entities with “assessment fatigue” -- has also required COFTS to be particularly sensitive to the needs of districts and the need to create an interactive tool rather than strictly an evaluative assessment. COFTS is also attempting to strike a balance between being comprehensive and thorough in the development of tools, with developing tools that are brief enough and easy to use.

Some challenges have developed simply based on the timing of the grant. COFTS launched in the early spring, and began making district and producer connections just as schools were preparing for summer break and producers were becoming even busier. Summer proved to be a difficult time to engage either group of stakeholders in a meaningful dialogue, thus delaying some of COFTS’s anticipated deliverables. Directly influencing or engineering contracts between districts and producers has also proved challenging.

The timing, as mentioned, made this difficult and thus the role of COFTS has focused more on building tools and helping to create the environment where districts and producers can come together on their own. Similarly, COFTS has focused on finding and enhancing nutrition

education tools, rather than creating new curricula. Even with the delays in deliverables, COFTS completed objectives in Year 1 and will complete all planned deliverables of this project in years two and three, and more proactively schedule release of toolkits and other resources for both districts and producers.

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***Additional Information:***

- Please see [www.coloradofarmtoschool.org](http://www.coloradofarmtoschool.org) for all Toolkit elements. Specifically, find under “resources for schools”, the following:
  - School District Self-Review Tool
  - “How-To” Resources
  - Case Studies
  - School District Survey Results

## **Farm to School Year 3 – Final Report**

**Note:** This is the final report for Year 3 of this project. Work completed in Year 1 was used to complete objectives in Years 2 and inform Year 3 as well, under separate contracts. Year 2 was funded through FY10 Specialty Crop Block Grant (SCBG) and Years 1 and 3 through FY09 SCBG. Years 2 and 3 have different goals and objectives from Year 1. Information from Year 3 is reported here. For details about work done in Years 1 and 2, please see the previously submitted reports.

### ***Project Summary:***

Local markets for Colorado specialty crops are ripe for development. One particularly fruitful avenue is a statewide system of local and regional Farm to School (FTS) programs where schools purchase locally-grown specialty crops including vegetables, fruits, and nuts.<sup>1</sup> When this project was proposed in 2009, Colorado did not have a cohesive statewide program; however, small-scale projects have been initiated. Prior research had found both schools and producers were interested in farm to school. Specifically, a 2006 statewide survey of over 100 school district food managers found there was a lack of knowledge about FTS but a high interest in pursuing FTS.<sup>2</sup> A 2007 producer survey had similar results. The surveys collected information about the produce bought by schools, produce grown in Colorado, barriers and opportunities, and an initial list of schools and growers ready to pursue new local markets.<sup>3</sup>



With the rise of childhood obesity, school administrators, teachers, and parents have a heightened awareness about the importance of nutritious fresh food and are strong advocates for FTS. Legislators, local and county officials, Colorado state agencies, and Colorado foundations are allies and often spear-head these efforts to raise awareness of unhealthy eating and design policies in response to the problem.<sup>4</sup> School district procurement contracts with non-Colorado vendors will decrease as FTS grows, thereby creating more stable markets for local specialty crops. With FTS,

Colorado dollars stay in Colorado. The long-term economic health of our rural communities and agricultural producers will mirror the life-long healthy eating habits of the next generation of Coloradans.

<sup>1</sup> As of 2009, projects of varying size were underway in 44 states, where 17 states had legislatively created statewide FTS. For additional information, visit the National Farm to School Network website, <http://www.farmtoschool.org/> and see the National Conference of State Legislatures policy brief on State Farm-to-School Policies, <http://www.leadershipforhealthycommunities.org/images/stories/1631-shinkle.pdf>

<sup>2</sup> Over 80% of Colorado K-12 school food service directors are interested in what Colorado growers have to offer. Over 50% had never heard of Farm to School and didn't know how to buy local foods. Only 6% of Colorado schools have bought local food.

<sup>3</sup> For a summary of the surveys, see *Healthy Kids and Healthy Economies*, [http://www.farmtoschool.org/files/publications\\_112.pdf](http://www.farmtoschool.org/files/publications_112.pdf) and *Healthy Kids, Healthy Farms*, [http://www.farmtoschool.org/files/publications\\_181.pdf](http://www.farmtoschool.org/files/publications_181.pdf)

<sup>4</sup> For example, legislation in Colorado has limited unhealthy food in school vending machines, and created School Food Authorities for public charter schools to more easily contract with local food producers; the Colorado Health Foundation, Donnell-Kay Foundation, LiveWell Colorado address childhood obesity through initiatives that bring nutritious food into K-12 schools. Nationally, the Robert Wood Johnson Foundation and Kellogg Foundation have supported efforts to lower childhood obesity rates in Colorado through healthy eating and active living.

The 2006 survey of K-12 food managers identified the top produce schools buy and recent purchases that have been made from Colorado growers. The types of produce this project promotes include:

- salad greens
- root crops
- nightshades
- fruit
- melons

**Importance and Need For the Program**

The time has never been better to create local specialty crop markets aimed at the one of the largest public institution entities: Colorado K-12 schools. Research shows that schools across the nation and in Colorado are ready to change their school food services to offer local, fresh produce in school breakfast and lunch programs. The impetus for change is the escalating health epidemic of childhood obesity, which is now considered one of the most pressing health problems facing the U.S.

Across the nation, state efforts to address the epidemic include curriculum standards for physical education, increased support for local agriculture (including transportation infrastructure to move local produce to local markets), marketing/advertising of local foods (e.g., via farmers markets, or labeling such as “Colorado Proud”), and K-12 school meals. By far, the most common efforts are aimed at building local agricultural markets to provide fresh, nutritious foods for K-12 school lunches and snacks.<sup>5</sup> At the local level in Colorado, a 2007 survey of school board candidates across the state found over 50% supported the position that “all foods and beverages in the school should be healthy.” Colorado school administrators, teachers, and parents have a heightened awareness about the importance nutritious fresh food and are strong advocates for Farm to School (FTS). Legislators, local and county officials, Colorado state agencies, and Colorado foundations are allies and often spear-head these efforts to raise awareness of unhealthy eating and design policies in response to the problem.<sup>6</sup>

Farm to School is not new to Colorado; however the efforts to bring fresh foods into schools have been small scale and largely pursued by individuals in schools rather than stated in school district food policies. On the producer side, selling products locally has been largely done by individual producers who take the initiative to pursue and secure new local markets. However, not all producers are left on their own. One group, the Southwest Marketing Network (SWMN),

Table 1. Colorado Schools: Top fruit and vegetable purchases overall and top foods purchased locally

	Top fresh fruit and vegetable purchase last year by CO schools	Foods that CO schools have purchased locally through an informal connection
Apples	X	X
Lettuce	X	X
Oranges	X	
Carrots	X	X
Bananas	X	
Tomatoes	X	X
Grapes	X	
Cantaloupe	X	X
Broccoli	X	
Cauliflower	X	
Cucumber	X	
Potatoes	X	X
Watermelon		X
Spinach		X
Onions		X

<sup>5</sup> Reports from the Robert Wood Johnson Foundation address the need for fresh vegetables and fruits in school food programs. See <http://www.leadershipforhealthycommunities.org/>

<sup>6</sup> For example, legislation in Colorado has limited unhealthy food in school vending machines, and created School Food Authorities for public charter schools to more easily contract with local food producers; the Colorado Health Foundation, Donnell-Kay Foundation, LiveWell Colorado address childhood obesity through initiatives that bring nutritious food into K-12 schools. Nationally, the Robert Wood Johnson Foundation and Kellogg Foundation have supported efforts to lower childhood obesity rates in Colorado through healthy eating and active living.

exists “to help producers and communities develop new and improved markets and enterprises and to rebuild local food systems.”<sup>7</sup> Their needs assessment survey of SWNM members identified the need of more information and training in direct agricultural marketing, and market access/niche marketing (such as Farm to School).<sup>8</sup>

Other Colorado research demonstrated an untapped market for local producers specific to FTS. In the 2006 survey of over 100 school food managers, 53% percent stated they had a very high interest in FTS. Another 36% were moderately interested. Of these, 26 requested help in identifying local producers and technical assistance in setting up a FTS.

On the supply side, the 2007 survey of 344 Colorado producers found 40% were interested in selling to Colorado schools, but only 5% were directly selling to schools, and nearly all of those 5% wanted to increase their sales to schools.

### **The Farm To School Task Force**

Concurrently and not initially in coordination with the SCBG project, during the 2010 legislative session, [SB10-81 “Farm-to-School Healthy Kids Act”](#) was passed, creating the Interagency Farm-to-School Coordination Task Force, later known simply as the Colorado Farm to School Task Force (Task Force). In December of 2010, the Task Force met for the first time. By February 2011, the Task Force had secured funding to hire staff and created their [Road Map](#) that identified the ten year goal of having “collaborative, sustainable implementation of farm to school statewide,” the preconditions necessary to reach the goal, and the activities/projects necessary to make the preconditions a reality. Because FTS was not a new idea in Colorado, the Task Force also identified all the partners and work that was underway and connected each to the necessary preconditions. From here, the Task Force was able to identify the gaps and it is those gaps that the Task Force focuses its energy.

By 2011, the state of Colorado had two statewide initiatives supporting farm to school. In 2010, the SCBG project launched a farm to school website, [www.coloradofarmtoschool.org](http://www.coloradofarmtoschool.org), which in 2012 was redesigned and enhanced by the Task Force. By January of 2012, all the work of the SCBG project was coordinated with the work of the Task Force, thereby increasing the impact of each other’s work and ensuring the on-going activities of the SCBG project would continue when its funding ended.

### **Purpose and Goals of COFTS & Year 3 (January-September 2012)**

The objectives of the *Farm to School: New Markets for Colorado Specialty Crops* initiative (known as Colorado Farm to School, COFTS) are (1) to create new school-based markets for Colorado specialty crop producers and processors; (2) to bring fresh, nutritious local food into Colorado K-12 schools; and (3) to establish enduring multi-generational local food system connections between towns/cities and rural agricultural communities. These objectives are met through four major goals that inform each year of a multi-year SCBG.

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<sup>7</sup> See <http://www.swmarketingnetwork.org/>

<sup>8</sup> See <http://www.swmarketingnetwork.org/index.php/NeedsAssessmentSurveyReport>

### **Overall Project Goals**

1. *Marketing.* Ensure that Colorado policy makers, school district staff, producers, and the media are aware of the benefits of Farm to School.
2. *New Networks for Producers.* Ensure that Colorado specialty crop producers know the potential of Farm to School markets and how to work with their local schools on food sales and educational efforts.
3. *New Networks for Schools.* Ensure that staff in Colorado schools have the knowledge and skills to work with their local specialty crop farmers in order to bring local foods into the schools.
4. *New Classroom Strategies.* Disseminate information to schools across the state to help them include food systems, local agriculture, and nutrition education in the classroom through collaboration with the Colorado Department of Education (CDE) and private school associations.

### **Year 3 Goals**

The work of Year 3 (completed in 2012) built upon the foundation laid in 2010 and 2011, under the first and second years of SCBG funding. In Year 1, the *Farm to School: New Markets for Colorado Specialty Crops* initiative (Colorado Farm to School, or COFTS) focused on identifying partner communities, developing initial tools and resources for farm to school toolkits, collecting baseline information from producers and school districts, and initiating partnerships and channels of communication for the dissemination of tools created. In Year 2, Colorado Farm to School focused on adding tools and exploring new ways to disseminate tools through expanded partnerships that make farm to school more accessible across the state, rather than only to individual districts or communities. Year 2 finalized and broadly disseminated farm to school toolkits, expanded communications and partnerships, collaborated with existing and new statewide food systems entities, and continued technical assistance to producers and school districts through new tools and approaches. In its final year (Year 3), the project has focused on developing a strong relationship and coordination of activities with the Farm to School Task Force (enacted by Senate Bill 10-81) in order to leverage each other's resources, skills, and expertise and, importantly, to ensure that the ongoing work initiated through the SCBG would be continued beyond Year 3 of the SCBG.

**Project Approach:** The project is implemented in three phases, each approximately one year in duration. This is Year 3 and included the following tasks:

1. Work with community stakeholders to customize marketing and other toolkit materials to their regions' needs.
2. Work with schools and producers to implement their FTS, including the introduction of evaluation protocols.
3. Capture lessons learned and barriers to implementation to share with policy makers and other aligned state and local initiatives.
4. Continue to market and expand awareness of FTS in Colorado.
5. Finalize FTS and report on results.

### **Task 1: Work with Community Stakeholders to customize FTS marketing and toolkit materials to meet the needs of different Colorado regions**

#### *A. FTS Advocacy Events*

Three FTS Advocacy Events were conducted. These community events targeted at regions in Colorado that were interested in developing FTS but had little to no FTS activity underway. The

purpose of the events was to provide an introduction to FTS tailored to the interests and needs of the area. Event follow-up (“Next Steps”) is being done by the Farm to School Task Force. Three FTS Advocacy Events were held:

1. *Roaring Forks Food Policy Council - Carbondale, May 16, 2012 (n=25 participants)*

a. Pre-meeting - needs and participants identified:

- i. Participants included four regional school district food service directors (FSDs): Eagle County, Aspen, RE1 (Carbondale, Glenwood and Basalt), and RE2 (New Castle, Rifle, Silt, Parachute), local community organizations
- ii. Needs:
  1. To identify local farmers/ranchers who are able to provide sufficient quantity to meet the demand of local schools. Help local producers plan for increased demand.
  2. Identify the price difference between school budgets and farmer’s prices, and identify possible funding for the financial gap.
- iii. Hold a post-harvest meeting with produce growers in the Fall/Winter of the 2012-2013 school year to plan for 2013-2014 purchases.
- iv. Requests to the Farm to School Task Force
  1. Post more examples of bids, producer planning meetings, and other sourcing models on the Information Hub
  2. Provide examples on the Information Hub of how FSDs can work creatively within their tight budgets, commodity entitlement constraints, and menu planning to purchase local products.
  3. Create a mentoring program where FSDs of peer schools can provide direct assistance and advice on setting up FTS programs in similar districts. Could do it one on one or at existing events.

2. *EcoAction Roundtable - Telluride School District, July 13, 2012 (n= 29 participants):*

a. Pre-meeting - needs and participants identified:

- i. Participants: Telluride and Norwood school districts, Telluride Medical Foundation, community organizations working of local food issues (Valley Food Partnership, Southwest Institute for Resilience, EcoAction Partners).
- ii. Needs: Move beyond discussions about FTS through educating school staff about the benefits, connecting schools with producers, get the school greenhouses up and running. Would like the FTS Advocacy Event to inspire key stakeholders to move forward with local food sourcing in the schools.

b. Post-meeting Next Steps to be pursued

- i. Work with the Valley Food Partnership in Montrose in their October 2012 farm to school summit.
- ii. Promote local foods for Colorado Proud School Meal Day in September 2012 as a first step to involve local producers and get media attention for public education and healthy eating.
- iii. Use the new growing dome greenhouse at Telluride high school as an opportunity to receive media coverage about farm to school.
- iv. Investigate cold storage opportunities in Telluride area.
- v. Get information on quantities of products used by schools that could be produced locally and the costs with shipping broken out. Have this information available for a producer/school food service director meeting late fall or winter.

- vi. Get examples of small producer success stories of selling to schools.
  - vii. Get examples of community-based local producer directories.
3. *San Luis Valley “Child at Heart” Food Service Directors Network meeting, September 25, 2012 (12 participants):*
- a. Pre-meeting - needs and participants identified:
    - i. Ten school districts in the Valley, one producer, two community organizations participated.
  - b. Post-meeting Next Steps to be pursued
    - i. Create sample menus using San Luis Valley/regional crops (as local as possible)
    - ii. Get business/ag students involved in the bid process
    - iii. Start small
    - iv. Administration Education - Present this desire at the SAC (Superintendents Advisory Council) meeting at BOCSES monthly meeting – It is a packed agenda we would have 6 minutes.
    - v. October is Farm to School month – partner with the Local Foods Coalition – Rocky Farm for potatoes and Colorado Farms for carrots and highlight these two farms with posters as schools serve their products.
    - vi. Make a big newspaper media release about this partnership and event with pictures and a story.
      - o See “Valley Celebrates National Food Day” (October 25, 2012, Alamosa News): [http://www.alamosanews.com/v2\\_news\\_articles.php?heading=0&page=75&story\\_id=26986](http://www.alamosanews.com/v2_news_articles.php?heading=0&page=75&story_id=26986)
    - vii. When schools serve local products – be sure to have a Know your Farmer poster up.
    - viii. Use local foods for cooking matters classes and Integrated Nutrition Education Program activities.
    - ix. Connect with Olathe Esquibel Farms apple delivery October 4<sup>th</sup>.
    - x. Healthy Living Park food hub in planning stage – production greenhouses and distribution center
    - xi. Deliveries need to be counted on
    - xii. SLV Potatoes are available year round and are low hanging fruit for Farm to School in the SLV.

Resources Needed:

- i. USDA meat processing facility that can handle school district needs.
- ii. Producer Poster template
- iii. Support from administration
- iv. Support from parents
- v. More generous budgets

***B. Develop FTS Curriculum Options***

As noted in the Year 2 report, the most challenging component of the COFTS has been incorporating farm to school and/or food systems curriculum into K-12 schools. In year one, we identified a variety of FTS curriculums; however, most were piecemeal and untested except for those that charged a substantial fee. The Colorado Foundation for Agriculture produces a curriculum enhancement called the [\*Colorado Reader\*](#). We identified seven *Colorado Reader* editions that address agricultural issues directly relevant to farm to school. These seven Readers are posted on the FTS website. We know from interviewing teachers who use the Readers that the units are a good companion to farm to school efforts occurring at a school, and that the students have a variety of hands on experiences through the Reader activities.

Currently, the Colorado Reader reaches over 1400 classrooms per month. As reported in Year 2, 36 of the 41 school districts (88%) sourcing locally have at least one school within their district using the *Colorado Reader* lesson plans.

In Year 3, we applied for a SCBG to adapt two nationally recognized food system curriculums to Colorado's crops and climate. We did not receive the grant. However, the two curriculums even without adaptation are likely the best options available at this time. The curriculums both cost money, although they are reasonably priced.

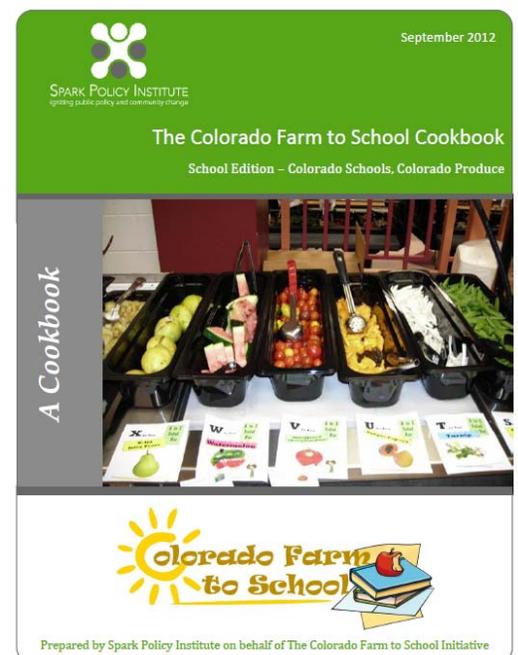
1. [Fresh from the Farm](#) (FFF). This is a K-12 curriculum developed by the nonprofit Seven Generations Ahead. The FFF curriculum is specific to farm to school and contains teaching materials and student activities that engage all aspects of farm to school.
2. [Linking Food & the Environment](#) (LiFE). This is a 4<sup>th</sup>-7<sup>th</sup> grade curriculum developed at the Center for Food and Environment at the Teachers College of Columbia University. The LiFE curriculum is a science-based food and nutrition curriculum that promotes scientific literacy to improve health through the study of food and food systems.

In addition to the two comprehensive and tested curriculums above, we have also found some Colorado efforts that partially meet farm to school education. These include:

3. Food for Thought: High School Nutritional Curriculum. The Food for Thought Curriculum teaches students how food is grown, processed, distributed, marketed, sold and consumed. The curriculum was developed by a Registered Dietitian in Colorado at An Ounce of Nutrition. Classes run a semester long. For more information, contact [Cathy Schmelter](#).
4. [Grove Foundation](#). The Grove Foundation focuses on experiential learning opportunities for children, their families and communities around healthy eating and caring for the environment. Their [Garden to Table](#) program provides elementary schools in Boulder Valley School District with the resources and support to build vegetable gardens and create hands-on learning experiences for students through growing, preparing and eating healthy food. K-5 curriculum materials are available for any school to use.
5. Denver Urban Garden's (DUG) [School Garden and Nutrition Curriculum](#). DUG uses a seasonal approach to teaching which bridges gardening, nutrition and science using standards-aligned lessons for the elementary school classroom and garden. Each lesson includes the applicable Colorado Academic Standards in science and comprehensive health with suggested extensions and modifications. Most lessons are one hour and include a healthy, kid-tested recipe that is appropriate for the classroom, topic and season.

### C. Colorado FTS Recipe Cook Books

For schools to fully utilize Colorado produce, they need seasonal recipes that incorporate those products grown in Colorado. Recipes were collected from school food service directors who have implemented farm to school programs and from chefs who work with schools to develop recipes for Colorado Proud School Meal Day and Harvest of the Month. Two cookbooks were created:



Calabacitas Con Elote (Zucchini with Corn)

Sandy Grady / Theresa Hafner, Denver Public Schools

Serving Size: ½ Cup		Number of Servings: 61 Servings	
Ingredients		Procedure	
2 ½ Pounds Zucchini, sliced		1. Heat oil in a pan, add green and red peppers and cook, stirring frequently, about 3 minutes.	
1 Pound Onion, sliced		2. Add onion and cook another 3 minutes, stirring frequently.	
½ Pound Green Bell Pepper, sliced		3. Add zucchini, corn, salt, and pepper, cook another 3 minutes, stirring frequently.	
½ Pound Red Bell Pepper, sliced		4. Mix in diced tomatoes, remove from heat, and serve.	
1 pound Tomatoes, fresh, diced			
2.27 Pounds Corn (kernels, fresh or frozen)			
½ Cup Vegetable Oil			
2 teaspoons Kosher Salt			
1 Teaspoon Ground Black Pepper, or to taste			

Nutritional Analysis Per Serving			
Calories	41	Total Fat (g)	1.9
Calories from fat	17	Saturated Fat (g)	0.1
Sodium (Mg)	42	Cholesterol (Mg)	0
Fiber (g)	0.9	Carbohydrate (g)	5.1
Protein (g)	0.8		



1. [The Colorado Farm to School Cookbook: School Edition – Colorado Schools, Colorado Produce](#). Included is a collection of 25 recipes that cover breakfast, tea cakes, muffins, sandwiches, side dishes, salads, vegetables, soups, stews, entrees, desserts, and breads. Each recipe is scaled for 50 servings and includes a nutritional analysis per serving. Each recipe meets the USDA New School Meal Pattern requirements.

2. [The Colorado Farm to School Cookbook: Family Edition – Colorado Schools, Colorado Produce: Family Recipes](#). Included is a collection of 38 recipes that cover breakfast, tea cakes, muffins, sandwiches, appetizers, side dishes, salads, vegetables, soups, stews, entrees, desserts, and breads. Many of the recipes include variations as well as vegetarian options.

The recipe collection was paid for by SCBGP funds and a grant from the Colorado Health Foundation through their support of the Colorado Farm to School Task Force. One of the missing pieces for schools to implement a FTS program is having recipes that use local seasonal ingredients. Schools struggle with how to include specialty crops in their menus beyond putting them on a salad bar. If we want to grow farm to school programs and thereby open up a large new institutional market to specialty crop producers, it requires a comprehensive approach. The recipe collection fits squarely into opening up new markets for specialty crop producers by giving schools menu items that meet the school lunch program nutrition standards using local specialty crops. Although some of the recipes include non-specialty crop ingredients, it is necessary in order to meet the nutrition guidelines for school meals. Colorado Health Foundation grant funds were used to offset the inclusion of non-specialty crop ingredients.

The cookbooks were not sold and the project provided them for free to anyone. The cookbooks are available online as .pdf files.

**Key Conclusions & Outcomes**

Based on the above activities and experiences, key conclusions and outcomes include:

- The FTS Advocacy Events were highly successful. Each had a good turnout of local stakeholders and developed pragmatic next steps. New FTS contracts between districts and producers resulted within a few months of the Event.
- FTS curriculum continues to be a challenge, both in terms of having curriculum for Colorado and in getting teachers interested in adding food system/FTS lesson plans into their classrooms.
- The recipe collection was just finalized in September 2012; therefore it is too early to know its reach. However, we have often heard from schools that they do not have recipes that would use many of Colorado’s products and need them. We believe this resource will be used extensively with schools new to FTS as well as with schools that need recipes to meet the USDA New School Meal Pattern.

## **Task 2. Work with schools and producers to implement their FTS including evaluation protocols.**

### *A. Webinars*

Building upon Year 2's FTS webinar series, another six webinars were conducted.<sup>9</sup> A total of 319 people registered for the 2012 webinars:

1. *How the State of Colorado is supporting Farm to School and Why it Matters to You* (n=59 registrants)  
Brief Description: We know from the experience of other states that Farm to School (FTS) efforts flourishes when the policy and regulatory environment are aligned and supportive of FTS. Learn how the State of Colorado is supporting schools and producers in their farm to school activities.
2. *The Farm to School Bid Process: Examples of Successful RFPs and Proposals* (n=56 registrants)  
Brief Description: It's that time of year again! Both school districts and producers are gearing up to develop and respond to RFPs for next year's contracts. This is the time to apply USDA's "Geographic Preference" rule on paper and establish relationships for the next year and years to come.
3. *Starting, Growing, & Sustaining Youth Farmers Markets* (n=41 registrants)  
Brief Description: Thinking about ways to increase student and community engagement and develop markets for student-grown food and other local produce? Join us for this showcase of Youth Farmers Markets, the whys, whos, hows, and whens!
4. *Students who Garden, Greenhouse, Eat their Garden Produce and Compost it, Too!* (n=42 registrants)  
Brief Description: Interested in joining the ever-blossoming school garden movement and want to know more about how others have established their gardens? Or do you already have a school garden and want to know more about how to "take it to the next level" by integrating student-grown food in your meal program, or by starting a student composting program? if YES, then this webinar is for you!
5. *Beyond the Schoolyard Garden: Use of School Grounds for School and Community Food Production* (n=74 registrants)  
Brief Description: Something wonderful is happening at schools around the state of Colorado. Not only are fresh, local ingredients making it onto the salad bars and into the entrees, some schools are actually growing it, right there on school grounds! And we're not just talking about school gardens (cool as those are!). We're talking about farms. Yes, unused acres belonging to school districts are being plowed, planted, and harvested to feed their kids and local communities!
6. *Colorado Proud School Meal Day 2012 – Why & How to Do It!* (n=47 registrants)  
Brief Description: Do you want to participate in 2012 Colorado Proud School Meal Day, September 12, 2012, but need more information? Listen to this webinar to learn about the benefits of locally sourced food, how to find producers, how to promote the event, and much more! The 45 minute webinar includes speakers from the Colorado Department of Agriculture, Colorado Farm to School, LiveWell Colorado, and local school food service directors and producers who

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<sup>9</sup> All archived webinars can be accessed at <http://coloradofarmtoschool.org/docs-media/webinars/archived-webinars/>.

share their experiences and provide tips for making it a fun and successful day. This is a repeat and updated performance of the first farm to school webinar.

**Table 1:** Webinar Attendance by Affiliation and Growth from Year 2 to Year 3

Affiliation	Total Unique Webinar Registrants in Year 2	Total Unique Webinar Registrants for Years 2 & 3	Percent Increase from Year 2
Producers	20	26	30%
School Districts	62	85	37%
Higher Education	3	6	100%
State & Local Health Partners	47	57	21%
Community Food Organizations & Partners	42	53	26%
Federal, State or Local Agencies	20	29	45%
Other Interested Stakeholders	22	32	45%
<b>TOTAL</b>	<b>216</b>	<b>288</b>	<b>33%</b>

**B. Regional Convenings**

COFTS worked closely with the Colorado Farm to School Task Force to help inform their community listening sessions and convenings held in three regions of the state. Specifically, COFTS supplied outreach materials, toolkits, and developed survey & data collection materials used by the Task Force with the following regions:

1. Northeastern plains: Yuma, Colorado, for their (1) FTS community listening session and (2) producer meeting.
2. Southeastern plains: Las Animas, Colorado, for their (1) Fort Lyon food hub regional convening and (2) data for two applications, (a) Fort Lyon Food Hub Feasibility Study, and (b) Fort Lyon Food Hub Health Impact Assessment.
3. Western Slope: Montrose, Colorado, for their (1) participation in the Valley Food Partnership’s Farm to Cafeteria: A West Slope Summit and (2) Montrose/Delta/Gunnison counties FTS Listening Session.
  - a. The Farm to Cafeteria Summit was designed in part to follow up on the issues/needs identified in the Telluride FTS Advocacy Event as well as address the larger region that encompasses Delta, Montrose, Gunnison, and Mesa counties.

In 2013, the Task Force will conduct Regional Convenings and bring intensive technical assistance to the other FTS Advocacy Event regions thereby elevating the FTS activities to the next level.

**C. Evaluation of FTS Efforts**

A critical need for expanding sustainable FTS efforts is to track and analyze different models of farm to school. Evaluations of FTS in Colorado serve two main purposes: (1) To provide feedback to a district about what aspects of their FTS is resulting in the desired changes, what aspects are not working as expected, and how the FTS programming can be improved; and (2) To identify “best practice” models that can be replicated in other Colorado school districts.

There are some existing FTS evaluation tools but even the best lacked clear guidance on how to implement the evaluation and relied too heavily on the need for an expert evaluator. Realistically, only those districts that land substantial grants to implement FTS would be able to

evaluate their efforts. Therefore, it became clear to both the COFTS and the FTS Task Force that Colorado needed to have its own evaluation approach that provided different approaches to evaluating efforts depending on the district's resources (internal and external), the FTS efforts to be implemented by the district, and their goals for the district's FTS program.

The COFTS worked with the FTS Task Force to identify the existing tools, data collection efforts, and needs of Colorado school districts. The Task Force developed the toolkit with guidance and input from COFTS and an evaluator at the Colorado Department of Public Health and Environment (CDPHE). Three districts were recruited to pilot the draft of the evaluation toolbox: Greeley-Evans, Denver Public Schools, and Durango.

The Materials being reviewed and piloted by the three schools include:

- The main toolkit
- A sample evaluation plan
- A blank template to use when the district creates their own evaluation plan
- Two of the eventual seven tools to collect data about specific audience outcomes (e.g., students, parents, foodservices, etc.)

The pilot sites are providing feedback on the following:

1. How well does the evaluation plan template work?
  - a. Were the instructions clear as to how to set up the plan? Is anything confusing, has too much jargon, frustrating, etc.?
  - b. Was the template user friendly? Are there specific items/instructions that are particularly helpful? What components work best for you?
2. The feedback is being collected in two ways:
  - a. On the evaluation documents via track changes for specific changes that need to be made.
  - b. Through an online survey to capture the overall experience with using the toolkit.

### *Key Conclusions & Outcomes*

Based on the above activities and experiences, key conclusions and outcomes include:

- Webinars are well attended by a wide array of Colorado stakeholders. In addition, USDA and national groups attended several of our year 3 webinars, indicating that Colorado is putting out information that is useful to the national farm to school movement.
- Aligning year 3 COFTS work with the CO FTS Task Force is extending the reach of our work and will ensure it continues beyond the end of its grant funding. The Regional Convenings of the Task Force bring more intensive FTS technical assistance to communities, which is exactly the next step needed for those regions that held FTS Advocacy Events in 2012.
- Evaluation of FTS efforts is key to creating sustainable FTS models for Colorado schools and communities to adopt. This is a major undertaking that could not be done in one year or solely by COFTS. The Task Force has dedicated resources to finalize and roll out the evaluation toolkit that was drafted this year.

**Task 3. Capture lessons learned and barriers to implementation to share with policy makers (i.e. state agencies) and other aligned state and local initiatives.**

*A. Case Studies*

In Year 3, COFTS created a series of case studies highlighting scratch cooking training for food service directors, nutrition and food system education for students, and school district wellness policies. Multiple case studies highlight each of these three areas showing how farm to school efforts are supported through different models of staff development, student education, and district policy.<sup>10</sup> The eight case studies are:

Culinary Workshops

1. How have Culinary Workshops Improved Schools' Fresh Food Offerings?
2. How have LiveWell Colorado's Culinary Workshops Improved Healthy Eating at School?
3. How have Culinary Workshops Advanced Staff Skills?

Food Education

4. How can Food and Nutrition Education be Integrated into Public Schools?
5. How does Food System Education Promote Healthy Eating?
6. How can Food and Nutrition Education be Integrated into School Curriculum?

Wellness Policy

7. How can School Wellness Policies Support Farm to School Programs?
8. How can Wellness Policies be used to Increase the Use of Local Foods in School Meals?

*B. Colorado Farm to School Task Force*

These are not lobbying activities. COFTS shared information gathered with the statewide Farm to School Task Force (a separate entity) so the Task Force could develop a report and make recommendations to the State Legislature. No Specialty Crop Grant Program funds were used for lobbying activities. This section demonstrates how information obtained from this project has led to the expansion and institutionalization of Farm to School efforts in Colorado.

Feedback from districts, producers, LiveWell Coordinators, and FTS webinar participants collected by COFTS was used to help inform the Colorado Department of Regulatory Agencies (DORA) about the progress made and continuing work that needs to be done to have sustainable, statewide farm to school efforts. This fall, DORA conducted the FTS Task Force sunset review and on October 15, 2012, released its recommendation that the Task Force be continued. In the upcoming 2013 legislative session, a FTS Task Force bill will be run that includes several key changes to its membership and its charge. These changes reflect the information gathered by COFTS as well as by the Task Force:

1. Expand the membership from 13 to 17 members along with the option of having non-voting ex-officio members.  
Rationale: The additional seats provide critical representation of stakeholders key to farm to school. These include two producers, K-12 teacher or principal, an additional community organization
2. Add a new charge to address statewide data collection options.  
Rationale: Tracking FTS efforts is critical to grow the efforts. There are various statewide data collection efforts already in place that could be used to collect farm to school activities.
3. Add ability to accept and distribute grant monies.

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<sup>10</sup> The case studies can be downloaded at <http://coloradofarmtoschool.org/docs-media/colorado-case-studies/>

Rationale: The Task Force has been funded via grant money (not SCBGP) since its beginning. This makes it official that they have the ability to accept monies as well as distribute to other farm to school projects they deem critical to statewide implementation of farm to school.

4. Extend the sunset of the Task Force by five years to December 31, 2018.

Rationale: Farm to School efforts in Colorado are well underway but still need continued technical assistance, policy guidance, and evaluation. The Task Force has become a statewide and national leader in FTS and is the natural entity to continue the FTS work underway in Colorado.

### *Key Conclusions & Outcomes*

Based on the above activities and experiences, key conclusions and outcomes include:

- One of the most popular items developed in Year 1 were the FTS case studies therefore we thought it was time to develop a second set of case studies that address the issues of food preparation and wellness policies – both areas that the Healthy, Hunger-Free Kids Act of 2010 affect this year. We wanted to marry the HHFKA with FTS so that schools could see how FTS will help them meet their new federal requirements.
- The Task Force benefitted from the extensive information gathered from schools and producers as they considered what needed to be included in their 2013 legislation. Importantly, the Task Force will take on the issue of developing a statewide data collection plan. This was an issue that came directly out of the COFTS experience in attempting to quantify schools and producers engaged in FTS procurement and schools undertaking additional FTS activities such as school gardens, food tastings, farm visits, and FTS education.

### **Task 4. Continue to market and expand awareness of FTS in Colorado.**

#### *A. Information Hub Coordination*

The farm to school website originally launched with for the COFTS project was a basic no-frills website site. The COFTS project did not include the creation of a website in its proposal; however, it became apparent in Year 1 of the project that we needed a way to get our resources, toolkits, and announcements to people. COFTS worked with the CO Farm to School Task Force to transition the URL and the website resources over to their FTS Information Hub. COFTS worked with the Task Force information hub working group to help identify the look and functionality of the new website. The FTS Information Hub was launched on October 1, 2012 in honor of National School Lunch Month (and also served as a seamless transition with the COFTS project ending on September 30, 2012).

The new website has:

- Dedicated audience pages: schools, producers, students, parents/community
- Event calendar
- Daily feed of FTS activities across the nation
- Extensive library of Colorado FTS resources, including archived webinars from the COFTS series and all COFTS toolkits and resources developed during the three year project
- History of & Current Happenings in Colorado FTS
- Ask an Expert Forum
- FTS Blog



Figure 1. Picture of Farm to School Information Hub website landing page.

### *B. Statewide FTS Data Collection*

There is no systematic farm to school statewide data collection methods currently available. To address this issue, the COFTS pursued several avenues:

1. Collected its own data through three survey instruments in 2012:
  - a. FTS Producer Survey: Collected information from producers about their FTS selling and interest in FTS markets. 21 producers completed the survey of which 25% were currently selling to schools. Among those not yet selling to schools, 81% said they would like to sell to schools.
  - b. FTS Convening Request: Collected information from different regions of the state that were interested in having a FTS Advocacy Event. Survey included information about the region's current FTS efforts. Follow up work in planning the FTS Advocacy Event provided additional identification of FTS partners and efforts. 13 requests were received and follow up provided:
    - i. Montrose/San Miguel Counties
      1. Held an FTS Advocacy Event (July 13, 2012)
      2. Follow up Farm to Cafeteria: West Slope Summit for schools, producers, community members in four county region (Montrose, San Miguel, Mesa, Delta, Gunnison)
    - ii. High Country region (Eagle & Summit counties).
      1. Held an FTS Advocacy Event (May 16, 2012)
      2. Follow up school/rancher event led to new FTS contracts
    - iii. San Luis Valley
      1. Held an FTS Advocacy Event (September 25, 2012)
      2. Six school districts participated in National School Lunch Day sourcing from local producers for the first time (October 24, 2012).
    - iv. El Paso county
      1. Linked to D-11
    - v. Larimer and Weld counties
      1. Linked to Northern Colorado Cooperative Bid
      2. USDA FTS Grants landed: Greeley-Evans, and Weld RE-8
  - c. FTS Champions Survey: Collected nominations from anyone who knew of a person they thought deserved recognition for their work in FTS. The purpose of the survey was to identify the unsung heroes of FTS in Colorado. It also provided some new data on school districts and community efforts not previously known to be doing grassroots FTS. Fifteen nominations were made. Each nominee was interviewed by COFTS and the interviews with pictures will be posted on the FTS Task Force's new Information Hub website.
2. COFTS staff participated in the School Policy Indicators (SPI) work group. SPI is an initiative out of the Rocky Mountain Prevention Research Center at the Colorado School of Public Health in partnership with the Colorado Department of Public Health and Environment (CDPHE).

The purpose of the School Policy Indicators work group is to:

- 1) Identify a limited set of indicators of positive school policy and environment around physical activity, nutrition, substance use, and mental health;
- 2) Coordinate data collection in these areas using the same measures; and
- 3) Communicate findings to stakeholders such as local and state policy makers, school associations, school districts, parents, and students. Participating stakeholders, as well as others whose work involves school settings, will agree to coordinate and collect data on the common identified indicators through the programs or services available to them. The result will be an ever-clearer picture

of school policies and environments in Colorado as they relate to these health behaviors. Over time, the data can be used to monitor changes in school climates that support students and staff in adopting and maintaining healthy behaviors and hopefully will be reflected in the bi-annual “Healthy Kids Colorado” student survey.

By the summer of 2012, SPI’s priorities lead it away from collecting data that would be directly related to farm to school efforts. The COFTS continued to monitor the work of SPI but began to focus its efforts on more promising options.

3. Colorado Department of Education (CDE) is implementing a new software program to collect school meal compliance data from school food service directors. COFTS initiated a conversation with Jane Brand, director of the Office of School Nutrition at CDE, to pursue data collection on FTS through the new system. Jane is waiting to hear from the software developers how much it will cost to add FTS questions. Because this option is not yet functional, COFTS has handed off this task to the FTS Task Force to continue to pursue.
4. As mentioned previously, the 2013 legislation for the FTS Task Force includes a new charge to address statewide data collection options.

### *Key Conclusions & Outcomes*

Based on the above activities and experiences, key conclusions and outcomes include:

- The new FTS Information Hub website will serve the state well. It has already generated more inquiries in one month than the previous website did in six months. The opportunity for people to share their stories and events (via the blog and event calendar) is one of the key needs school food service directors and community organizations told us they wished was possible. Importantly, the Ask an Expert Forum will serve as a way to create an online learning community and mentoring system.
- A lot of new information was collected this year via the three surveys. We learned that having communities request an in-person FTS event based on their ability to show their readiness to engage in FTS resulted in highly successful FTS Advocacy Events. The producer survey not only identified several producers we did not know were selling to schools but more importantly identified over a dozen producers who want to sell to schools. The champions survey identified a handful of the usual suspects but far more were new names to us and demonstrate just how important parents, teachers, and community members are to growing FTS. The champions’ interviews should be released on the Information Hub by the end of the year and we hope this inspires others to become FTS champions in their communities.
- Statewide data collection on FTS is complicated and despite our best efforts, this year we were not able to attach FTS questions into an existing effort. However, the CDE new software program is an opportunity because FTS questions could be incorporated as the system is being developed, which may be easier than trying to add questions to an existing system. The CO FTS Task Force will take over this work in 2013.

### **Task 5: Finalize FTS and report on results.**

COFTS has provided several reports to CDA this year: The final Year 2 report, interim Year 3 report, revisions to CDA’s USDA Year 2 report, and the final Year 3 report (this report).

### **Significant Contributions by Project Partners**

The COFTS is a team-based project consisting of the project director at Spark Policy Institute along with two subcontractors. Their roles are described below:

- **Lyn Kathlene, Ph.D., Spark Policy Institute, Project Director.** Lyn leads the project and has an administrative, research, and outreach role. As the administrator, Lyn

develops the scope of work and services to be provided by all team members, conducts monthly team calls, and oversees the billing and deliverables to the project. She also oversees and guides the work of Spark staff assigned to the project as well as works closely with the subcontractors as they deliver on their scopes of work. As the research lead, Lyn develops content for project surveys (2010 Food Service Directors survey, 2011-12 Producer survey, 2012 Regional Convenings survey, 2012 FTS Champions Survey), various Toolkit elements including the *Choose Your Own Farm to School Adventure* school district self-assessment survey, and sharing the webinar topic identification and content development with Wendy Peters Moschetti. Outreach work includes managing the content on the website, [www.coloradofarmtoschool.org](http://www.coloradofarmtoschool.org), working closely with the Colorado Farm to School Task Force, creating project presentation materials (ppts, handouts) for conference and community presentations, responding to phone calls and emails from stakeholders, and giving presentations around the state.

- **Wendy Peters Moschetti, WPM Consulting, School and Community Coordinator:** Wendy communicates regularly with LiveWell Colorado, LiveWell communities, and school districts to identify issues for webinars, case studies, and other tools. Wendy assists the organization through monthly COFTS webinars by recruiting and supporting presenters. Wendy attends various school and community meetings and conferences on behalf of COFTS to gather feedback and disseminate existing tools.
- **Jim Dyer, Healthy Community Food Systems, Producer Coordinator:** In the past two years, Jim identified and helped developed resources for the Toolkit, assisted in specific webinars, monitored developments in food safety and procurement/distribution issues of concern to Colorado producers, and assisted with development discussions on the SW Colorado food safety and bid process. In 2012, Jim was responsible for all components of the FTS Advocacy Events from pre-event community preparation, to event presentation and delivery of resources, to working with participants to develop next steps. Over the course of the project, Jim has delivered presentations to local, state, and national groups on Colorado Farm to School, and connected Colorado to the National Farm to School Network as State Lead for Colorado and a member of the National Board of Advisors.

In addition to the project team, other key people and organizations are supporting and partnering with COFTS. These include:

- **LiveWell Colorado:** LiveWell provides access to the LiveWell communities through their community coordinator, Leslie Levine. LW is also providing the technology and technical support to produce the COFTS webinars. LW's policy director, Lisa Walvoord, meets with the COFTS team on a regular basis to share information about their school food activities with COFTS, including the School Food Culinary Boot Camps.
- **Colorado State University:** Dawn Thilmany, Ph.D., and Martha Sullins, CSU Extension disseminates a monthly Local Foods Newsletter which highlights all COFTS activities and events. Additionally, CSU and Extension staff provide feedback and review to all COFTS tools.
- **Colorado Department of Agriculture, Markets Division:** Wendy White continues to oversee the COFTS grant, provide on-going technical assistance to COFTS, and coordinates COFTS activities with the Task Force's Information Hub.

- **Colorado Department of Education, Nutrition Unit:** Jane Brand provides content and staffing for COFTS webinars, works with COFTS to integrate FTS data collection, communicates with all Food Service Directors on behalf of COFTS, and recently hired a nutrition consultant who will partially focus on FTS efforts.
- **Colorado Department of Public Health and Environment:** CDPHE staff including Susan Motika, Taber Ward, and Erikka Apolikar provide a variety of services that support farm to school efforts in Colorado and work closely with the COFTS team to coordinate activities.
- **Colorado Farm to School Task Force:** The 2010 legislatively enacted statewide Farm to School Task Force consists of thirteen members with representatives from school food services, producer organizations, parents, and state agencies. The Task Force works closely with the COFTS team and is specifically addressing four major areas to strengthen a statewide FTS system. The areas are:
  - Funding for school-facilities and infrastructure improvements, necessary for fresh foods to be used in school kitchens;
  - Evaluation of farm to school efforts in Colorado, to build an evidence-base for an array of effective models while also identifying barriers and opportunities to support local models;
  - Policy guidance for producers, schools, and state agencies to overcome barriers to implementing farm to school that arise from federal, state, and local policies related to competitive bidding, local preference, food safety, etc.
  - Centralized, sustainable information hub that purposefully connects the many different farm to school related resources in one easy to navigate website, including an active and supported peer networking component and a “market-place” to connect producers with schools interested in their products.
- **Colorado Food Systems Advisory Council:** All COFTS activities and events are disseminated to, and through, the COFSAC. COFSAC integrates discussion of how to support direct markets across the state in all of its efforts.

***Goals and Outcomes Achieved:***

Table 2 summarizes the outcomes and performance measures for each year of the project.

**Table 2: Colorado Farm to School Project Outcomes & Performance Measures, 2010-2012**

Desired Outcome	Performance Measure	Baseline	Goal	Actual	Activities Completed Toward 2010 Goals	Goal	Actual	Activities Completed Toward 2011 Goals	Goal	Actual	Activities Completed Toward 2012 Goals
			2010			2011			2012		
To increase purchasing of locally grown specialty crops by school districts	Number of school districts contracting with local producers for the purchase of specialty crops	There are currently no formal district-wide FTS contracts in Colorado	Two school districts	Exceeded goal; at least 3 districts have contracts	Distribution of FTS Toolkit elements, “how to” resources to partner with producers, case studies, and targeted technical assistance (e.g., CO Proud School Meal Day)	Five school districts	Exceeded; More than 5 districts initiated standing contracts in 2011. Forty-one school districts are known to be sourcing locally.	Distribution of FTS Toolkit elements, case studies, webinars, school conference presentations, and targeted technical assistance (e.g., how to use the school district self-review tool). Eight schools now have institutional profiles on Colorado Market Maker indicating they have a farm to school program	Ten school districts	Exceeded; More than 10 districts initiated standing contracts in 2012. Sixty-four districts are known to be sourcing locally. <sup>11</sup>	Convened 3 FTS Advocacy Events that brought producers and school food service directors together. This led to new FTS contracts, and new schools participating in CO Proud School Meal Day. Created FTS Recipe Cookbooks for school food services. Launched 6 new FTS webinars. Created eight new case studies directed as school food services. Created two surveys designed to identify schools/communities needing TA and to identify grassroots efforts underway to provide further TA. Worked with the FTS Task Force to develop evaluation tools, and information hub to

<sup>11</sup> Please see Tables 3 and 4 for the list of districts and schools engaged in FTS activities.

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Desired Outcome	Performance Measure	Baseline	Goal	Actual	Activities Completed Toward 2010 Goals	Goal	Actual	Activities Completed Toward 2011 Goals	Goal	Actual	Activities Completed Toward 2012 Goals
			2010			2011			2012		
											support FTS efforts.
To increase producer participation in Farm to School programs	Number of producers with formal contracts to supply specialty crops to a school district	There are currently no producers with formal district-wide FTS contracts in Colorado	Two producers	Exceeded goal; at least 4 producers have contracts.	Distribution of FTS Toolkit elements, attendance at producer events, connections to food service directors	Five producers	Exceeded; there are at least 10 producers known to have contracts.	Distribution of FTS Toolkit elements, attendance & presentations at producer events, implementation of producer survey, integration of producers in webinars, targeted outreach through CSU, Extension, and others. Eight producers now list Farm to School as a method of sale on Colorado Market Maker.	Ten producers	Exceeded; there are at least 60 producers known to have contracts. <sup>12</sup>	Convened three FTS Advocacy Events that brought producers and school food service directors together. Created a survey to identify producers currently selling and those who want to sell to schools. Outreach to producers on Colorado Market Maker to encourage addition of FTS to their profile. Eleven producers now list FTS as a method of sale.
To expand the educational curriculum of Colorado school	The number of school districts that offer an integrated nutrition curriculum	There are currently no school districts offering an integrated nutrition curriculum	Two school districts	Goal not met; Currently no districts offer district-wide curriculum	Met multiple times with CSU Extension and Integrated Nutrition Education Program staff to discuss	Five school districts	Goal not met; Currently no districts offer district-wide curriculum	Identified seven <i>Colorado Reader</i> editions with relevant FTS materials. Produced by the Colorado Foundation for	Ten school districts	Goal not met; Currently no districts offer district-wide curriculum; however 36	Identified two existing curriculums that can serve as the basis for Colorado FTS curriculums. Received permission to adapt

<sup>12</sup> See Table 5 for the list of producers.

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Desired Outcome	Performance Measure	Baseline	Goal	Actual	Activities Completed Toward 2010 Goals	Goal	Actual	Activities Completed Toward 2011 Goals	Goal	Actual	Activities Completed Toward 2012 Goals
			2010			2011			2012		
districts to include nutrition programming and seed-to-table information about locally grown fruits and vegetables				<p>Integrated nutrition education was expanded to several individual schools and did incorporate the food systems curricula.</p>	<p>integrating FTS curriculum;</p> <p>Worked with INEP primarily to identify existing FTS/food systems curricula from other states;</p> <p>Derived relevant materials from the Colorado Foundation for Agriculture's series the <i>Colorado Reader</i>.</p>		<p>; however 36 districts sourcing locally have at least one using the <i>Colorado Reader</i>. Due to budget cuts the Integrated Nutrition Education Program was cut from most schools in 2011.</p>	<p>Agriculture, the materials are available on the COFTS website and the CFA's website.</p> <p>Working with the Colorado Farm to School Task Force to bring FTS curriculum into university course work for training K-12 teachers and through in-service training required of current teachers.</p>		<p>districts sourcing locally have at least one using the <i>Colorado Reader</i>. Due to budget cuts the Integrated Nutrition Education Program was cut from most schools in 2011. No Colorado-specific curriculum exists.</p>	<p>and disseminate <i>Fresh from the Farm</i> K-12 curriculum from Seven Generations Ahead. Identified <i>Food for Thought</i> nutritional curriculum being developed by a Colorado nutritionist as a possible option to support fresh food consumption.</p>

**Districts and Schools Engaged in FTS in 2012**

Tables 3 and 4 below provides additional detail on the numbers of districts and schools engaged in farm to school, supporting COFTS's annual goals and measurable outcomes. Farm to School has been growing substantially every year. In 2010, there were 22 school districts involved in FTS activities. In 2011, it almost doubled to 41 school districts. In 2012, an additional 23 school districts began farm to school efforts, for a total of 64 school districts across Colorado.

**Table 3.** Colorado Districts engaged in Farm to School Activities (n=64)

Districts CURRENTLY PURCHASING LOCAL (n=64)	Source of Information	New in 2012
<b>Academy School District 20</b>	Colorado Proud School Meal Day, 2011	
<b>Adams 12</b>	Colorado Proud School Meal Day, 2011, 2012	
<b>Adams 14</b>	Producer 2012 Survey by COFTS	
<b>Adams County School District 50</b>	CO Proud School Meal Day, 2012; Colorado Market Maker	Yes
<b>Alamosa School District</b>	Colorado Market Maker: Added on 1/9/2012. San Luis Valley FTS Advocacy Event, 2012; Valley Courier, Oct. 25, 2012, article "Valley celebrates National Food Day"	Yes
<b>Archuleta School District 50 JT</b>	FSD 2010 Survey by COFTS	
<b>Aspen School District</b>	Roaring Fork FTS Advocacy Event, 2012	Yes
<b>Aurora Public School District</b>	Colorado Proud School Meal Day, 2011	
<b>Bayfield School District</b>	2012 Champions Survey; Real Food Colorado; 2012 Southwest Cooperative Bid	
<b>Boulder Valley School District</b>	Producer 2012 Survey by COFTS	
<b>Canon City</b>	FSD 2010 Survey by COFTS	
<b>Centennial School District</b>	San Luis Valley FTS Advocacy Event, 2012; Valley Courier, Oct. 25, 2012, article "Valley celebrates National Food Day"	Yes
<b>Cherry Creek School District</b>	Colorado Proud School Meal Day, 2011	
<b>Colorado Springs School District 11</b>	FSD 2010 Survey by COFTS; Colorado Market Maker, 2012	
<b>DeBeque District 49 JT</b>	FSD 2010 Survey by COFTS	
<b>Denver Public Schools</b>	FSD 2010 Survey by COFTS; 2012 Champions Survey; Colorado Proud School Meal Day, 2011, 2012; USDA FTS Grant, 2012	
<b>Delta 50J</b>	2012 Champions Survey; Delta County local sourcing list	
<b>Douglas County School District</b>	Colorado Proud School Meal Day, 2012; 2012 YouTube Video "Colorado Proud School Lunch Day" <a href="http://www.youtube.com/watch?v=pCGKis1KjRY">http://www.youtube.com/watch?v=pCGKis1KjRY</a>	Yes
<b>Durango 9-R</b>	FSD 2010 Survey by COFTS; Real Food Colorado; 2012 Southwest Cooperative Bid	
<b>Del Norte School District</b>	Colorado Proud School Meal Day, 2012	Yes
<b>Eagle County School District</b>	2012 Champions Survey	
<b>Eaton School Dist. RE-2</b>	FSD 2010 Survey by COFTS	
<b>Estes Park</b>	Northern Colorado Cooperative Bid, 2011	
<b>Ft. Lupton School District</b>	Jeremy West, Colorado School Nutrition Association; Northern Colorado Cooperative	

Districts CURRENTLY PURCHASING LOCAL (n=64)	Source of Information	New in 2012
	Bid, 2011, 2012	
<b>Garfield RE-2</b>	Roaring Forks FTS Advocacy Event, 2012; Roaring Forks School Producer Meeting, 2012	Yes
<b>Garfield School District 16</b>	Roaring Forks FTS Advocacy Event, 2012; Roaring Forks School Producer Meeting, 2012	Yes
<b>Gunnison Watershed RE1J</b>	2012 Champions Survey	
<b>Hanover School District 28</b>	Colorado School Meal Day, 2012	Yes
<b>Ignacio School District</b>	2012 Champions Survey; Real Food Colorado; 2012 Southwest Cooperative Bid	
<b>Jefferson County Public Schools</b>	Real Food Colorado, 2011; Colorado Proud School Meal Day, 2012	
<b>Johnston/Miliken Schools (Weld RE-5J)</b>	Colorado Proud School Meal Day, 2012	Yes
<b>Keensberg School District RE3J</b>	Jeremy West, Colorado School Nutrition Association; Northern Colorado Cooperative Bid, 2011, 2012; Colorado Proud School Meal Day, 2012	
<b>Laramie County School District</b>	Northern Colorado Cooperative Bid, 2012	Yes
<b>Las Anima School District</b>	The Colorado Health Foundation; Las Animas School Food Service Director	Yes
<b>Limon Schools RE-4J</b>	FSD 2010 Survey by COFTS	
<b>Mancos School District RE6</b>	Real Food Colorado	
<b>Manitou Springs Dist 14</b>	FSD 2010 Survey by COFTS; Colorado Proud School Meal Day, 2011, 2012	
<b>Manzanola 3J</b>	FSD 2010 Survey by COFTS	
<b>Mesa County Valley School District #51</b>	FSD 2010 Survey by COFTS	
<b>Monte Vista Schools</b>	San Luis Valley Health.org	
<b>Montezuma-Cortez RE1</b>	Real Food Colorado; Colorado Proud School Meal Day, 2011, 2012; Wendy Peters Moschetti; 2012 Southwest Cooperative Bid	
<b>Monte Vista School District</b>	San Luis Valley FTS Advocacy Event, 2012; Valley Courier, Oct. 25, 2012, article "Valley celebrates National Food Day"	Yes
<b>Montrose County School District RE-1J</b>	FSD 2010 Survey by COFTS; The Crested Butte News	
<b>Mountain Valley School District</b>	FSD 2010 Survey by COFTS; San Luis Valley FTS Advocacy Event, 2012; Valley Courier, Oct. 25, 2012, article "Valley celebrates National Food Day"	
<b>North Conejos Schools</b>	FSD 2010 Survey by COFTS	
<b>Norwood Public Schools</b>	Telluride FTS Advocacy Event; Colorado Proud School Meal Day, 2012	Yes
<b>Platte Valley RE-7</b>	FSD 2010 Survey by COFTS; Northern Colorado Cooperative Bid, 2011, 2012; Colorado Market Maker, 2012	
<b>Poudre Valley School District</b>	2012 Producer Survey by COFTS; Colorado Proud School Meal Day, 2011; Northern Colorado Cooperative Bid, 2011, 2012	

Districts CURRENTLY PURCHASING LOCAL (n=64)	Source of Information	New in 2012
<b>Pueblo City Schools</b>	FSD 2010 Survey by COFTS; Colorado Proud School Meal Day, 2012; Colorado Market Maker, 2012	
<b>Roaring Fork School District</b>	Wendy Peters Moschetti, 2011; Roaring Fork FTS Advocacy Event, 2012; Roaring Forks School Producer Meeting, 2012; Colorado Proud School Meal Day, 2012	
<b>St. Vrain Valley School District</b>	Slow Food Denver/Seed to Table; Northern Colorado Cooperative Bid, 2011, 2012; Colorado Market Maker, 2012	
<b>Salida R32J School District</b>	2012 Champions Survey	
<b>Sanford School District</b>	San Luis Valley FTS Advocacy Event, 2012; Valley Courier, Oct. 25, 2012, article "Valley celebrates National Food Day"	Yes
<b>Sangre de Cristo School District</b>	San Luis Valley FTS Advocacy Event, 2012; Valley Courier, Oct. 25, 2102, article "Valley celebrates National Food Day"	Yes
<b>Sierra Grande School District</b>	San Luis Valley FTS Advocacy Event, 2012; Valley Courier, Oct. 25, 2012, article "Valley celebrates National Food Day"	Yes
<b>Springfield Schools RE-4</b>	Colorado School Meal Day, 2012	Yes
<b>Telluride School District R-1</b>	FSD 2010 Survey by COFTS	
<b>Thompson School District</b>	2012 Producer Survey by COFTS; Northern Colorado Cooperative Bid, 2011, 2012	
<b>Weld County School District 6</b>	FSD 2010 Survey by COFTS; 2012 Champions Survey; Colorado Proud School Meal Day; Colorado Market Maker, 2012; Northern Colorado Cooperative Bid, 2011, 2012; USDA FTS Grant, 2012	
<b>Weld Re-1</b>	FSD 2010 Survey by COFTS; Northern Colorado Cooperative Bid, 2011, 2012; Colorado Market Maker, 2012	
<b>Weld RE3J</b>	Colorado Proud School Meal Day, 2012; Colorado Market Maker, 2012	
<b>Weld RE-8</b>	USDA FTS Grant, 2012	Yes
<b>Windsor School District</b>	2012 Producer Survey by COFTS; Northern Colorado Cooperative Bid, 2011, 2012	
<b>Wray School District RD-2</b>	FSD 2010 Survey by COFTS	

**Table 4.** Colorado Schools engaged in Farm to School Activities

Schools CURRENTLY PURCHASING LOCAL (n=6)	Source of Information	New in 2012
<b>Carbondale Community School</b>	Colorado Proud School Meal Day, 2011	
<b>Center Consolidated School</b>	FSD 2010 Survey by COFTS	
<b>Cole Academy of Arts &amp; Sciences</b>	Colorado Proud School Meal Day, 2011	
<b>Colorado Rocky Mountain School private independent school</b>	FSD 2010 Survey by COFTS	

Schools CURRENTLY PURCHASING LOCAL (n=6)	Source of Information	New in 2012
<b>Cotopaxi School</b>	Colorado Proud School Meal Day, 2011	
<b>Vail Mountain School</b>	FSD 2010 Survey by COFTS	

School gardens are an important FTS educational and experiential activity. Youth who participate in school gardens have the opportunity to learn where food comes from and in many Denver schools, youth have the opportunity to harvest the garden produce for use in their school’s cafeteria lunch program. COFTS has worked closely with Slow Food Denver’s Seed to Table program that has 57 gardens at schools in the Denver Public School district. [Seed to Table](#) is a key resource that COFTS has shared with districts across the state, linking them to direct technical assistance to start their own school gardens. See all the garden locations at [Seed to Table Gardens](#).

### Producers Selling to Schools in 2012

Throughout the project, it has been more challenging to identify producers selling to schools than to identify which schools are sourcing locally, and this is true for 2012, too. We have been able to identify producers through several channels, including those that contact us, attend the COFTS webinar, respond to the COFTS producer survey, list farm to school method of sale on their Colorado MarketMaker profile, present at regional FTS conferences, or are identified on school websites or schools have shared with us the producers with which they source. Except for public sites such as school website and Colorado MarketMaker or explicit permission from the producer, we are unable to name the farms due to producers requesting their FTS selling remain confidential. Therefore, Table 5 below is only a partial inventory of producers known to have contracts with school districts.

In 2011, 34 producers were known to be selling to Colorado School Districts. By 2012, the total number was 61 producers, which represents an additional 27 producers (44% increase). See Table 5 below for the public listing.

**Table 5. Colorado Producers Selling to Colorado School Districts – A Partial Public Listing (n=61 in 2012)**

Farm/Ranch	Source	New to FTS in 2012
<b>Alhberg Farms</b>	Report on local purchases by Delta County Joint School District no. 50	Yes
<b>Austin Family Farm</b>	Report on local purchases by Delta County Joint School District no. 50; Colorado Market Maker; Growing Farm to Cafeteria: West Slope Summit	Yes
<b>Big B’s Juice</b>	Report on local purchases by Delta County Joint School District no. 50	Yes
<b>Bolton’s Orchards</b>	Colorado Market Maker	Yes
<b>Boyles Family Farms</b>	Greeley/Evans School District website	
<b>Cactus Hill Farm</b>	San Luis Valley Health.org	
<b>Cap K Ranch</b>	Aspen School District newsletter, Aug – Sept. 2012	Yes
<b>Circle K Bolita Beans</b>	San Luis Valley Health.org	
<b>Circle Fresh Farms</b>	Colorado Market Maker	
<b>Colorado’s Best Beef Company</b>	Colorado Market Maker	Yes

Farm/Ranch	Source	New to FTS in 2012
<b>Colorado Gators</b>	San Luis Valley Health.org	
<b>Confluence Farms</b>	Montezuma-Cortez Re-1 – Colorado Proud School Meal Day as reported in the Cortez Journal.com, 9/22/11.	
<b>Crystal River Meats</b>	Illene Pevec – August 2012 convening of ranchers follow-up to 2012 FTS Advocacy Event.	Yes
<b>Cunningham Orchards</b>	Report on local purchases by Delta County Joint School District no. 50	Yes
<b>Dicamillo Farms</b>	Report on local purchases by Delta County Joint School District no. 50	Yes
<b>Di Santi Farms</b>	Denver Public Schools – Colorado Proud School Meal Day	
<b>Eagle Tree Farm</b>	Colorado Market Maker	Yes
<b>Ela Family Farms</b>	2011-12 COFTS Producer Survey	
<b>Floyd Farm</b>	Montezuma-Cortez Re-1 – Colorado Proud School Meal Day as reported in the Cortez Journal.com, 9/22/11.	
<b>Fossil Creek Farm</b>	Greeley/Evans School District website; Colorado Market Maker; 2011-12 COFTS Producer Survey	
<b>Four Seasons Nursery</b>	Montezuma-Cortez Re-1 – Colorado Proud School Meal Day as reported in the Cortez Journal.com, 9/22/11.	
<b>Fritchman Orchards</b>	Report on local purchases by Delta County Joint School District no. 50	Yes
<b>Full Circle Farm</b>	Greeley/Evans School District website	
<b>Garden of Weeden</b>	Montezuma-Cortez Re-1 – Colorado Proud School Meal Day as reported in the Cortez Journal.com, 9/22/11.	
<b>Gates Orchards</b>	Report on local purchases by Delta County Joint School District no. 50	Yes
<b>Gosar Mountain Mama Flour</b>	San Luis Valley Health.org	
<b>Grant Family Farm</b>	Greeley/Evans School District website; 2011-12 COFTS Producer Survey	
<b>Harold Clay</b>	Report on local purchases by Delta County Joint School District no. 50	Yes
<b>Hayes Ranch</b>	Montezuma-Cortez Re-1 – Colorado Proud School Meal Day as reported in the Cortez Journal.com, 9/22/11.	
<b>Isabelle Farm</b>	2011-12 COFTS Producer Survey	
<b>Kiowa Valley Organics</b>	Greeley/Evans School district FSD	Yes
<b>KW Farms Organic Grass Finished Ground Beef</b>	San Luis Valley Health.org	
<b>Leffler Family Farms</b>	Greeley/Evans School District website; Colorado Market Maker	
<b>May Farms</b>	2011-12 COFTS Producer Survey	Yes
<b>Mattics Orchards</b>	Growing Farm to Cafeteria: West Slope Summit	Yes
<b>McCraken Farms</b>	Report on local purchases by Delta County Joint School District no. 50	Yes

Farm/Ranch	Source	New to FTS in 2012
<b>McElmo Melons</b>	Montezuma-Cortez Re-1 – Colorado Proud School Meal Day as reported in the Cortez Journal.com, 9/22/11.	
<b>Milberger Farms</b>	Colorado Market Maker	
<b>Nancy’s Garden</b>	Montezuma-Cortez Re-1 – Colorado Proud School Meal Day as reported in the Cortez Journal.com, 9/22/11.	
<b>Nature Fresh Organics</b>	Valley Courier, Oct. 25, 2012, article “Valley celebrates National Food Day.”	Yes
<b>Orchard Valley</b>	Report on local purchases by Delta County Joint School District no. 50	Yes
<b>Parker Pastures</b>	Growing Farm to Cafeteria: West Slope Summit	Yes
<b>Paul Thliveris</b>	Report on local purchases by Delta County Joint School District no. 50	Yes
<b>Potter Farms</b>	Colorado Market Maker	
<b>Ranch Food Direct</b>	Denver Public Schools; Mike Callicrate, owner	
<b>Red Shed Produce</b>	Colorado Market Maker	
<b>Roan Creek Ranch</b>	Colorado Market Maker	Yes
<b>Rockey Farm</b>	Valley Courier, Oct. 25, 2012, article “Valley celebrates National Food Day.”	Yes
<b>Rock River Ranches</b>	Colorado Market Maker	
<b>Roger’s Mesa Fruit</b>	Report on local purchases by Delta County Joint School District no. 50	Yes
<b>Round Earth</b>	Report on local purchases by Delta County Joint School District no. 50	Yes
<b>Seven Meadows Farm</b>	Montezuma-Cortez Re-1 – Colorado Proud School Meal Day as reported in the Cortez Journal.com, 9/22/11.	
<b>Sinton Dairy</b>	Denver Public Schools – Colorado Proud School Meal Day	
<b>Southern Colorado Farms</b>	Valley Courier, Oct. 25, 2012, article “Valley celebrates National Food Day.”	Yes
<b>Stahley Melons</b>	Colorado Market Maker	Yes
<b>Steel Wheel Farms</b>	Montezuma-Cortez Re-1 – Colorado Proud School Meal Day as reported in the Cortez Journal.com, 9/22/11.	
<b>Taylor Farms</b>	Denver Public Schools – Colorado Proud School Meal Day	
<b>Two in Tents</b>	Colorado Market Maker	
<b>Wacky Apple</b>	Greeley/Evans School District website	
<b>White Mountain Farm</b>	San Luis Valley Health.org	
<b>Wise Acres Greenhouse</b>	Greeley/Evans School District website	

**Colorado MarketMaker**

The number of producers listing in their [Colorado MarketMaker](#) profile “farm to school” as a market they want to sell to nearly doubled since last year, from eight producers to 15. However, this functionality is still underutilized by producers. There are producers we know are selling to schools that are on MarketMaker but have not used the FTS market category in their profile, and there are producers who are selling to schools that do not have a MarketMaker profile. The 15 on MarketMaker represents 26% of the producers we know are selling to schools (n=57).

The number one question schools new to considering farm to school is “how do I find producers who will sell to me?” Colorado Market Maker is an important online resource for providing this information and is currently underutilized.

**Table 6.** Producers using the new “Farm to School” method of sale on Colorado MarketMaker, 2011-2012 (n=15) (Please note that the information in these tables reports the categories of products schools indicated they are interested in buying as they listed in Colorado MarketMaker (CMM) and the types of products sold by producers who want to sell to schools as they listed in CMM. No SCBGP funds were used to promote non-specialty crop products or Colorado MarketMaker on this project.)

Products Sold	Producers	New in 2012
<b>Vegetables</b>	Austin Family Farm	X
	Bolton's Orchards	X
	Circle Fresh Farms	
	Eagle Tree Farm	X
	Ela Family Farm	X
	Fossil Creek Farms	
	Leffler Family Farms & Local Motion CSA	
	Milberger Farms	
	Red Shed Produce	
	Stahley Melons	X
	Two in Tents	
<b>Specialty Products</b>	Eagle Tree Farm	X
	Two in Tents	
<b>Dairy</b>	Two in Tents	
<b>Fruits &amp; Nuts</b>	Austin Family Farm	X
	Bolton's Orchards	X
	Ela Family Farm	X
	Fossil Creek Farms	
	Red Shed Produce	
	Stahley Melons	X
	Two in Tents	
<b>Grains</b>	Two in Tents	
<b>Herbs</b>	Fossil Creek Farms	
	Two in Tents	
<b>Meat &amp; Poultry</b>	Colorado's Best Beef Company	X
	Eagle Tree Farm	X
	Potter Farms	
	Roan Creek Ranch	X
	Rock River Ranches	
	Two in Tents	

While there are not many producers listing farm to school as a market of interest in their profile, there are even fewer school districts that have created an institutional buyer profile on Market Maker. In 2011, there were eight districts with profiles. Only two more districts created profiles in 2012, for a total of 10 (out of 178) school districts on MarketMaker. This represents 16% of the districts that are engaged in FTS activities (n=63).

**Table 7.** School Districts using the Institutional Buyer “Farm to School” identifier on Colorado Market Maker, 2012 (n=10)

School Districts	Products wanting to Buy	New in 2012
Adams County School District 50	Fruit & Nuts, Grains, Meat & Meat Products, Vegetables	Yes
Alamosa School District	Fruit & Nuts, Grains, Herbs, Vegetables	
District 11 Food and Nutrition Services	Dairy, Fish/Shellfish/Seafood, Fruit & Nuts, Grains, Herbs, Meat & Meat Products, Specialty Products, Vegetables	
Northern Colorado Coop	Not specified	
Poudre Valley School District	Not specified	Yes
St. Vrain Valley School District	Dairy, Fruit & Nuts, Grains, Meat & Meat Products, Vegetables	
WCSD RE-1 (Gilcrest, CO)	Fruit & Nuts, Vegetables	
Weld County School District (Greeley, CO)	Dairy, Fruit & Nuts, Grains, Herbs, Meat & Meat Products, Vegetables	
Weld County School District RE3J (Keensburg, CO)	Grains, Herbs, Meat & Meat Products, Vegetables	
Weld RE-7 Platte Valley Schools	Fruit & Nuts, Grains, Herbs, Meat & Meat Products, Vegetables	

**Beneficiaries:**

The primary beneficiaries are school districts and producers, particularly those that had not yet developed contracts related to FTS, or had even been aware of FTS opportunities at all.

While COFTS activities alone cannot be credited with a significant increase in contracts between Colorado producers and nearby school districts, COFTS activities regarding school districts have been credited with increasing awareness of where and how to identify producers; increasing awareness of what is “allowed” or not in terms of local purchasing; demonstrating to districts how to identify internal opportunities to include more local produce; and, increasing district knowledge and awareness of the benefits of working with local producers. This year’s FTS Advocacy Events coupled with follow up Regional Convenings by the FTS Task Force have resulted in measureable increases in FTS contracts.

For producers, the benefit of these activities has been an opening and expansion of new, consistent markets with large institutional buyers – area school districts. Precise economic benefits to Colorado producers are still being calculated but each year brings more interest from more producers in securing school district contracts because of the significant, consistent income they provide, as well as other community benefits and new partnerships. This year we saw a clear increase in the number of producers who sold to schools as well as increased visibility of producers at FTS events.

The Colorado Farm to School Task Force has benefitted greatly from the COFTS project generally and specifically from the coordinated efforts undertaken in Year 3 of the COFTS.

COFTS has made numerous resources available to schools and producers across the state through its website and presence at multiple events and conferences. This makes a true estimate of the number of beneficiaries difficult, but it easily far exceeds our known partners.

**Lessons Learned:**

Each year of this project has brought much learning to the COFTS staff, which has informed the work activities for the following year. The major lesson learned in Year 3 came out of the FTS Advocacy Event and follow up activities. We learned that customized in-person technical assistance to a whole community rapidly leads to new FTS activities. We used a multi-step approach which resulted in moving each of the communities into new producer/school contracts within a few months. The approach consisted of:

1. Survey to *Request Regional FTS Advocacy Event* resulted in communities/regions self-identifying themselves as ready to start farm to school.
2. Calls to the person/people who requested a convening to determine their needs and readiness to do a regional FTS event.
3. Formal pre-event survey to collect specific information about the people and organizations that would be attending, the work they had already done to help support FTS, the type of assistance they needed to move forward on FTS.
4. Conduct the FTS Advocacy Event in partnership with local community leaders.
5. Create with the local community leaders a set of “Next Steps,” which included items for the community to do and items COFTS could do.
6. Follow through on “Next Steps,” which lead to the implementation of FTS activities.

We continued to learn new ways to communicate with our key stakeholders. The webinar series has been well-attended and the Q&A at the end of each webinar demonstrates the usefulness of having virtual live presentations. We also know from the number of post-webinar viewings that archiving the webinars is serving as ongoing resources.

We are fortunate to have an entity that will continue statewide farm to school work in Colorado. The Task Force, while its charge is different from the work of COFTS, is doing work that follows upon and expands COFTS. The FTS Information Hub launched by the Task Force is a professionally designed and multi-functional version of the COFTS website. The Task Force’s regional convenings and intensive technical assistance in 2013 will be conducted with the communities that have had the FTS Advocacy Events. These communities are well positioned to move their school districts toward institutionalizing farm to school, making FTS business as usual all year round.

The most challenging component of the COFTS has been incorporating farm to school and/or food systems curriculum into K-12 schools. In year one, we identified a variety of FTS curriculums; however, most were piecemeal and untested except for those that charged a substantial fee. The Colorado Foundation for Agriculture produces a curriculum enhancement called the *Colorado Reader*. We identified seven *Colorado Reader* editions that address agricultural issues directly relevant to farm to school. We know from interviewing teachers who use the Readers that the units are a good companion to farm to school efforts occurring at a school, and that the students have a variety of hands on experiences through Reader activities. The *Colorado Reader* reaches over 1400 classrooms per month. In Year 2, 36 of the 41 school districts (88%) sourcing locally had at least one school within their district using the *Colorado Reader* lesson plans. In Year 3, we moved beyond the Colorado Reader and tried to acquire a SCBG to fund the development of FTS curriculum focused on Colorado crops and climate and tied to the new Colorado State Education Standards. We did not land the grant. We have

identified several more curriculums that districts could use but those that have been validated cost money and require significant classroom time. Schools with tight budgets are unlikely to buy these curriculums and teachers under pressure to ensure their students perform well on the state standardized tests are unlikely to adopt lesson plans that are not clearly connected to the state educational standards. We believe that the most effective way for food system/farm to school curriculum to be integrated into schools is twofold: (1) develop or adapt existing curriculum to Colorado's crops and state education standards; and (2) have the curriculum introduced to new teachers in training at universities, who will then be more likely to have an interest in implementing it in their own classrooms.

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## **Promotion of Colorado Certified Seed Potatoes – Final Report**

The Colorado Certified Potato Growers Association (CCPGA) expanded promotional efforts aimed at developing and expanding sales of both existing and new seed potato cultivars to potato growers throughout the United States.

### ***Project Summary:***

Colorado's potato industry, through its investment in potato breeding research, has been successful in developing new cultivars released in the 2010 growing seasons. The Mesa Russet, and others released in 2010, presented significant opportunities for CCPGA members to expand sales of Colorado seed potatoes. Developing sales of these new cultivars is critical to Colorado's seed potato producers as sales of more established cultivars such as the Norkotah Russet have declined in recent years because of an increasing susceptibility to disease.

While Colorado ranks among the nation's top five potato producing states, Colorado is not often "top-of-mind" among potato growers across the United States as a supplier of seed potatoes. As such, CCPGA intensified its advertising and industry trade show efforts to drive sales of both existing and new cultivars, as well as to build greater "top of-mind" awareness among potato growers that Colorado is a reliable and quality supplier of seed potatoes. Advertising is seen as an important element to developing awareness among potato growers, and participation in the industry trade shows serves to put Colorado seed potato producers in direct contact with prospective customers.

Advertising was targeted in potato industry publications such as Potato Country, Spudman, Farm & Ranch, Potato Grower, and the Columbia Basin Journal. For maximum effectiveness, advertising was placed in editions published during the fall and winter months when producers select seed potatoes for the upcoming growing season. The advertising was supported by participation in industry trade shows including, but not limited to, the Potato Expo, the PMA Fresh Summit Expo, and various state and regional potato grower trade shows.

### ***Goals and Outcomes Achieved:***

The main goal was to make buyers aware that the Colorado Certified Potato Growers Association is a major player in the potato industry and that they are a leader in potato cultivar development. Our certified potato seed is some of the very best to be found anywhere in the United States.

The outcome was achieved by increased advertising in the various potato trade magazines and attendance at the trade shows throughout the United States. The trade shows that we attended were: PMA, Potato Expo, Montana Trade Show, Idaho Trade Show, Washington Trade Show, Colorado Trade Show, and the Central & South America Trade show held in Denver or Las Vegas. As buyers attended and saw our booth with over 40 different potato cultivars displayed, they all stated that they had no idea that Colorado was a leader in the Potato Seed Industry along with the potato industry. This was the perception that we, Colorado, fight continually. Idaho spends millions promoting their potatoes, while Colorado has a very limited budget to get our message across, but it is improving with each year. This is due to the grants like this one, which allows us to use additional advertising, trade shows, equipment, and cultivar development.

**Canela Russet**

The baseline data sheet shows some successes and failures. Even though the Canela Russet showed a drop in sales for the 2011 season, it is felt by the industry that it will continue to grow in sales for future years. The main reason for the drop in sales was due to a dry-rot problem. This was caused by not allowing the Canela Russet to mature out before harvest. If fertilizer is applied too late in the season, the Canela will not have time to mature, thus causing a dry-rot problem. Through education at the trade shows and literature, we feel we are back on the right path with this cultivar.

**Mesa Russet**

The Mesa Russet has shown a slight increase in sales from 2010 to 2011, but went down in 2012 due to virus. This particular cultivar picks up the mosaic virus easily, which has caused growers to be careful about expanding volume with this particular cultivar. The buyers have indicated that it is one of the most beautiful cultivars on the market. From all indications from the CCPGA growers, it will rebound for the 2013 season due to generation seed that is available.

**C099100-1RU**

This particular cultivar has been named the Crestone. It does pick up the mosaic virus easily, but it is visible and can be rogued out. The most important point for this cultivar, is that it is very early, 85 to 90 days, thus allowing the growers to hit the early market with this cultivar, which usually results in an extra \$3.00 per cwt. University researchers at Texas A&M reported being able to begin “killing” the C099100-1RU after about 77 days and that the cultivar stood up very well against heavy psyllid pressure common to Texas production areas.

**C099053-4RU**

The C099053-4RU was dropped, but replaced by the C099053-3RU. When comparing the two cultivars, the C099053-3RU is much smoother and has a greater yield than the C099053-4RU. The C099053-3RU has been named San Juan Russet and has attracted significant interest from retailers, particularly SunRain of Canada, seeking exclusive agreements to market the cultivar. The ability to showcase the variety at trade shows made it possible for new customers to see new varieties and negotiate new sales.

Desired Outcome	Performance Measured	Baseline	2010	2011	2012
Expand sales of Canela	Sales Volume as reported by CSU	48,338 cwt in 2009	73,084 cwt	56,390 cwt	37,382cwt
Expand sales of Mesa	Sales Volume as reported by CSU	Released in 2010	8,520 cwt	9,467cwt	114 cwt
Expand sales of C099100-1RU	Sales Volume as reported by CSU	Released in 2010	47.4 cwt	1,361cwt	1,351.7 cwt
Expanded sales of C099053-4RU	Sales Volume as reported by CSU	Released in 2010	NA	Cultivar Dropped	NA

***Beneficiaries:***

The beneficiaries of this grant are the Colorado Certified Seed Growers. We currently have 40 different seed growing operations in our Association which employs hundreds of people. We sell millions of dollars of seed and commercial potatoes throughout the year.

The results that cannot be measured, but that had the greatest value from this project is the exposure that it has allowed through additional advertising and trade shows. For example, marketing agreements have been signed with Albert Bartlett and Green Giant on particular cultivars. This is due to the additional money that the grant provided. The Little Potato Company of Canada found us at the Potato Expo and has been to the San Luis Valley three times looking at our cultivars and looking to set up part of their operation here in the future. Two major retailers found us in Atlanta at PMA last year and are interested in the Masquerade cultivar for their retail shelves. The largest organic grower of russets and a different organic grower of fingerlings found us in Atlanta and are looking at contacts with some of our growers. At the 2012 PMA show in Anaheim, CA, a large Quebec retailer indicated their desire to try several of our cultivars. Again, we emphasize exposure. Without exposure, which this project provided, none of these organizations and people would have found us. I know that you cannot measure exposure in dollars, but it has and will result in Colorado moving forward in the potato seed and commercial market.

***Lessons Learned:***

I believe the lesson learned from this grant is the need to continue to press forward at the trade shows and advertising to place Colorado's name and their products before the buyers. The more exposure we have, the greater the opportunity to move our seed and commercial potatoes. The unexpected outcome is the number of companies that have found us and want to develop a working relationship with us.

When looking at the Measureable Outcome Chart, it shows that sales have been dropping instead of increasing. This is true now, but the Association feels very strongly that each of these cultivars will be a major player in the market. It takes time, know-how and trial and error to develop cultivars.

The contacts that have been made through this project have increased the exposure of Colorado seed potatoes. Successful development of the industry will continue well into the future.

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## **Colorado Pavilion at PMA Fresh Summit – Final Report**

**Project Summary:** The *Colorado Pavilion* at the PMA show provides the most cost efficient and effective means to help our produce growers enhance their market competitiveness, as well as maintain and expand their current customers and sales. The Colorado Pavilion began in 2008 and is now an ongoing marketing initiative with increasing participation of Colorado’s produce industry and as a focal point for the promotion of Colorado produce to the U.S. and international markets. The primary objectives include:

- Supporting our produce growers by creating an expanded venue to promote their individual production and sales.
- Demonstrating to the Colorado produce industry the benefits of marketing under a broader umbrella of “Colorado” to expand their customer’s acceptance of Colorado as a produce state.
- Assisting our exhibiting companies to expand and/or initiate export sales by “Internationalizing” their domestic trade show presence.
- Increasing the awareness of produce buyers throughout the U.S. and the world of Colorado as a produce supplier state.



The Colorado Pavilion has developed strong graphics which has created a recognizable image at the Fresh Summit Show. Individual company signage is hung by each participant’s booth. The addition of the on-site conference room is appreciated by the exhibiting associations and companies. (The conference room is under the 16 foot Colorado signage.)

The 2010 Colorado Pavilion at PMA’s Fresh Summit was a continuation of the efforts in 2008 and 2009 which were also funded by grants. Each year industry participants provide feedback on what worked and what did not work to refine the Colorado Pavilion to improve the next year.

The goals of the *Colorado Pavilion* project are to increase sales for each of the participating growers, increase the US and international awareness of Colorado as a produce region and provide support and assistance to the participating commodity groups. While immediate sales are the best outcome, a more realistic objective is to increase the contacts Colorado producers establish with buyers in the U.S. and global markets. Other objectives include increasing the U.S. and global industries’ perception of Colorado as a ‘produce’ state, and fostering future cooperation of the Colorado produce industry to look at future joint trade promotional opportunities.

**Project Approach:** The Colorado Department of Agriculture (CDA) coordinated the development of a *Colorado Pavilion* at the PMA 2010 Fresh Summit Exposition held in Orlando, FL October 15-18. The Pavilion provided needed marketing support to produce growers by creating an expanded venue to promote their individual production and sales. Additionally, the Pavilion continued to help create greater awareness among produce buyers of Colorado as a

supplier of a wide array of fruits and vegetables, encourage broader industry participation in the Expo and assist exhibiting companies to initiate and/or expand export sales by internationalizing their domestic trade show presence.

CDA determined not to conduct the planned pre-show advertising in “The Packer” and “The Produce News” as was done in 2009. Feedback reports indicated that all PMA participants did not equally value the advertising done. Instead, the funds for advertising were allocated to a larger customer meeting space. The option for pre-event advertising was left up to the individual exhibitors. We did advertise within the Perishable Pundit internet newsletter to bring readers to the [www.coloradoagriculture.com/produce](http://www.coloradoagriculture.com/produce) web site which provides year round links to Colorado produce industry and Colorado Pavilion exhibitors. Collective advertising will be considered again for the 2011 Expo based upon the level of participant interest.

**Goals and Outcomes:**

Performance Measure	Goals	Actual Result		
		2008 (Baseline)	2009	2010
The number of produce associations participating in the Colorado Pavilion	5	3 produce associations	3 produce associations & CDA	3 produce associations & CDA
The number of produce growers and companies participating in the Colorado Pavilion	6	4 produce growers and companies	5 produce growers and companies	6 produce growers and companies
Value of “at Expo” sales reported by produce growers and companies participating in the Colorado Pavilion	\$4.25 million	\$3.7 million	\$4 million	\$3.3 million*

\*The 2010 figure is lower because not all participating companies reported their sales as requested.

Activities completed to achieve goals.

1. Developed Colorado Pavilion to 2010 PMA Fresh Summit.
2. Had 3 commodity groups, CDA and 6 companies with booths for individual promotion.
3. Generated international contacts for Canada, Mexico, Europe, Central America, South America and Russia.
4. One challenge has been to increase association participation. We have the associations representing the majority of produce sales. In 2011 we were able to add one additional association group, representing produce in the Arkansas Valley.
5. We did add one company in both 2009 and 2010. In 2010, one company who had exhibited with the Pavilion went out of business.
6. We will review how we might measure “Awareness of Colorado as a Produce State” in future planning.

**Beneficiaries:** The impact from Colorado Pavilion participation extended primarily to the produce growers and industries exhibiting at the Expo. Participation included Colorado's potato, seed potato, onion and vegetable seed industries as well as dry edible beans and sweet corn. Participants promoted conventional and organic produce. On a broader level, Colorado's specialty crop industry benefited from this project as produce buyers from the U.S. and around the world became more aware of Colorado as a produce supplying state.

With three produce associations booth participation at PMA Fresh Summit, all growers are represented at this event with each booth distributing lists of grower/shippers and encouraging interested buyers to access the association websites. At the 2010 show, we had the following produce associations at this show promoting their growers (with the number of grower/shippers for each association listed).

- Collectively, these exhibitors represented 60 shippers of onions and potatoes in Colorado, which represents 59% of all produce grown in Colorado.
- Colorado Potato Administrative Committee represents 19 individual packing sheds, which market all potatoes from the primary potato production region in Colorado.
- The Colorado Onion Growers Association represents Colorado's 14 onion shippers.
- The Colorado Certified Potato Growers Association represents the 27 certified seed potato growers in Colorado.
- In addition to 8 representatives of the produce associations, we had 6 companies with individual booths that included an additional 29 company representatives at the show (total 37 Colorado individuals within the Colorado Pavilion).

For exports, we track produce exports from Colorado. Data comes from both the U.S. Census data (through World Trade Atlas service) and through analysis of Colorado's phytosanitary certificates issued export exports. The tracking of phytosanitary certificates has been identified as a more accurate report of potato exports to Mexico. Many of the over 1,700 truckloads of fresh potatoes to Mexico are sold to border agents of importing companies. These companies then report their zip code as origin of shipment, resulting in most potatoes reported as being exported from Texas, Arizona and California. A review of phytosanitary certificates issued with weight shipped, and total U.S. potatoes shipped indicate that Colorado supplies 44 percent of total fresh potatoes to Mexico.

The table of exports indicates that maintaining a market is sometimes as hard as growing a market. The increased visibility at PMA and Fresh Summit continue to help Colorado’s produce industry visibility in these key markets.

Colorado Produce Exports	2009	2010	2010	2011
	Jan - Dec	Jan - Dec	Jan-Sept	Jan - Sept
<b>Total Produce Exports (in \$ Value)</b>	\$13.6 million	\$10.6 million	\$7.4 million	\$9.2 million
Total Vegetable Exports	\$13.1 million	\$10.2 million	\$7.2 million	\$8.2 million
Total Fruit and Nut Exports	\$509,000	\$414,000	\$210,000	\$1.0 million
Total Onions and Potatoes	\$3.2 million	\$2.8 million	\$2.5 million	\$1.6 million
<b>Major Markets:</b>				
<b>Canada (in \$ Value)</b>	\$4.2 million	\$2.9 million	\$2.2 million	\$2.0 million
Potatoes	\$2.1 million	\$1.1 million	\$877,000	\$652,000
Mix of dried vegetables	\$551,000	\$537,000	\$478,000	\$209,000
Spinach	\$296,000	\$527,000	\$461,000	\$533,000
Onions	\$194,000	\$366,000	\$276,000	\$385,000
Tomatoes	\$475,000	\$150,000	\$126,000	\$35,000
<b>Mexico (in \$ Value)</b>	\$7.3 million	\$4.1 million	\$3.0 million	\$2.3 million
Dry Beans	\$5.8 million	\$2.1 million	\$1.2 million	\$775,000
Dry Beans (in pounds)	418000**	8.8 million		1.8 million
Dry Beans (in # of shipments)	10**	219		\$41
Potatoes	\$836,000	\$1.2 million	\$1.1 million	\$495,000
Potatoes (in pounds)	16.3 million**	75.1 million		58.0 million
Potatoes (in # of shipments)	390**	1770		1362
Lentils	\$104,000	\$341,000	\$230,000	\$237,773
Small Red Beans	\$0	\$185,000	\$185,000	\$96,000
Onions	\$18,000	\$174,000	\$166,000	\$4,000
Onions (in pounds)	3.17 million	3.7 million		862,000*
Onions (in # of shipments)	64	77		18*
Peas	\$65,000	\$66,000	\$66,000	\$342,000
*Figures are taken from January - November 16, 2011				
**Phytosanitary certificates may not have been issued for all shipments in 2009				

**Lessoned Learned:** Companies must see value in attending the PMA Fresh Summit show. The Pavilion has been an effective tool to increase Colorado’s produce visibility, but it is not seen as an easy new marketing initiative for other shippers. We realize that with the Pavilion, we deliver some value beyond individual booths; however, each company spends over two dollars of their own money for every dollar spent by the Pavilion. Having a booth within the Colorado Pavilion is still a commitment of \$7,000 to over \$10,000 of the individual participant’s funds to attend the event. Increasing and continuing participation would indicate that the companies find value in this expense. For the 2010 show, the in-kind contributions exceeded \$110,000.

Approximately 59 percent of all produce grown in Colorado is represented by exhibiting associations. Other elements of produce have been targeted, however there are only four other existing associations representing produce in Colorado. These associations are contacted about Fresh Summit and Colorado Pavilion options annually, however to date, the small individual sales of the remaining commodities (under \$14 million per commodity) prevent most from adding participation to their efforts.

- There is a Colorado apple association; however this group has struggled with continuing as an association and is not willing to add any new activities.
- There is a Colorado sweet corn association which represents one region of sweet corn production and no association covering the remaining production areas. The two largest sweet corn growers have individual presence at PMA Fresh Summit. One with a booth within the Colorado Pavilion, the second through the grower's third party marketing representative.
- The Colorado Dry Bean Administrative Committee has struggled with decreasing acreage in Colorado and again has no funds or interest to create a new marketing initiative. Dry beans are promoted at the Colorado Pavilion to the individual bean dealers.
- The Colorado Organic Association has struggled with their focus. Some board members want to focus exclusively on the local market and a few are interested in exporting organic produce. Both the Onion and Potato associations include their organic producers in their lists and promotion, further reducing unrepresented organic producers. In 2011, the Colorado Organic Association disbanded to reform within a trade group affiliated with the Rocky Mountain Farmers Union.

In addition to these associations CDA is working to create an association for the melon growers. The listeria outbreak in 2011 caused the growers to focus on an association as well as lead several growers to participate in the 2011 Colorado Pavilion. CDA also continues to discuss with the industry the option to create a "Colorado Produce Association" which could represent the remaining elements of produce in the state.

We are also looking at the new media for promoting Colorado produce to the U.S. and global market. YouTube and blogs are increasingly the source of information for companies and consumers. Our initiative will continue to evaluation these media for opportunities to increase trade and public awareness.

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**Additional Information:**

We placed web ads on trade blogs to review this media as a means to increase industry awareness of Colorado as a produce state. It is difficult to determine if these ads have been effective. We did record significant increased web traffic while these ads were running.



## **Strengthening Colorado's Farmers' Markets – Final Report**

### **Project Summary:**

Colorado's specialty crop farmers are more inclined to participate in their local farmers market if they know what produce is selling for. They also have a realistic base pricing for their produce before they arrive at the farmers market. This base pricing assists all vendors (both experienced and inexperienced vendors) in pricing their products appropriately for the unit, variety and time of year. Too frequently we see new vendors who price their products too low which undercuts the pricing of the other more experienced vendors who base their prices on their costs of production. This situation makes it difficult for the latter to operate profitable businesses in the context of the farmers markets. Over the 2012 market season, we were able to expand our price data collection into some new markets, and collect a time series of price information for each market. Overall, 60% of our 2012 farmers' market price reporting (or 110 weekly market reports) was supported under this Specialty Crop Block Grant, which increased our reporting from 84 reports in 2011 to 183 in 2012, for these same markets.

The reporting process also allowed us to discuss appropriate sales units with vendors who don't know how to package their product (for example, selling products by the handful instead of the pint or the pound). This both improves the consumer shopping experience and helps the vendors to gain business skills. Price reporting also allows consumers to compare prices of local produce with their local grocery store. It is often assumed that the farmers market is much more expensive. Past studies have shown that this is not true and price reporting will allow more consumers to see the value of their local farmers market, making Colorado's producers much more competitive in the marketplace.

Lastly, we are making this price reporting available to the Colorado Department of Public Health and Environment and local public health agencies who work with lower income populations to demonstrate how those populations can affordably access fresh produce at farmers markets and help educate them in preparing and preserving fresh produce (CSU Extension has active Food Safety, Master Gardener and Master Food Preserver programs present at many farmers markets throughout the state.).

The mini-grant program allowed us to: 1) test different ways of increasing traffic and visibility at several farmers' markets that feature specialty crops; and 2) encourage different populations to attend and shop at these markets. These promotional methods included:

1. Chef demonstrations and a cooking challenge at the Colorado Farm and Art Market in Colorado Springs;
2. Offering a dollar-for-dollar matching program to SNAP recipients who use \$1.00 in benefits from their account at the Larimer County Farmers' Market; (No Specialty Crop funds were used for the purchase of non specialty crop products.)
3. An Eat Local campaign at the Crested Butte Farmers' Market to directly increase sales of specialty crops to consumers and restaurants;
4. Promotion to educate and motivate the Telluride area's SNAP/EBT population to use the Telluride Farmers' Market's new SNAP/EBT program to purchase specialty crops.

Each specific mini-grant project had its challenges and successes and, overall, permitted the markets to test how they could improve attendance at their markets among the general market-going population, as well as among targeted lower income populations, by focusing on specialty crops. Given the dynamics of each market, it appears that promotional activities that require the least additional staff time on a market day and offer a take-away for the participants (drawing for

produce, recipes) are more successful in increasing overall market traffic. On the other hand, changing shopping behavior among lower income populations by encouraging them to purchase fresh fruits and vegetables at farmers' markets, requires a longer time frame (several market years) and a more systematic approach to outreach (i.e., the involvement of Larimer County SNAP educators).

***Project Approach:***

*Colorado Farmers Market Association Annual Meeting*

CFMA's annual meeting provides an opportunity for market managers to learn about issues affecting farmers' markets, hear from industry experts, and learn from other operators about marketing strategies to attract both producer vendors and customers. In the past only about one-third of farmers' market operators regularly attend CFMA's annual meeting. In general, travel time and costs were most commonly noted as the reasons for not attending. Specialty Crop funds were used to encourage markets to attend the annual meeting by bringing in keynote speakers and covering some travel costs for attendees.

The keynote speaker for the 2010 Annual Meeting was Adrian Card, a representative from the Colorado State University Extension Building Farmers Program. Adrian works with beginning farmers and spoke about how those new specialty crop producers can become successful vendors at farmers' markets. In 2011 the speaker was Darlene Wolnik, from Market Umbrella, a national farmer's market management support organization. Darlene provided markets with fiscal capacity building tools to help generate funding resources for farmers markets and gave a presentation on maximizing SNAP benefits at farmers markets to increase revenues for specialty crop producers and the market. Both keynote speakers drew crowds above expectations and their presentations were very well received.

Travel support to the annual meeting in the spring of 2010 was awarded to all CFMA member markets that completed a travel stipend request form. The stipends subsidized 30 members; with an average travel distance of 262 miles. Unfortunately member markets located in rural communities were underrepresented. Conversations with representatives from markets who did not attend the meeting indicated that the hotel costs and matching fuel costs would have come from their personal budgets, due to lack of funding resources generated by their markets. Despite lower participation from rural markets, attendance at the 2010 and 2011 meetings was well above the baseline and goal.

*Price Reporting and Mini Grants*

This is the third year that Colorado State University (CSU) has conducted price reporting in a set of Colorado farmers' markets. The first year involved three farmers' markets along the Front Range, while the following year in 2011, CSU Extension expanded reporting to 13 markets. In 2012, the Specialty Crop Block Grant allowed Extension to maintain a total of 13 markets and expand the timeline over which the reporting occurred. This meant capturing early season price variability and product availability which are critical to specialty crop producers looking to enter new markets. Overall the initial goals of the price reporting component of this project were to help agricultural producers:

- understand how price points for specialty crops differ by market,
- see what products are available in other markets, and
- plan for future production by better estimating their potential revenue from the products they grow.

For 2012, CSU Extension tried to identify key markets that had both product variety, geographic diversity and the potential for providing important price information for agricultural producers growing specialty crops. In particular we expanded our price reporting to include two Western Slope markets (Grand Junction and Palisade) which are located in an important fruit and vegetable growing area, and Pueblo which is our southern-most market along the Front Range and also in an important vegetable growing area—the Lower Arkansas Valley. Perhaps the greatest value to the project was the ability to capture more weekly price data which better reflects price and product variability that is key to helping producers plan for direct marketing. The table below summarizes CSU Extension’s 2012 price reporting activity through September 30, 2012 with highlighting to indicate activities funded through the Specialty Crop Block Grant:

Market	County	Region	Start Date	End Date	Total Number of Weekly Reports Collected	
					2012	2011
Alamosa	Alamosa	San Luis Valley	July 21	Sept 29	10	9
Boulder	Boulder	Northern Front Range	May 12	Sept 29	15	12
Longmont	Boulder	Northern Front Range	May 12	Sept 29	16	10
Drake Road	Larimer	Northern Front Range	April 29	Sept 29	16	1
Old Town	Larimer	Northern Front Range	May 19	Sept 29	16	7
Golden	Jefferson	Central Front Range	June 23	Sept 29	14	11
Grand Junction	Mesa	West Slope	June 21	Sept 20	13	2
Palisade	Mesa	West Slope	July 1	Sept 30	11	5
Greeley	Weld	Eastern Colorado	May 19	Sept 22	12	7
Havanah	Denver/ Arapahoe	Central Front Range	June 18	Sept 24	15	0
Highlands	Denver	Central Front Range	June 2	Sept 29	18	9
Pueblo	Pueblo	Arkansas Valley, Southern CO	July 27	Sept 28	8	0
South Pearl	Denver	Central Front Range	May 20	Sept 30	19	11
<b>Total</b>					<b>183</b>	<b>84</b>

Therefore, 60% of our 2012 farmers’ market price reporting (or 110 weekly market reports) was supported under this Specialty Crop Block Grant, representing a significant expansion over the 84 reports we collected in 2011, for these same markets. The additional benefit is the availability of time series data for each market that helps producers understand and track how prices and units may change throughout the season, from low market supply/high market price to higher market supply/lower market price. Furthermore, some markets have less seasonal price variability than others, and this is important for producers to factor into their production and market planning.

Logistically, the farmers’ market price reporting is conducted by hiring and training surveyors to visit each market once per week, and record all the fruit and vegetable prices for each vendor present. To simplify the recording and presentation of the data, some surveyors used iPads, and all were instructed on how to record the data in the most standardized units for that market. The use of more standardized units throughout each market improves the consumer shopping experience (consumers can better compare prices at different vendors for the same unit of product) and helps the vendors to gain business skills (since they can better track their sales by pounds or bunches, and better organize their sales records). Standardization also helps compare prices across multiple markets throughout the season.

Another important aspect is understanding how producers are identifying and marketing their fruits and vegetables. To this end, we identified three different potential certification types that producers might use to differentiate their products in the marketplace:

1. USDA Certified Organic;
2. Any other specialty certification pertaining to product’s production (first, second or third party certified); and
3. No certification, meaning that the product has no specific certification associated with its production.

Each week surveyors recorded the prices presented by the producers in each market, by production practice, by unit, and then CSU Extension compiled the prices into a weekly report, and for each market, featuring the average price across all vendors selling each product, the lowest price per product and the highest price per product. The table below provides an example of a portion of one week’s price report:

**Market Price Report for South Pearl — Sunday September 30, 2012**

Product	Production practice	Unit of sale	Lowest price	Highest price	Average price
Apples	No cert	Pound	1.20	2.14	1.67
Apples	USDA	Pound	3.00	3.00	3.00
Arugula	Cert	Bag, 10 oz	4.00	5.00	4.50
Basil	Cert	Bunch	2.00	3.00	2.50
Beans, dry	Cert	Pound	1.20	3.00	2.10
Beans, dry	No cert	Pound	3.00	3.00	3.00
Beans, green/bush	Cert	Pound	2.50	4.00	3.25
Beets	Cert	Bunch	2.50	3.00	2.75
Cabbage	No cert	Head	2.00	3.00	2.50
Carrots	No cert	Bunch	1.00	1.00	1.00
Carrots	Cert	Bunch	3.00	5.00	4.00
Chard	Cert	Bunch	2.00	2.00	2.00
Corn, sweet	No cert	Each	0.25	0.25	0.25
Cucumbers, slicing	Cert	Each	0.50	1.00	0.75
Cucumbers, slicing	No cert	Each	1.00	1.00	1.00

County CSU Extension offices were important partners in executing this portion of the project, as were the market managers themselves who both facilitated the work and made the results available to producers interested in using the market reports.

The goal of extending mini-grants to various, qualifying farmers' markets was to use the remaining available mini-grant funding to: 1) test different ways of increasing traffic and visibility at several farmers' markets that feature specialty crops; and 2) encourage different populations to attend and shop at these markets. These promotional methods included:

1. Chef demonstrations and a cooking challenge at the Colorado Farm and Art Market in Colorado Springs;
2. Offering a dollar-for-dollar matching program to SNAP recipients who use \$1.00 in benefits from their account at the Larimer County Farmers' Market;
3. An Eat Local campaign at the Crested Butte Farmers' Market to directly increase sales of specialty crops to consumers and restaurants;
4. Promotion to educate and motivate the Telluride area's SNAP/EBT population to use the Telluride Farmers' Market's new SNAP/EBT program.

The above-noted markets applied for and received mini-grants in the spring of 2012, with each market receiving a \$400 mini-grant targeted at specific project objectives. Each project's success was measured against these objectives. An overview of each funded project, as well as its respective successes and challenges, is provided in the goals and outcomes section below.

***Goals and Outcomes Achieved:***

This project allowed us to collect time series price data in 13 different Colorado farmers' markets over the 2012, resulting in 183 market reports made available from April through September 2012. The value of this project cannot be underestimated—price data are very difficult for agricultural producers to obtain as there is no place where farmers' market data is collected and recorded. Markets are all managed differently and market managers are too busy organizing and operating the market to collect this sort of information. Furthermore, they this information has no value to them as managers, only to the producers and other vendors, as well as consumers, who attend the market. The costs of collecting this information would be extremely high for any one individual, therefore, CSU Extension offers these data as a planning tool for Colorado farmers' market producers and consumers and to make the information readily accessible.

**Mini-Grant #1—Colorado Springs, El Paso County:**

The Colorado Farm and Art Market (CFAM) in Colorado Springs used \$400 in mini-grant funding from the Specialty Crops Block Grant to increase local food awareness and education at the market in 2012. They developed two different educational projects: 1) 17 chef Cooking demonstrations, and 2) one chef cooking challenge.

a. Chef Cooking Demonstrations:

The Chef Cooking Demonstrations were considered highly successful at the market. CFAM featured Chef Heather Mitchell, a certified natural chef, who committed to attending as many markets as possible during the season and providing cooking demonstrations and food samples at the information booth. She also provided a weekly nutrition segment and a coordinated recipe that the market included in its weekly email newsletter which goes out on Wednesday mornings to a list of 1,250 people. CFAM featured the following produce at the market during its chef cooking demonstrations:

Date	Produce Featured		Date	Produce Featured
6/13 (Weds)	Garlic Scapes		8/8 (W)	Zucchini
6/20 (W)	Lettuce		8/15 (W)	Cucumbers
6/23 (Sat)	Lettuce		8/29 (W)	Peppers and Corn
7/11 (W)	Beets		9/1 (S)	Peppers and Corn
7/18 (W)	Cabbage		9/5 (W)	Melons
7/21 (S)	Cabbage		9/12 (W)	Rained out
7/25 (W)	Corn		9/19 (W)	Pepper varietal tasting
8/1 (W)	Kale		9/22 (W)	Pepper varietal tasting
8/4 (S)	Kale			

At each demonstration, the question was asked of attending participants “Do you intend to purchase the featured produce in this recipe?” The response was overwhelmingly positive at 92% of respondents answering “Yes, I intend to purchase the featured produce.”

Initially CFAM set out to ask more questions, but quickly found that one was sufficient and easy enough to ask and keep track of the answers. More questioning was burdensome to the customers, as well as the chef and Information Booth workers trying to keep track. Verbal questioning worked much better for the market staff than having participants record their responses on paper.

The chef was reimbursed for supplies for the demo as well as paid a \$25 daily market fee in Market Bucks, or vouchers that could be spent at the market only. On average, the market registered 45 people coming to taste the recipe of the day—41 of whom, on average—said they intended to purchase the featured produce. The market management considered this level of customer participation successful and indicated that they would definitely consider have chef cooking demonstrations next year at the market.

**b. Chef Cooking Challenge:**

The Chef Cooking Challenge project was more of a management challenge for the market, and they were only able to host this event one time during the season, due to a low response rate from chefs in the community who were willing to participate.

The challenge was conducted on September 1, 2012 and featured Tyler Peoples from 2 South Wine Bar and Ben Miles of The Margarita at Pine Creek. The chefs were each given \$40 in Market Bucks to procure supplies, and given 15 minutes to contemplate a dish and shop for ingredients at the market. The chefs were then given 30 minutes to prepare the dish, and were then judged by a panel of 3 judges who were food-oriented community members. The dishes were judged based on taste, presentation, and originality. Tyler People’s dish won out by a hair. The chefs were each given an additional \$25 each in Market Bucks. The chefs were planning on giving the market the recipes they made so those recipes could be featured on the market webpage and in its email newsletter.

There were approximately 100 people who attended the Chef Cooking Challenge, although not all of them stayed for the entire event. The market management did not survey those who attended due to a lack of staff available to do so. In sum, the event was entertaining, but it was unclear whether it had any impact on purchases made at the market, or any impact on local food education. It is unlikely that the Colorado Farm and Art Market will repeat this event in future years.

**Mini-Grant #2—Fort Collins, Larimer County:**

For the last six seasons, the Larimer County Farmers’ Market (LCFM) has accepted food stamps as currency from customers who qualify for this federal food assistance program. The first season (2007), a total of \$755 in food stamp coupons were spent by customers, an average of \$50/week. By 2011, this number had increased to a total of \$3,346, with an average of \$197/week. The LCFM used its grant from the Colorado Farmers’ Market Association to match SNAP coupons of up to \$10 (with a \$10 original withdrawal, the customer would receive \$20 in coupons). Therefore, over the project period, the Larimer County Extension Office matched its CFMA grant of \$400 to provide a total of \$800 available for disbursement to SNAP customers during the 2012 market season.

**Six weeks (out of the project’s 10-week period) supported by LCFM’s mini-grant**

	2012	2011	2010
Aug 11	240	665	229
Aug 18	110	77	97
Aug 25	100	70	117
Sep 1	150	16	387
Sep 8	130	682	580
Sep 15	175	122	188
<b>Totals</b>	<b>905</b>	<b>1,632</b>	<b>1,598</b>

\*This total does not represent the season total, rather the total over the grant disbursement period.

On average, LCFM had 10 SNAP customers per week, but this varied from 7 to 14 customers, depending on the week. Since the \$400 mini-grant helped to establish behavioral patterns on the part of Larimer County’s SNAP customers (that is, they began shopping at the farmers’ market, and then continued to do so throughout the market season), the table below summarizes how LCFM’s 41 SNAP participants engaged in 97 transactions over the 10 weeks.

**SNAP participants by transaction level, LCFM**

Level of transactions made over 10-week project period	Number of individuals who made that number of total transactions	Total number of transactions made, by transaction level
1	27	27
2	5	10
3	4	12
4	1	4
7	2	14
10	2	20

One LCFM SNAP customer, who had made 9 previous SNAP purchases, bought a Community Supported Agriculture (CSA) share for the next season from one of the farmers from whom she regularly purchased fresh vegetables. This share has a value of \$400 (\$200 of which was matched by a grant LCFM received from Kaiser Permanente), so this SNAP customer is making a substantial investment in her family’s health and nutrition for the 2013 market season. All SNAP purchases utilizing Specialty Crops funds were for specialty crops only (fruits and

vegetables) at the Larimer County Farmers Market. No Specialty Crop funds were used for the purchase of non specialty crop products.

This mini-grant demonstrates the importance of continued investment in outreach for food assistance programs such as SNAP. Based also on the experience of the Telluride Farmers' Market during the project period, it appears to take new SNAP customers several seasons to learn of the program at a farmers' market and be comfortable making food purchases there.

### **Mini-Grant #3—Crested Butte, Gunnison County**

From July 1, 2012 through August 26, 2012, the Crested Butte Farmers' Market conducted a program paid for, in part, by a \$400 mini-grant. The program, designed to increase the sales of specialty crops at the Crested Butte Farmers Market, was initiated to increase sales of locally grown specialty crops to area restaurants (Farm-to-Restaurant Program) as well as encourage consumers to purchase more locally grown produce (Eat Local CB). Both aspects of the program increased sales of specialty crops, and the efficacy of the individual programs are detailed below. Data collected at the Crested Butte Farmers Market indicate that growers sold over \$57,000 in specialty crops during the weeks the Farm-to-Restaurant and Eat Local CB programs were conducted. This averages to \$6,378 each week, compared to an average of \$5,531 when these programs were not conducted, although many factors including number of attending growers can affect these figures. In many ways the upward sales limit experienced by growers was limited by how much they could physically harvest and bring to market, rather than other factors.

#### **a. Farm-to-Restaurant Program**

From July 1, 2012 through August 26, 2012, the Crested Butte Farmers Market initiated a Farm-to-Restaurant program at the request of local restaurants who wished to feature more local foods on their menus, but who also felt that working directly with individual farmers was too time-consuming. During this time, the Crested Butte Farmers' Market facilitated wholesale ordering between restaurants. A total of 8 restaurants and bed-and-breakfasts participated in the 9-week program. Four of the market's six specialty crop growers participated in the program by offering wholesale prices. Restaurants placed orders through a market volunteer, and the volunteer then placed orders with farmers, and delivered the produce directly to restaurants on Sunday morning. During this time a total of 402 pounds of fruit, vegetables and herbs were ordered and delivered, bringing in \$1,183 in additional income for specialty crop growers. The Crested Butte Farmers' Market promoted this program by printing and distributing approximately 100 cards at the market which highlighted participating restaurants, farms and select dishes and/or crops to be served that week.

#### **Participant Feedback:**

- Specialty Crop Growers: Four of six of the market's growers participated in the program. One of the market's growers who chose not to participate grows primarily garlic which he believed required too much labor for chefs and restaurant cooks to warrant their ordering. The other grower who chose not to participate did not respond to inquiries. The remaining four growers who participated in the Farm-to-Restaurant program expressed interest in not having to market their products directly to restaurants while still expanding their wholesale reach. Further, their prior experiences working with area restaurants had resulted in the growers not always being paid on time. In the end, some pulled their wholesale offerings or did not offer steep wholesale discounts, simply because the demand from the consumers at the market was so high that they could not satisfy both wholesale and retail markets.

- **Restaurant owners:** Restaurant owners felt that the wholesale prices offered by the growers at the market were too high, especially in comparison to non-organic produce offered by large wholesale distributors. Further, as the season progressed, restaurant owners and chefs felt too overwhelmed by the increase in business during the peak of Crested Butte’s summer tourism season to sit down and order through the market, since ordering through a single source distributor was much easier, less expensive, and the process with which they had the greatest experience. As a result, however, some restaurants began to work directly with growers
- **Market Shoppers:** Shoppers enjoyed the program. The CBFM chalkboard at the entrance to the farmers’ market alerted them to participating restaurants, as did the cards passed out at each market. Tourists used the cards as a guideline for choosing restaurants during their stay in Crested Butte.

Overall, the Farm-to-Restaurant program proved challenging to implement and maintain. Though local restaurant owners initially approached the Crested Butte Farmers’ Market about implementing this program, higher prices for local foods and limited time during the height of the tourist season meant that restaurants did not order as much food through this program as initially predicted. Further, collecting payment from restaurants proved challenging since many restaurants would delay payment which was difficult for the both the market’s and the growers’ cash flow situations.

For the purposes of this initiative, the Crested Butte Farmers Market defined the success of this program as enrolling at least 6 restaurants in the program and a total of \$3,000 in wholesale orders. Therefore, while the initial orders from restaurants started out strong, they ultimately declined rapidly with no orders made during the final weeks of the program. Eight restaurants (two in excess of our goal to enroll 6) participated, but gross wholesale orders were less than half of what the Crested Butte Farmers’ Market hoped to achieve by piloting this program. Given the labor involved in executing the program, the Crested Butte Farmers Market is unlikely to continue this program next year.

**Weekly Farm-to-Restaurant Sales and Dates of Featured Dishes Week in the Crested Butte Farmers’ Market**

<b>Week</b>	<b>Number of participating restaurants</b>	<b>Gross pounds ordered</b>	<b>Gross wholesale sales</b>
July 1, 2012	4	131 pounds	\$559
July 8, 2012	3	90 pounds	\$125
July 15, 2012	3	94 pounds	\$234
July 22, 2012	1	40 pounds	\$120
July 29, 2012	2	27 pounds	\$95
August 5, 2012	1	20 pounds	\$50
August 12-26	0	0 pounds	\$0
<b>Total</b>	<b>14</b>	<b>402</b>	<b>\$1183</b>

**b. Eat Local CB (Crested Butte)**

From July 1, 2012 through August 26, 2012, the Crested Butte Farmers’ Market initiated Eat Local CB, a campaign that encouraged Crested Butte residents to shop at the market and purchase more local produce for their everyday cooking. The market printed and distributed 500 booklets featuring information on the growers at the Crested Butte Farmers’ Market, information on their growing practices, a crop calendar, and seasonal recipes. The market also offered a

drawing each week – with customers signing up for the market’s newsletter. One customer who signed up and committed to making a meal of local foods each week was selected to win a gift bag featuring produce from the farmers’ market. The program also featured chef demonstrations at the farmers’ market that showcased seasonal produce and cooking techniques as well as techniques for food preservation.

Participant Feedback:

- Specialty Crop Growers: The market’s growers appreciated the booklet featuring their farm and the seasonal recipes. Further, as all of the Crested Butte Farmers’ Market growers adhere to organic or certified naturally grown standards, the pages in the booklet addressing growing methods proved to be a powerful educational tool for farmers working with new customers. After a chef’s demonstration, many growers expressed that they experienced an increase in sales – particularly of the items showcased in the demonstration.
- Market Shoppers: Market shoppers enjoyed the program as well – the drawing provided an incentive for local residents to attend the market during the height of the tourist season, which can be crowded, since the market often sees in excess of 3,000 attendees each day during July and August (even though the town’s population is only about 1,500). The booklet also provided an educational tool for shoppers who began to rely on the crop calendar contained therein to plan meals incorporating more and more specialty crops available at the Crested Butte Farmers’ Market. Similarly, chef’s demonstrations proved to be an important educational tool to introduce shoppers to new and unfamiliar ingredients, as well as preservation techniques like fermentation or canning.

While the Eat Local CB program proved effective in increasing grower sales and educating consumers, it presented two challenges: 1) local chefs felt too busy to participate in the chef’s program so, beyond two chefs who joined the market during the course of the program, the market instead sought out farmers and local foods experts to fill the remaining 5 demonstrations. Lastly, the market lacked the staff to encourage shoppers to sign up for the Eat Local CB program, on an ongoing basis. On the days when market volunteers were available, the sign-ups increased, but they subsequently decreased when market volunteers were limited. Determining which sign-ups to the program were new and which were returning proved incredibly challenging given the hectic pace of the market and lack of volunteer power.

For the purposes of this initiative, the Crested Butte Farmers’ Market defined the success of this program as distributing 500 booklets, conducting at least 6 demonstrations, and enrolling at least 100 people in the program. Therefore, well over 100 people signed up for the program (see table below), and we conducted 7 demonstrations during the timeframe of the program.

**Eat Local CB Participants by Week**

<b>Week</b>	<b>Sign-ups for promotional drawing</b>		<b>Week</b>	<b>Sign-ups for promotional drawing</b>
July 1	62		August 5	No market; arts festival
July 8	86		August 12	49
July 15	62		August 19	26
July 22	36		August 26	62
July 29	18		<b>Total</b>	<b>401</b>

We also distributed marketing materials at the farmers’ market, the Chamber of Commerce, local restaurants, offices, government offices and health food stores. The booklets were the most popular among customers and growers and were, perhaps, one of the most successful aspects of this program. Demonstrations proved effective at introducing shoppers to new ingredients and techniques which often led to farmers selling out of the featured ingredient first before selling out of the remaining crops at their booths (see table on gross market sales for CBFM).

**Gross Market Sales (Specialty Crop Producers Only)**

<b>Week</b>	<b>Gross sales</b>	<b>Number of growers present (reporting)</b>
June 10	\$3,336	4/(4)
June 17	\$4,235 (sold out)	4/(4)
June 24	\$5,480 (sold out)	4/(4)
July 1*	\$7,155 (sold out)	4/(4)
July 8*	\$6,699 (sold out)	4/(4)
July 15*	\$6,907 (sold out)	5/(5)
July 22*	\$7,304 (sold out)	5/(5)
July 29*	\$8,149 (sold out)	6/(6)
August 5	no market-arts festival	-
August 12*	\$7,104 (sold out)	6/(6)
August 19*	\$6,518	6/(6)
August 26*	\$6,433	6/(6)
September 2	\$6,183	6/(6)
September 9	\$5,325	5/(5)
September 16	\$3,611	5/(4)
September 23	\$4,222	4/(3)
September 30	\$2,444	3/(3)

\*Asterisk indicates market day featuring the Eat Local CB promotional program.

The table above illustrates that the market experienced its highest sales during the weeks it ran the Eat Local CB program (July 1 – August 26). During this time, all of the growers sold out of their produce (defined as selling 95% or more of what they brought to market). While the dates of the Eat Local CB program do correspond with the dates the market experienced its highest sales, it is important to underscore that during these weeks (July through Mid-August) the Town of Crested Butte experiences an influx of tourists and second homeowners, which typically account for up to 55% of the market’s customers. The Crested Butte Farmers’ Market is likely to continue this program in future years with a few minor adjustments to address challenges listed above.

**Mini-Grant #4—Telluride, San Miguel County:**

The Telluride Farmers’ Market used their \$400 in mini-grant funds to target Hispanic and lower income populations receiving SNAP/EBT. The market conducted outreach by hanging bilingual signage in the work-housing in Mountain Village, at community centers, and advertising in the local newspapers. They also received air time on KOTO Planet radio, with much of the time being donated in-kind. Total advertising in the local newspaper, Daily Planet, was \$345.60 (the market received a discounted rate for multiple ads throughout the season). The cost of flyers was \$150, with total cash expenditures of \$495.60, in addition to the market’s in-kind time and materials. SNAP benefits accessed during the project period include:

<b>Market date</b>	<b>SNAP benefits accessed</b>	<b>Market gross sales</b>
7/20	\$20.00	\$42,656
8/31	\$20.00	\$38,855
9/7	\$25.00	\$19,919
9/28	\$30.00	\$17,173
<b>Total</b>	<b>\$95.00</b>	<b>\$118,603</b>

Over the market season (from July 20 through October 12) \$190 in SNAP benefits were accessed in the market, with \$95.00 occurring before the grant project's end date of September 30, 2012. The total number of participants was between 6 and 10 over the summer.

Specialty Crops funds were used for promoting SNAP benefit use at the farmers' market. The advertising only promoted specialty crop products.

It took the market some time to set up the EBT system, which delayed the release of the outreach ads and other promotional materials. Other recognized limitations included:

- the market separated EBT "Market Bucks" from the normal market bucks, potentially leading to stigma;
- the price of most produce, even in season, was very expensive;
- culturally, the types of vegetables offered for sale may have been less appealing to the target demographic;
- a few farmers indicated that the target demographic may shop at the Montrose farmers' market instead of Telluride; and
- a lack of transportation to the market, as well as the market time (the Telluride Farmers Market is Friday during the day) may have made it difficult for working families to attend.

However, feedback from participants and from vendors indicated that the Telluride Farmers' Market should continue to promote and administer this program. The market will conduct outreach in the local schools and other venues to build on the small success it realized during the 2012 market season, and they will try to generate funding to match and consequently double the SNAP benefits for participants next year. On a positive note, this was the first year to target this demographic and, according to the farmers interviewed at the market, it also took a few years for WIC vouchers to be commonly used at the market, so they anticipate a similar pattern with SNAP/EBT, once they determine how best to promote and administer the program to this population.

**Outcome Table 1 (First Year/Initial Goals)**

Desired Outcome	Performance Measure	Baseline	2010 Goal	Actual		
				2010	2011	2012
To increase the number of farmers' market managers that attend the CFMA annual meeting	The number of farmers' market managers that attend the CFMA annual meeting	28 farmers' market managers attended the 2009 CFMA annual meeting	40	60	120	45
To increase farmers' market membership in CFMA	The percentage of farmers' markets operating in Colorado that are members of CFMA	~75% of farmers' markets were members of CFMA during 2009	85%	60%	75%	90%

Outcome Table 1 reports the results from the initial project work in the first year as submitted in the original FY09 Specialty Crops application. The project focused on goals for 2010 only, however we are reporting 2011 and 2012 years as well to demonstrate continued progress in goals as a result of the project. Although the 2010 membership goal was not achieved in that year, primarily due to organization administrative changes, it has been reached in subsequent years. The attendance numbers for the annual meeting is the total attendance, which includes farmers' market managers and other farmers' market representatives.

Outcome Table 2 reports results from the amended plan that was approved in 2011. The mini-grant program was significantly changed due to lessons learned in 2010. The program was promoted in 2011 with very limited success. The primary outcome we are reporting for this measure is for 2012 when the four mini-grants were successfully awarded and implemented.

**Outcome Table 2 (Amended Plan Goals)**

Desired Outcome	Performance Measure	Baseline	Goals		Actual	
			2011	2012	2011	2012
To enhance producer participation and knowledge of farmers' markets as a retail sales outlet	The number of new produce vendors surveyed whose prices and retail sales strategies improve from 2011 to 2012	No baseline data exists	Establish baseline for average produce sales per market where surveys and outreach conducted	8% increase for average produce sales per market where surveys and outreach conducted	Baseline pricing information established	Increase of 3-23%*
To increase promotion of Colorado's farmers' markets	The number of farmers' markets awarded mini-grants for promotion	No baseline data exists as this is a new program	1	6	1	4

\*Depending on the location of the market where we surveyed (Front Range markets in more populated urban corridors, versus more rural markets with less population base to support market growth), we observed different levels of growth in sales of fresh fruits and vegetables. Therefore, our Front Range markets (Larimer, Boulder, the Denver markets of Havana, Highlands, South Pearl and Golden), showed growth in sales closer to 20% (from 15%-23%), while the more rural markets experienced growth in a wide range of 3% to 15%. There are several external factors too that caused more variable growth in sales from 2011-2012 in some markets. The 2011 *Listeria* outbreak in southern Colorado affected total planting of some fruits and vegetables, as some growers exercised more caution with respect to food safety, which resulted in less available for sale. In addition, production was also more limited this year by the drought and fires, which reduced the water supply for some growers. Lastly, the changes that we saw in retail promotional and merchandizing strategies were not always represented by increases in sales. Rather we saw growers using the price reporting process as an opportunity to verify their pricing strategies, and fine-tune their business planning.

***Beneficiaries:***

There are two sets of beneficiaries to this price reporting project: agricultural producers and farmers' market consumers. Producers benefited from having the timely posting of market price data available throughout the season for their production and marketing planning. They could check the price data at a market before attending that week to see how they could price and package their own produce. They could check data at other markets to see if they might benefit from entering a new market location.

Consumers used the farmers' market price data to evaluate product availability at each market, and decide how to budget their food dollars. This is particularly relevant for lower-income and budget-conscious households who could then plan their shopping around attending the regional market that best fit their income constraints.

Interviews with producers, price reporters and market managers provided some of the following insights into how producers used the price data during the 2012 season.

Feedback from producers:

- One northern Colorado producer said, "It is great to bring a new crop to market that we have never sold, and find its price on the reports both in Fort Collins and in Boulder. Even if it is a unique cultivar, the reports give a general baseline for some crops. The archives are also great, seeing what products may be available at a later date when organizing farm dinners was very beneficial (this happened for the Be Local Bounty and Brews Farm Dinner). The various certifications are still a little confusing to figure out; however, knowing which farms are not certified organic, yet charge more, does make pricing a little easier. It would be interesting to see these data grouped by certification, and which prices were higher."
- A Golden farmers' market producer said, ""We look at the price reports every week. We don't want to be the cheapest product in the market, so we try to find the middle or high price and then back up our prices with quality."

Feedback from price reporters:

- "I know they were being used because farmers would call or email if the reports were not online fast enough - a sign that these reports had become an important part of their business model and planning process."
- "At the beginning of the season, one vendor said thank you for taking on this market and I need that data to price my product each week."

Feedback from market managers:

- "Some of the producers have adjusted their prices because they would like to be competitive - especially with corn this year. I think the price reports pushed the corn lower this year, when they should have been higher given the drought this year."
- "Some vendors told me that others were pricing their crops too low based on the price reports. It generated some peer pressure to raise prices."
- "The presence of the surveyor did not have much of an impact as most of the vendors were comfortable with the surveyor - they were even on a first name basis."
- "I do not think farmers used the price data to determine what types of crops they were going to plant in the coming year."
- "I got a frantic call one Friday from a vendor that had no idea how to price his potatoes. He was relieved that we had some baseline data on average and high prices for the Denver markets. The farmers' market data is just so different from going to the grocery store and trying to set a price based on that."

***Lessons Learned:***

It was confirmed for CSU Extension that although this project is highly valuable for agricultural producers and consumers, it is very time-intensive to manage and requires a lot of training and monitoring of the market price surveyors to make sure they understand how to collect the data, and how to record it properly. The cost of implementing this work is higher than the Specialty Crop Block Grant dollars spent on hiring and training surveyors. The cost also includes supervisory staff for these field data collectors, as well as someone to check the weekly data and compile the database so we can provide overall average market prices by product for the season, as well as time series information on price variability by product over the season.

The price data are used differentially across farmers' markets, and in the Denver area, price reporters observed that the price reports were used mostly by new producers, particularly when they brought a new crop to market and did not have a baseline for pricing that item. For those producers, the price reports were relied on heavily for weekly pricing decisions and likely for production planning decisions as well. Denver area price reporters also noted that price reports may have encouraged producers to lower their market prices as vendors desired to offer an average price – even if that price was lower than what they had previously offered. Lastly some price reporters provided a neutral third party for some conflicts within the markets. They were able to connect market managers with CSU and CFMA resources and were able to listen to different vendor perspectives with neutrality.

One unexpected outcome is the degree to which consumers are using the price reports for budgeting purposes, especially in higher cost areas such as Boulder County. This can be attributed to the fact that our data collection in that location provides time series information so consumers can rely on the price reporting information throughout the season.

The mini-grants provided a unique opportunity for the four farmers' markets to test strategies to increase visitation, by encouraging particular groups to "buy local" such as consumers or

restaurant buyers. From these projects, it appears that, the more specific the group the market tried to recruit to purchase specialty crops, the more difficulties the market encountered. For example, in recruiting lower-income purchasers it may take several years to change attitudes and, consequently, behaviors about buying food in farmers' markets. The Larimer County grant was used to expand their program which had been in effect for several years, as opposed to Telluride's SNAP program which was newly introduced because of the mini-grant funding to promote it.

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CSU Extension price reports are archived at  
[www.coopext.colostate.edu/ABM/marketreports.htm](http://www.coopext.colostate.edu/ABM/marketreports.htm).

## **Developing New Market Opportunities for Colorado Onions – Final Report**

**Project Summary:** Colorado is the fourth largest producer of onions by volume in the United States with an estimated 392,450,000 pounds of onions produced annually. This also makes Colorado the seventh largest producer of onions by acreage in the United States with nearly 10,000 acres. Colorado has the ideal climate for some of the best storage type onions. Colorado onions are primarily the fall/winter storage onions are available July through April. Available in yellow, red and white, storage onions have multiple layers of thick, dark, papery skin. Storage onions have an intense flavor and a higher percentage of solids. Colorado's cool, dry climate eliminates a large number of disease problems associated with warm, humid climates. The higher altitude also makes it colder in the winter months which keep insects and diseases at a minimum reducing the amounts of chemicals need to produce excellent quality onions.



The Colorado Onion Association (COA) participated at the 2010 Produce Marketing Association's (PMA) Fresh Summit Exposition in the Colorado Pavilion. The COA also offered time slots to Association members to meet their customers and to also add to their existing customer bases. By exhibiting, it was also expected to help the COA to create a greater awareness among retail and foodservice buyers, of Colorado as a supplier of onions, as well as help to foster the development and/or expansion of business opportunities for Colorado's onion producers.

In addition prior to exhibiting, the COA developed an expo booth. Previously, the COA did not have an existing booth. The booth that was being used was borrowed from Strohauer Farms and the COA was using outdated art from the National Onion Association to place on the booth for the display. The development of the booth was to assist with creating a greater awareness of Colorado Onions.

**Project Approach:** The development of the booth was a key priority for the COA. Without an existing booth the COA created a piece that is both trendy and timeless. The booth features three individual panels that have a 3-D effect with an onion field image in the background and in the front there is a panel with an onion beauty shot, an onion food shot and a listing of the COA grower-shipper members.

The booth was debuted at the 2010 PMA Fresh Summit in Orlando. COA members, participants in the Colorado pavilion and attendees had great comments about the new booth design.

**Goals and Outcomes:** The most notable success is the participation at the PMA Fresh Summit. It is also clearly indicated that immediately following PMA that Colorado onion movement is brisk.

Performance Measures	Baseline	Goal 2010	Actual 2010
Number of COA members that actively participate at the Expo	2 at the 2008 Expo	4	2
Value of “at Expo” sales reported by participating onion producers and shippers	Sales at show = \$300,000 Sales after show = \$1,250,000	\$500,000	Unable to Determine. (See Lessons Learned.)

In order to track the movement and sales of onions immediately following PMA, Colorado onion stocks on hand were tracked October-January. These numbers clearly show the movement is very heavy immediately following PMA. Obviously there are other factors that play into onion movement; however, the immediate figures do indicate that since COA started participating at PMA the movement has been even higher than prior to COA's participation.

Colorado onion disappearance numbers on for size (each unit = 50#):  
 Oct. '07 --- 4,706,000; Jan. '08 --- 1,163,000 = 3,543,000 moved  
 Oct. '08 --- 4,574,500; Jan. '09 --- 1,222,900 = 3,351,600 moved  
 Oct. '09 --- 4,133,600; Jan. '10 --- 1,100,000 = 3,033,600 moved  
 Oct. '10 --- 4,342,000; Jan. '11 --- 720,000 = 3,622,000 moved

One sales indicator is Colorado's onion export figures, these figures clearly show that Colorado onion exports increased from \$212,353 in 2009 to \$545,699 in 2010. There is no way to confirm or clearly indicated that these increases were as a result of the COA booth at PMA, but increased contacts with international buyers at this show promoting Colorado as a reliable supplier of onions was one of the targeted outcomes.

United States Exports (Origin of Movement - Total) Via Colorado						
Commodity: 0703, Onions, Shallots, Garlic, Leeks Etc, Fr Or Chilled						
YTD Comparison: January - December						
						% Change
Rank	Country	2009	2010	2009	2010	2010/2009
	_World	212,353	545,699	100	100	156.98
1	Canada	194,203	365,704	91.45	67.02	88.31
2	Mexico	18,150	173,700	8.55	31.83	857.02
3	France	0	6,295	0	1.15	

One primary objective was to increase trade awareness of Colorado as an onion region. This benefit helped all 14 Colorado onion shippers. It is not possible to track sales results from directing buyers to COA shippers or the website. Web hits did increase in the months of and after PMA from previous months (previous months of 10,000 to 14,000 to 18400 per month after PMA)

**Beneficiaries:** This project benefited all onion producers in Colorado. The Colorado Onion Association (COA) represents nearly 100 members who are involved in the growing, packing and shipping of more than 8,000 acres of onions throughout the state with a total value of over \$52,000,000.

**Lessons Learned:** There were two individual onion shipper companies that attended the Fresh Summit and were in the booth throughout the show. The companies were Sakata Farms from Brighton and Buffalo Packing from Olathe. Both companies reported the primary benefit of the show was meetings and contacts with existing customers, therefore no new orders were written at the show. Maintaining current customer contacts remains critical for this event. The timing of the Fresh Summit show has been a conflict with Colorado's onion growers. The last part of October (when the show is held) is also the critical time for Colorado onion farmer harvest. With the show conflicting with harvest, fewer growers have been able to attend, increasing the importance of this association booth and staff attendance to promote Colorado onions at this even.

Sales at the show have not occurred. The show has been more useful for maintaining existing contacts and seeking new contacts but no sales have happened at the show. Sales at the show are also impacted by the timing of the show, which has and will reduce the number of COA growers in attendance which limits the potential for sales. This measure was not a realistic or effective indicator of impact for the COA booth.

Sales within 12 months is not a trackable figure. With the shippers in attendance, the contacts were with existing customers and impossible to credit sales with existing customers to the booth. In addition, 100 shipper lists were distributed to buyers at the show, which would direct sales inquiries to all 14 packing sheds, beyond the shippers in attendance. We have no way to track which of these leads generated new sales for these suppliers. Further activities will seek to develop new measures for impacts of this event.

The Colorado Onion Association is committed to exhibiting at the PMA Fresh Summit Expo in the Colorado Pavilion in the future. The COA appreciates the efforts of the Colorado Department of Agriculture to organize the PMA Colorado Pavilion. Neither the COA nor any of its members individually have the resources to participate in this event on their own so this provides us with an excellent opportunity. Not only does it benefit the Colorado onion industry but it also benefits the Colorado Department of Agriculture through its overall diligence in the creation and development of high quality materials using a minimum amount of funds.

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## **Development & Commercialization of a “Branded” Colorado Potato – Final Report**

**Note:** This is the final report for year 1 of this project. Work completed in year 1 is being used to complete objectives in years 2 and 3 (separate contracts). Year 2 is funded through FY10 SCBGP and Year 3 through FY11 SCBGP. Years 2 and 3 have different goals and objectives from Year 1. Information from those years will be reported in their respective reports.

**Project Summary:** Potato producers in Colorado are among the most progressive potato producers in North America and have been very supportive of trialing newer potato cultivars in their operations. Currently, Colorado producers raise over 100 cultivars annually in their certified seed and commercial crops. A concern that has become critical over the past few years deals with the commercialization of these new cultivars, especially those with specific improved health or marketing attributes. The inability to commercialize these new cultivars with important attributes limits production acreage, their potential impact in the market place, and their potential to improve the diet of the consumer. This project is designed to use existing information for two to three specific cultivars (one of which will have colored flesh) regarding improved resistant starch levels, higher levels of antioxidants and Vitamin C, and improved flavor and appearance. This information will be tailored to assist in branding these specific cultivars for promotional marketing. Information will include descriptions of the various nutritional/health attributes cultivar name and origin, and certain recipe suggestions. Additionally, FDA regulations will be verified so that the information provided on each cultivar will meet federal guidelines. Finally, a detailed market analysis will be conducted to verify consumer preferences and success of the specific branding/labeling campaign.



**Project Approach:** This is the final report for the first year of a three year project with the objective being the development and commercialization of a ‘Branded’ Colorado potato. The project had two first year objectives and both have been met.

### **SEED PRODUCTION OBJECTIVE**

The first step of the field production objective involved the actual identification of four potato varieties with unique qualities that have potential for “branding.” The varieties selected by the Colorado Potato Administrative Committee (CPAC) research committee and Colorado State University research team are the Rio Grande Russet, Purple Majesty, and two experimental varieties, CO99053-3RU (“Aspen”) and the AC99329-7PW/Y (“Lady Pinto”).

Each of these varieties was selected for unique characteristics that make them candidates for the project. The key objective of producing seed of these four varieties was completed. Seed of each variety was harvested and placed in storage. There is enough production to begin the various chemical testing protocols needed to validate the nutrition and health attribute claims being considered as valid branding tracks.

### **CONSUMER FOCUS GROUP RESEARCH OBJECTIVE**

The marketing research under the direction of Dr. Jennifer Bond focused on assessing consumer knowledge of potato nutrition and health characteristics possessed by potatoes. The primary methods for this involved sensory analysis, label creation, secondary data review, and development of choice set survey and consumer experiment protocols. Three Colorado State University faculty members and one graduate student assisted with this project.



**Sample Label**

- **Sensory Analysis**-Testing was conducted in mid-July of 2009. Statistical analysis of the in-home and trained panels was completed in 2010. See Lessons Learned for data.
- **Label Creation**-Sample labels were created by Alysce Christian and submitted to the marketing team for feedback. This feedback was instrumental in creating the final label design. The labels are appropriate for use on both poly-bags and clam-shell type packaging. Data gathered in pre- and post-revelation on nutrition information testing determined that consumers were willing to pay more after being exposed to the nutrition information.
- **Secondary Data Review**-A review has been completed of national consumption trends and a published report has been completed. Further analysis of this data was conducted in early 2011 along with the consumer experiment research to determine which health attributes have the greatest value to consumers. The data revealed that consumers were “Least Knowledgeable” about resistant starch content (44%) followed by antioxidant levels (31%). Discovering baseline consumer nutrition levels are important in developing marketing strategy moving forward.
- **Choice Set Survey and Consumer Experiments**-After developing experimental protocols the actual experiments were conducted in October and November 2009. The actual experiments consisted of a consumer demand survey and analysis of willingness to pay for various combinations of label claims and product attributes. This was followed up with practice auctions, and actual potato auctions. Following the auctions sensory evaluation using the four potato varieties was conducted on both baked and microwave potatoes. Each experiment took between 1.5-2 hours and six actual experiments were conducted with over 140 volunteer subjects. Key consumer preferences have been identified through this research. The graph in Lessons Learned illustrates consumers “most important” potato attribute preferences.

The key objective of assessing consumer knowledge of potato nutrition and consumer knowledge of potatoes as a source of healthy food has been met.

#### **FIELD AND LABORATORY TESTING**

The four varieties were planted in May 2010 and evaluated on the CSU research farm for their response to nutrient management, plant population density, disease resistance, and storage management. The goal of the nutrient management and plant population study is to optimize management for maximum tuber yield and quality.

- **Nutrient Management**-Nutrients being evaluated include nitrogen, phosphorus, potassium, and compost rate, along with nitrogen and calcium application timing. Weekly petiole samples were analyzed this fall for nitrogen, phosphorus, and potassium. This data will be used to establish optimum petiole nutrient concentration levels to achieve maximum yield and quality goals in production. The last two years field studies were laid down as a randomized complete block design. Each treatment was replicated four times. Treatments included nitrogen application rates at 60, 120, and 180 lb N/ac. A control treatment was included where no nitrogen fertilizer was applied. During the spring of each year, soil samples were taken from the experimental site and analyzed for residual soil nitrate nitrogen (N). Water samples were taken from the irrigation well and analyzed for nitrate nitrogen concentration. The residual soil N and irrigation water N added up to 28, 68, 61, and 80 lb N/ac, for Rio Grande Russet, Purple Majesty, AC99329-7PW/Y, and CO99053-3RU, respectively. Knowledge of the residual soil and irrigation water N is important to help estimate how much nitrogen fertilizer is needed to apply for maximum tuber yield and quality.

- **Plant Population and Density**-Tubers were sampled weekly after tuber initiation to determine bulking rates. The harvested plots were graded and sized. The objective of these studies was to evaluate the optimum plant population needed for maximum tuber yield and quality of four Colorado cultivars. Plant population varied depending on the in-row seed spacing treatment. Seed spacing treatments included planting potato seed tubers at 10, 12, and 14 inches. The field studies were laid out as randomized complete block design. Each treatment was replicated four times. Specific gravity testing from plot samples was conducted. Information gathered in 2011 will compare the results from the 2010 crop. This information and the nutrient management studies will then be useful in developing BMP practices for growers moving forward.
- **Disease Resistance**-The selected varieties were screened for disease during the growing season. No major problems were noted. The field inspection notes are being analyzed and a draft report is underway at this time.
- **Storage Management**-After harvest plot samples were tested using different storage regimes. Information gathered from 2010 storage testing has been incorporated into 2011 testing. This study continued into late spring of 2011 to mimic normal grower production practice. One problem encountered in 2010 storage results was discovering that the variety “Lady Pinto” has a very limited natural dormancy and will require special care in storage handling to insure an extended marketability window. This issue is important to overcome so the “Lady Pinto” will have a longer marketing season.

Dr. Sastry Jayanty is working to extend the window of marketability of the specialty cultivar such as Pinto and Purple Majesty. If they are stored at 38°F (3.3°C) with 95% relative humidity, they can maintain four to six months without sprouts. But after leaving storage they quickly develop sprouts at room temperature within days. Four different sprout inhibitors were tested (two organic and two conventional) to extend dormancy in these two cultivars after removing from long-term commercial storage. Conventional sprout inhibitors, such as CIPC, have proven more effective than of all other sprout inhibitors available. The organic sprout inhibitor L-Carvon was more effective than clove oil in reducing sprouting in Pinto and Purple Majesty for 30 days in 2010 testing. Conventional sprout inhibitor Dimethyl naphthalene (DMN) was as effective as organic inhibitors.

**Goals and Outcomes:** The table below shows the goals and results from Year 1 of this project, which was funded through FY09 SCBGP. Year 2 (funded through FY10 SCBGP) and Year 3 (funded through FY11 SCBGP) are considered separate projects and information from those years will be reported in their respective reports.

Performance Measure	Goals	Actual Result 2010
The number of new “branded” potato cultivars	Seed production of one or more new cultivars	The expected seed increase of the four selected varieties was accomplished
Awareness, product knowledge and purchase preference as measured through focus group and other consumer research	Assess consumer knowledge relating to potato nutrition and health attributed through focus group research	Consumer focus groups revealed that consumer health perception is slowly improving but still a challenge. (see Lessons Learned)

**Beneficiaries:** Colorado ranks among the nation’s leading potato producing states, generating sales of \$277 million in 2008. Perhaps even more important, potatoes account for more than one-third of all specialty crop production in Colorado. As such, the impact of this project is far-reaching and has potential to impact not only the roughly 250 potato producers in Colorado, but also the nation’s potato industry and consumers.

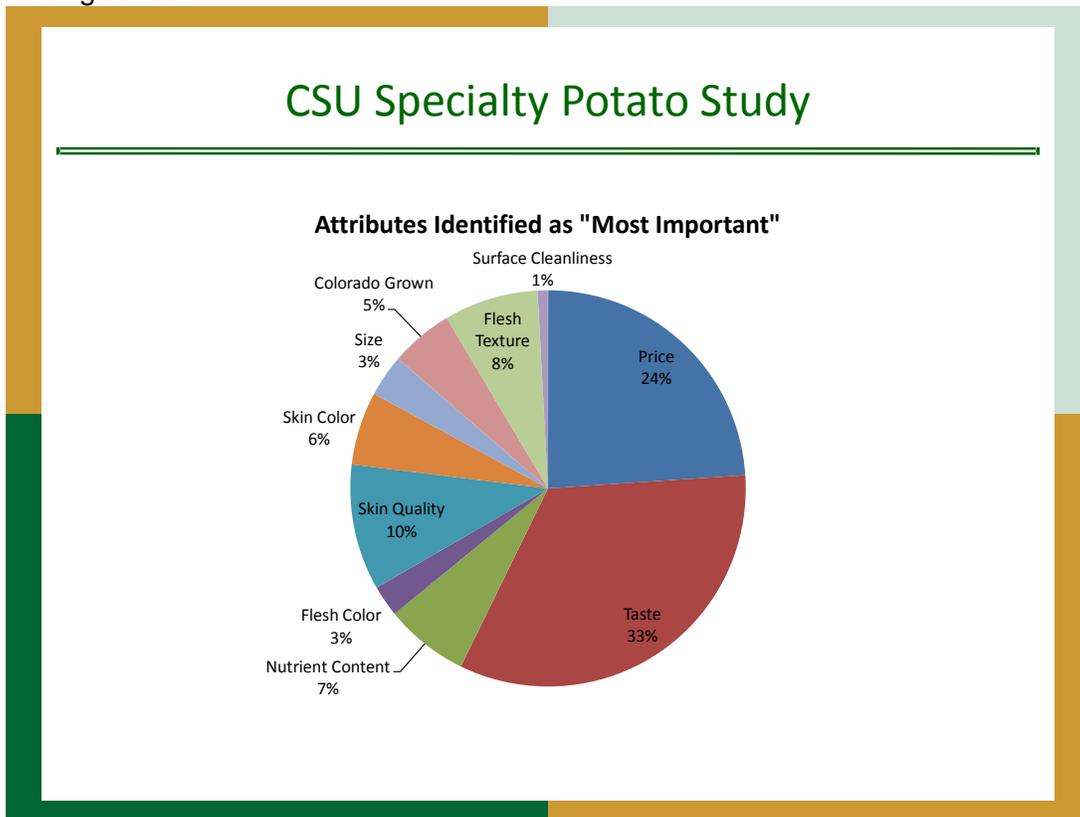
This project will make Colorado potato producers more competitive in the marketing of improved, newer potato cultivars. This project should increase acreage of these specific cultivars and provide new avenues for potato producers to effectively market their product. Additionally, there will be benefits to consumers in terms of dietary improvements and increased understanding of some of the factors necessary for long term health. This project should provide an increase in consumer purchases of these improved cultivars, better recognition of which potatoes they should buy, and a more consistent market throughout the year. New cultivars currently represent between 15 and 25% of the overall potatoes sold in Colorado (CO Ag Statistics, 2008). There is an expectation that with better consumer understanding and more consistent buying habits, sales volume could increase into the 45-50% range for new cultivars. This would be a huge step in our strategic goal of promoting the growth of new potato varieties that can be differentiated and branded as “unique to Colorado.”

**Lessons Learned:** There were two key objectives for the project. The first was to increase the planted acreage of the four project varieties with the intention of having adequate supply to use for continuing the necessary agronomic studies, for consumer marketing studies and testing, and on a limited basis test commercial marketing. This objective was met without difficulty as the needed seed and commercial testing quantities of the four varieties were produced and are currently in storage.

The second key objective involved testing the consumer message track that is being developed. The idea was to refine the consumer message so that consumer knowledge of potato nutrition and health attributes is being clearly received and understood. The consumer studies conducted have shown that a consumer’s willingness to pay for different potato varieties is influenced by the consumer’s initial sensory experience with a variety, their pre-existing knowledge of potato

nutritional properties, a variety of demographic variables, and the consumer’s exposure to additional nutritional information prior to purchase and consumption. For example it was discovered that consumers were willing to bid higher prices for the four varieties with a health attribute after receiving nutrition education and tasting the varieties. They were unwilling to do this with the control variety of Russet Burbank after the same procedure.

The consumer studies revealed a great deal of information about consumer attitudes and knowledge of potato nutrition and potato health attributes. The graph illustrates some of the information gleaned.



- Consumers ranked taste as “Most Important” more often than price (33% vs. 24% of sample).
- Skin quality (10%) and Flesh Texture (8%) were ranked as “Most Important” more often than Nutrition Content (7%).
- With regards to potato nutrition, consumers were “Least Knowledgeable” about Resistant Starch Content (44%) followed by Antioxidant Levels (31%).
- Fewer consumers were “Least Knowledgeable” about Calories (2%) and Fiber (4%) than potato Vitamin and Mineral Content (10%).
- In terms of “External Appeal” of uncooked potatoes, more consumers (41) found the Purple Majesty to be “Very Appealing” than any other potato included in the study; however, the variety also garnered the greatest number (50) of “Unappealing” or “Very Unappealing” rankings; indicating that the Purple Majesty make have selective marketplace appeal. Similar rankings were reported for the variety’s “Internal Appeal”.
- The number of consumers ranking varieties as “Appealing” and “Very Appealing” is identical for the Rio Grande Russet and Aspen Russet varieties, with slightly more (7 participants) finding the Aspen Russet to be “Very Appealing”.

- In terms of “Overall Appeal” for microwaved varieties, the Lady Pinto garnered the greatest number (39) of “Very Appealing” rankings. The Rio Grande earned the fewest (20).
- In terms of “Overall Appeal” for oven-baked varieties, the Lady Pinto again earned the most (33) “Very Appealing” rankings. The Russet Burbank earned the fewest “Very Appealing” rankings (19), a significant drop from the microwaved results where 28 participants ranked the varieties as “Very Appealing”.
- Average bid amounts are \$.12-\$.15 lower per pound for Russet Burbank, Purple Majesty, and Rio Grande varieties among consumer who eat potatoes more than 1X/week. Bid amounts across consumption groups are similar for Aspen Russet and Lady Pinto Varieties.
- Those who consumed potatoes more than 1X/week ranked all non-Russet Burbank varieties higher than those who consumer potatoes less frequently.
- Average bid amounts (per pound) ranged from slightly more than \$.50 for Russet potatoes to more than \$.80 for Purple Majesty potatoes.
- Bid amounts for the Russet, Rio Grande, and Aspen Russet were \$.9-\$.15/per pound higher for females than males. Male participants were willing to pay \$.02 to \$.11/per pound more than females for the Purple Majesty and Lady Pinto varieties.
- Respondents who indicated they were in charge of food purchases reported significantly higher bid amounts (per pound) for Lady Pinto and Purple Majesty varieties relative to non-primary shoppers. Bid amounts for all Russet varieties were similar with slight premiums being awarded to the Rio Grande and Aspen Russets.
- Average bid amounts varied by age group with respondents age 27-42 reporting the highest willingness to pay amounts for all varieties except the Russet Burbank. Respondents age 42+ reported the lowest average willingness to pay for all varieties.
- Comparing data treatments pre – and post-revelation on nutrition information and following the potato tasting finds that bid amounts increased for all varieties (except the Russet Burbank) when consumers were exposed to nutritional information. Bid amounts decreased by an average of 10.32% for the Russet Burbank.
- Bid amounts for the Rio Grande Russet and Purple Majesty increase by nearly 15% post-revelation of the nutrition information following a sensory evaluation.
- When the order of nutrition data presentation and sensory are reversed, both Russet and Rio Grande Russet varieties experienced bid declines of ~10-12%. Bids for the Lady Pinto increased by 18.5%, 10.27% for Aspen Russets, and a modest 2.04% for the Purple Majesty.
- Consumer willingness to pay for different potato varieties, therefore, appears to be influenced by the consumer’s initial sensory experience with a variety, their pre-existing knowledge of potato nutritional properties, a variety of demographic variables, and the consumer’s exposure to additional nutritional information prior to purchase and consumption and/or following purchase and consumption.

This work needs greater analysis to fully understand consumer attitudes and whether or not consumers can be influenced through nutrition education about potato health attributes to the degree that they will seek out a particular potato variety. Further study is required to determine what influence price will also play with the consumer.

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## **Farm to Table Food Safety Training for Colorado Produce Crops – Final Report**

**Project Summary:** Food safety truly requires a systems-based approach. Fresh fruits and vegetables have been associated with numerous outbreaks of food borne illness and the direct link of these outbreaks to specific farms highlights the need to employ strategies to reduce microbial contamination during production and improve on-farm food safety. One approach to improving food safety from farm to table involves voluntary on-farm audits based on Good Agricultural Practices (GAPs) and Good Handling Practices (GHPs). In recent years, only a small fraction of Colorado farms have employed this strategy. In response to new regulations and guidelines and changing food marketing patterns, Colorado producers need to have the flexibility to adopt programs that can help them meet the demands of providing a safe supply of food. To fill this gap, *Farm to Table Food Safety for Colorado Producers*, a series of three web-based GAPs/GHPs trainings, was developed following the guidelines of FDA, USDA, and the National GAPs Program. The trainings were implemented and evaluated targeting small farm producers of fresh fruits and vegetables based on an initial needs assessment to identify potential barriers and drivers for adopting these types of programs. In addition, a series of ten consumer-friendly, downloadable fact sheets with safe food handling and recommended storage guidelines was developed to help promote food safety of selected Colorado specialty crops including apples, berries, broccoli, leafy greens, melons, peaches, peppers, potatoes, squash, and tomatoes. As a result of participating in the webinar series, producers, retail buyers, and Extension professionals indicated that they plan to utilize the provided information and resources. Specific topics related to GAPs such as irrigation water quality, management of manure and compost, and food safety legislation were of most interest to the participants and exhibited the most significant increases ( $p < 0.001$ ) in self-reported knowledge, pre and post webinar. The course evaluation showed that produce buyers, Extension professionals, and other webinar attendees intend to utilize the material presented in the webinar series directly or indirectly in their professions, with average mean scores on a 5-point Likert scale (1= Very Unlikely and 5= Very Likely), of 4.2, 4.2, and 3.6, respectively. Feedback gained from the webinar and produce fact sheet evaluations will be used in making improvements for future web-based agricultural food safety educational materials. The recorded webinars, produce fact sheets, and other food safety materials are posted on the CSU Farm to Table Food Safety website (<http://www.ext.colostate.edu/farmtotable/index.php>).

**Project Approach:** The approach of developing technology-based training modules and educational materials allowed for improved accessibility to growers and produce consumers across the state while accommodating their variable time schedules and need for convenient, reliable information. Pre and post questionnaires were used to measure self-assessed knowledge outcomes along with overall course evaluation items.

**Needs assessment.** Nine producers and five produce buyers completed the telephone interviews. Among the producers interviewed, key barriers to implementing GAPs included the belief that their current practices were working and thus they did not need to implement new programs, along with the cost of implementation. Key drivers to implementing GAPs included protecting their financial interests and having to comply with commodity specific guidelines. Among the five produce buyers interviewed, two currently required their producers to participate in GAPs certification programs, and all five expected to be required to participate in such programs in the future. They saw the issue of “one size does not fit all” as an important barrier to implementing GAPs along with cost of participating in audits and time constraints for implementing new practices. They saw buyer expectations and/or requirements and consumer marketing strategies as key drivers for encouraging producers to implement GAPs audits.

Produce Fact Sheets. One hundred consumers participated in the evaluation of the produce fact sheets (10 per/fact sheet). Self-reported knowledge before and after reading the fact sheets was assessed, with significant improvements ( $p < 0.05$ ) in food safety, preservation, storage and handling knowledge noted for 9 of the 10 factsheets. Mean score for the overall usefulness of the fact sheets was 4.3 on a 5-point scale.

GAPs Webinars. The approach of developing technology-based training modules and educational materials allowed for improved accessibility to growers and produce consumers across the state while accommodating their variable time schedules and need for convenient, reliable information. Each webinar had from 50 to 56 participants. Pre and post questionnaires were used to measure self-assessed knowledge outcomes along with overall course evaluation. Participants reported significant increases in all topics covered in the series, with the highest gains ( $p < 0.001$ ) in food safety legislation, third party auditing basics, traceability and recall, water quality and irrigation practices, and manure management. As a result of participating in the webinar series, producers, buyers, and Extension professionals indicated that they planned to utilize the provided information and resources.

Of the 20 producers who completed the post evaluation, 60% said they were either somewhat or very likely to pursue a GAPs/food safety audit for their farm. Only one producer reported currently participating in GAPs audits. As a result of the webinars, 75% of the producers indicated they were more likely to test irrigation water quality. Of the five produce buyers who completed the post-webinar evaluation, all indicated they either required or were now likely to require GAPs or other audits for food safety from their producers. They also indicated strong interest in referring interested parties to the taped recording of the GAPs webinars and in participating in future webinars or programs related to food safety on the farm and/or GAPs. Feedback gained from the webinar and produce fact sheet evaluations will be helpful in making improvements to future web-based on-farm food safety educational materials. The recorded webinars and other food safety materials are posted on the CSU Farm to Table website (<http://farmtotable.colostate.edu/>) and these materials will be promoted via the newly developed Colorado Farm-to-Market website (<http://cofarmtomarket.com/>), designed to provide food safety and regulatory information for Colorado farmers and direct marketers.

Many partners were instrumental in the success of this project. The assistance of Tracy Vanderpool, Fruit and Vegetable Section Chief with the Colorado Department of Agriculture, was invaluable in the development and delivery of the webinar series. The broadcasting of webinars was made possible by technical expertise of Ruth Willson, CSU Extension, and the development of the Farm to Table website by Darrin Goodman, Web Systems Coordinator with CSU Extension.

**Goals and Outcomes:** Through this project we completed the following four objectives:

- 1) Conducted a needs assessment to: a) identify perceived and operational benefits and barriers encountered by small farm producers related to participating in the USDA GAP/GHP Audit Verification Program, and b) determine potential benefits and opportunities for choosing to participate in such an audit system by gathering information from commercial buyers and distributors of Colorado produce.
- 2) Developed, implemented and evaluated a series of three web-based GAPs and GHPs trainings (webinars) targeting small farm producers of fresh produce. The three modules were presented on three Wednesdays in March 2011, and then posted on the CSU website for world-wide access. Module 1 provided an introduction to food borne illness & potential sources of on-farm contamination, an update on pending regulatory legislation and discussed the importance of worker health and hygiene. Module 2 focused on minimizing

risks during production, with emphasis on manure handling and application, water quality, sources and testing. Module 3 focused on minimizing risks during harvest and post-harvest, including during washing and packing operations, cooling and storage, transportation and traceback. As an incentive, the first 30 participants received vouchers for testing water samples for fecal coliform and *E. coli* count (a \$30 value).

- 3) Developed consumer-friendly downloadable fact sheets with nutrition, safe food handling and recommended storage guidelines for the following 10 specialty crops: apples, berries, broccoli, leafy greens, melons, peaches, peppers, potatoes, squash, and tomatoes. Each fact sheet included a nutrition facts panel, Colorado seasonality and production information, recommended storage and specific handling methods, high resolution photographs, and links to safe preservation methods.
- 4) Created a farm-to-table food safety webpage (<http://www.ext.colostate.edu/farmtotable/index.php>) for posting recorded webinars, PowerPoint® slides and commodity specific fact sheets. The webpage serves as an on-going information source for growers who were not able to attend specific webinars, or would like to use them as training tools. The site also provides downloadable camera-ready fact sheets for producers and CSA managers to use as promotional material on websites, as handouts and in newsletters.

**Notable Successes and Accomplishments**

As of May 2011, following the series of webinars, the CDA Fruit and Vegetable Section Chief reported a 3-fold increase in inquiries regarding voluntary audits.

Gretchen Wall, the graduate student involved with the project, is now serving as the national Produce Safety Alliance Program Coordinator based at Cornell University.

A program in southwestern Colorado, Food Safety Begins on the Farm, co-sponsored by CSU Extension and Fort Lewis College is following a similar format of offering GAPs training and a free water test.

Produce-related food safety has been a topic of great interest in the past year and a number of presentations have been requested.

Performance Measure	Goals	Actual Result	
		2009 (Baseline)	2010
The number of Colorado specialty crop producers and handlers that participate in CSU and/or CDA sponsored GAP/GHP webinar training programs	30	None	55
The number of Colorado producers and handlers listed by USDA at year end as meeting requirements for GAP/GHP verification	17	15 Colorado specialty crop producers and handlers were verified by USDA	65 (2011)

***Beneficiaries:***

Webinars: The recorded webinars will benefit producers and those participating in Building Farmer programs by providing science-based information that will be helpful in preparing for voluntary audits in a convenient format. The materials can be used by Extension Professionals and others providing food safety education to local producers.

Fact Sheets: The produce fact sheets are useful marketing tools for direct markets to provide for customers and community supported agriculture subscribers.

Consumers: With current estimates of 48 million food borne illnesses each year in the United States (one in six Americans) (Scallan et al. 2011), consumers will benefit from reduced risk of microbial contamination associated with fresh fruits and vegetables. There are also financial benefits associated with improved food safety since the estimated cost of produce-related illness in Colorado is 585 million dollars (Scharff 2010).

Researchers: The valuable feedback gained from this study will help researchers in developing future programs targeted to local producer growers and direct marketers.

***Lessoned Learned:*** The researchers experienced challenges in both the initial response rate to producer interviews and the willingness of some producers to share potentially sensitive information. Given the narrow sampling frame (focusing on small growers in Colorado), as well as the high non-response rate; the sample of producers interviewed may not be representative of a broader set of produce growers across the nation. The sample may also be biased toward producers who are supportive of GAPs and other food safety regulations and more willing to share their current on-farm food safety practices.

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***Additional Information:*** Soon after the announcement of the *Listeria* outbreak associated with Colorado-grown cantaloupe in September, 2011, CSU was asked to provide an on-line GAPs training targeted specifically to melon growers. Plans are in progress to offer this training in February 2012, following the same style as the series of three webinar trainings. Graduate students from the CSU class, AGRI 547, Delivery of Cooperative Extension Programs, will assist with the development of pre- and post-questionnaires and presentation of the webinar.

Growers that participated in the water sampling have requested more information regarding water testing and an additional training focusing on irrigation methods, monitoring of irrigation water, and interpreting test results is also planned for 2012.

The website, highlighting CSU's farm to table food safety resources (<http://www.ext.colostate.edu/farmtotable/index.php>) will be the web location for all project materials and has been developed with technological support from CSU Extension. The material posted on the website is currently under review and will be available to the public after evaluations are complete and revisions have been made. The website will be accessible from the CSU Extension website and the Department of Food Science and Human Nutrition website.

A manuscript is currently being developed for submission to the Journal of Extension and an abstract will be submitted in January 2012 for the Institute of Food Technologists' annual meeting in June 2012.

## **Efficacy of Irrigation Systems on Diverse Market Classes of Dry Beans in Colorado – Final Report**

**Note:** This is the final report for year 1 of this project. Work completed will be used to accomplish objectives in year 2 (separate contract).

**Project Summary:** Dry bean production in Colorado had record high production of 4.3 million cwt. in 1990 when producers harvested 225,000 acres which averaged 1,900 pounds per acre. The highest valued bean crop on record was produced in 1989, when the 3.1 million cwt. crop had a total value of \$94.5 million. More recently, production in Colorado has shrunk to approximately 50,000 acres due to limited irrigation water, high production costs and competition for land from higher valued crops such as corn, wheat, and oilseed crops such as sunflower and canola. If Colorado is to retain a viable dry bean industry, growers will need to reduce irrigation costs and improve efficiency to accommodate the shift of surface water to supply the growing urban population. The purpose of this project was to investigate the efficiency of irrigation systems, levels of irrigation applied and the response of these factors to three diverse dry bean market classes.

**Project Approach:** To date we have planted and harvested year one field experiment in collaboration with personnel at the USDA Limited Irrigated Research Farm, Greeley Colorado. We hired a graduate student, Lucas Pesek, to work on the project. Lucas is working toward his MS degree at Colorado State University. Mr. Pesak arrived in early May and has been working on the project full time since. We also employed a full time college student during the summer months. The field plots in 2010 were planted on June 4 and the irrigation delivery systems were installed from late June to early July. Neutron probe tubes were installed to monitor soil moisture content and a model to apply irrigation water to dry beans has been developed and calibrated to predict soil moisture needs of the bean crop. The project team, Dr. Gerald Buchleiter, Dr. Howard Schwartz, Dr. Allan Andeles, and Dr. Mark Brick met biweekly to discuss the research project and personnel needs. Plots were harvested for biomass in late August, seed yield and yield components in early September. To date, we have collected and analyzed data on soil moisture, precipitation, irrigation, biomass, yield and yield components. We are also preparing for field work in 2011.

The field research used a strip-plot design with irrigation systems and irrigation level as whole plots and market classes of bean as sub-plots. The experiment was conducted in 2010 and was repeated in 2011 to replicate the experiment over two environments. There were three types of treatments: 1) three irrigation types including furrow, drip and sprinkler; 2) three market classes of bean including, pinto, light red kidney and black, and 3) two levels of irrigation application including, 100% and 55% of measured evapotranspiration (ET) as calculated based on a reference crop at the research station. The irrigation and irrigation levels of treatments were arranged as side by side strips, with 3 replicates with market classes randomly arranged in each strip. The bean varieties were planted in 4-row plots 21 feet long with a Wintersteiger vacuum planter on 30-inch row spacing. The area of each sub plot was 210 square feet (10 ft x 21 ft).

Water was applied via three irrigation systems and all applied water was measured with a flow gauge through vinyl pipe fitted with a propeller flow meter. All irrigations were made in each of the 30 inch spaced rows based on calculated ET at the site. The furrow irrigation system was watered with a high deliver rate perforated plastic pipe to simulate flooding between rows. No water was allowed to drain from the plots, consequently applied water was fully accounted by the flow meter. Sprinkler and drip irrigation systems used an in-line flow meter during application to allow precise measurement of applied water.

Total water applied for the 100 and 55% ET treatments was 9.73 and 4.52 inches through the season (Table 1). With 6.44 inches of precipitation during the growing season, total water applied was 16.17 and 10.96 inches on the respective treatments. Applied water was below optimal levels due to problems installing the irrigation system early in the season. This problem should not occur in 2011 because the system has been built and will be installed in a more timely manner.

**Table 1. Total irrigation water applied, and irrigation + precipitation for the 100% and 55% evapotranspiration (ET) treatment levels.**

<b>Irrigation Treatment Level</b>	<b>Total Irrigation Water</b>	<b>Total Irrigation + Precipitation</b>
<b>100% ET</b>	9.7 inches	16.2 inches
<b>55% ET</b>	4.5 inches	10.9 inches

Seed yield among the three methods, averaged over market classes and irrigation levels differed significantly between drip and furrow irrigation (Table 2). Biomass production and harvest index followed the same trend. These results indicate that the drip irrigation method can provide higher seed yield by producing more plant growth and higher efficiency for partitioning carbohydrates and energy to the seed during maturation. The yield level for drip irrigation was 168 lbs/acre higher than for conventional furrow irrigation. This figure may be higher under conventional furrow irrigation systems that loose water in tailwater as runoff.

**Table 2. Mean seed yield, biomass, and harvest index among three irrigation methods.**

<b>Irrigation Method</b>	<b>Yield (lbs/acre)</b>	<b>Biomass (g)</b>	<b>Harvest Index</b>
<b>Drip</b>	1577	416.78	0.45125
<b>Sprinkler</b>	1467	393.5	0.42375
<b>Furrow</b>	1409	385.38	0.41563
<b>LSD<sub>α=0.05</sub></b>	209	27	0.06

Mean seed yield was higher in the 100% ET than the 55% ET treatment (Table 3). In fact, the treatment that received 55% of full ET treatment had 58% of the yield, almost the same ratio of yield as water applied. The Full ET treatment produced 194 and 116 lbs yield per inch of irrigation water applied and total water, respectively. The 55% ET treatment produced 245 and 100 lbs yield/in. irrigation water applied and total water respectively. Based on these numbers the efficiency of water use was slightly greater for the lower irrigation level, however the lower yield may not be adequate to cover fixed and variable costs in the system. The similarity of efficiency suggests that water conservation may not be adequate to justify lower irrigation levels in dry beans, especially when growers have high per acre costs for production.

**Table 3. Mean seed yield, biomass, and harvest index at two irrigation levels.**

<b>Irrigation Level</b>	<b>Yield (lbs/acre)</b>	<b>Biomass (g)</b>	<b>Harvest Index</b>
<b>100% ET</b>	1884	450	0.50
<b>55% ET</b>	1086	347	0.37
<b>LSD<sub>α=0.05</sub></b>	171	22	0.05

Seed yield levels were slightly higher for pinto beans than black beans in the 100% ET irrigation treatment however the yield levels were not different at 55% ET irrigation level (Table 4). Black beans had higher biomass under 100% ET irrigation and similar biomass at 55% ET. These results suggest that black beans may be more tolerant of low soil moisture levels, however one year of data is not conclusive. Surprisingly, harvest index (HI) was higher for pinto bean. We

anticipated that black beans could have higher HI because they have smaller seed (2400 vs 1200 seeds/lb.) and in general small seeded crops normally have higher HI. We are not reporting yield of light red kidney bean because stands were poor and they were not well acclimated to the test location. In 2011, we propose to replace light red kidney market class with yellow beans, a market class known to be adapted to the growing area.

**Table 4. Mean seed yield, biomass, and harvest index between pinto and black beans at two irrigation levels.**

Market Class	Irrigation Level	Yield (lbs/acre)	Biomass (g)	Harvest Index
Pinto	100%	1989	408	0.596
Pinto	55%	1060	350	0.373
Black	100%	1778	492	0.413
Black	55%	1111	345	0.338
LSD <sub>α=0.05</sub>		171	22	0.053

Estimated gross income was higher for black beans at both irrigation levels (Table 5). This was primarily due to higher prices for black beans after harvest and the relatively low price for pinto beans. Because yearly prices fluctuate for different market classes these results are not indicative of the long term. In 2010, bean growers would have been better off growing black beans than pinto beans. An additional year for yield data with past price statistics will allow us to make a better conclusion regarding economic worth of different market classes.

**Table 5. Mean seed yield, market price for commodity and gross income between pinto and black beans at two irrigation levels.**

Market Class	Irrigation Level	Yield (lbs/acre)	Price/ cwt	Gross income
Pinto	100%	1989	\$24	\$477.36
Pinto	55%	1060	\$24	\$254.40
Black	100%	1778	\$30	\$533.40
Black	55%	1111	\$30	\$333.30

**Goals and Outcomes:**

Desired Outcome	Performance Measure	Baseline	Actual	Goal
			2010	2011
To determine the bean class with the greatest potential economic return to producers in Colorado dry bean production systems	Yield data was obtained in test plots planted to pinto, red kidney and black bean classes	No baseline data currently exists	In 2010, black bean had higher economic return than pinto beans. This was primarily due to higher market prices for black beans in 2010.	Research will confirm 2010 research finding
To determine the most efficient level and type of irrigation for optimum production of pinto, red kidney and black bean classes in Colorado dry bean production systems	Conduct cost/benefit analysis relating to market value yield and irrigation costs	No baseline data currently exists	In 2010, drip irrigation produced higher seed yield than furrow irrigation using the same amount of applied water. Pinto and black beans differed for yield levels under different irrigation systems.	Research will confirm 2010 research finding

**Beneficiaries:** The primary beneficiary is dry bean producers in Colorado. Once Year 2 is completed, results may have a major impact on the economic benefit to dry bean producers in the state. The results of the proposed research should provide dry bean producers and the dry bean industry with information regarding the economic viability of the bean crop that is not currently available. We believe that bean producers should diversify their bean crop into market classes other than pinto bean in some years to obtain the maximum economic return on investment. Further, the need to more efficiently manage our water resources is critical to the survival of agriculture in the entire state of Colorado. Time is running out to find realistic methods to preserve our scarce water resources and provide viable options to our dry bean community to assure their survival and economic well being.

A field day for growers was held in August 2010 and approximately 30 growers and industry representatives attended the meeting. Attendees at this event benefited from the presentations and were able to use the information to help others in the industry.

Research will also be shared through the Colorado Dry Bean newsletter, Bean News, once Year 2 work has been completed. This publication reaches more than 2,000 people involved or interested in the dry bean industry in Colorado.

**Lessons Learned:** We had problems getting a good stand of light red kidney beans and when they emerged, they did not produce a healthy crop canopy. We plan to replace light red kidney beans with yellow beans in 2011, because yellow beans are known to be adapted to the Front Range.

We will plant another field trial next year at the USDA Limited Irrigation Research Farm, Greeley, CO. this will allow us to determine if the annual environmental changes will change the responses to our treatments. After the harvest season, we plan to complete the analysis of data and make a final report and recommendation to growers and the Colorado Department of Agriculture.

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**Marketing, Research & Technical Support for Colorado's Small Acreage, Socially Disadvantaged & Beginning Specialty Crop Producers – Final Report**

**Project Summary:** Efforts to develop local food systems are becoming increasingly prevalent across the United States, and particularly so in Colorado. To effectively develop local food systems, producers require support for on-farm research allowing them to supplement and/or build on research conducted by CSU, as well as to have access to technical support and other resources available across CSU's statewide academic, research and extension networks.

To continue to drive innovation among Colorado's specialty crop producers, SCBGP funds were utilized to help support a Specialty Crops Coordinator position within CSU's Specialty Crops Program. As part of a full-time faculty position established in 2009 and funded in part by CSU, the Coordinator is central to addressing the needs of Colorado's specialty crop producers and creating synergies within CSU to help realize the substantial potential for specialty crops across Colorado.

The overall purpose for the Specialty Crops Coordinator is to conduct and facilitate research in specialty crop production and utilization, including the application of organic methods, especially for organic and small farm producers. The Coordinator's focus is on solving problems with current crops and on the identification and development of new specialty crop opportunities. Primary emphasis continues to be on vegetable and small fruit crops because of the state's need in this area, and especially because such producers are relatively underserved by current research programs. Research results were delivered to growers through demonstrations, field days, workshops, written and electronic communications and farm visits. Operating costs for cultivar and variety trials research conducted by the Coordinator were funded by CSU.

SCBGP funds were utilized to implement a research and marketing grants program targeted to small acreage, socially disadvantaged and beginning specialty crop producers. Grants were awarded on a competitive basis for purposes of conducting on-farm production and enterprise feasibility studies, and research to complement prior and ongoing research conducted by CSU. Grants were also awarded for the development and implementation of direct marketing and farm-to-market demonstration projects. Producers seeking these grants worked in cooperation with CSU research and extension experts to develop project proposals. Similarly, grant proposals were developed by CSU research and extension experts to work with targeted producers to advance specialty crop cultivar and varietal research and/or demonstration marketing projects.

This project built on specialty crop research and grant programs that has been part of prior CDA SCBGP applications. More specifically, specialty crop funds allocated to Colorado in 2001 as part of a supplemental agriculture appropriations bill were targeted to a grower grants program in cooperation with CSU. More recently though, cultivar trials projects were included in CDA's FY06 and FY07 SCBGP applications and CDA's FY08 SCBGP-Farm Bill application included a project establishing the Specialty Crops Coordinator position. The Coordinator position was continued in the FY09 SCBGP application and included small, beginning, and socially disadvantaged producer grants.

This report represents the period from January 1, 2010 through September 30, 2012 during which time two single-year, and four multiyear Grower Research and Education Grants have been active and have required multiyear funding. CSU Specialty Crops Program research and demonstration activities have also been ongoing during this period, however funding of this grant was only used towards these efforts in CY2010. Subsequent multiyear SCPBGs have

provided support for CSU SCP research, outreach and demonstration work in subsequent years, however they are reported on under separate SCBGP reports.

**Project Approach:**

The CSU Specialty Crops Program approach has been based on three complementary strategies

- I. Applied Research and Demonstration Projects
- II. Outreach
- III. Grower Research and Education Grants

**I. Applied Research and Demonstration Projects**

Applied research and demonstration of organic production methods for small organic farmers continues to be a focal area of work in the CSU Specialty Crops Program. Projects addressed these needs; including variety trials, experimentation and demonstration of high tunnels and production techniques of hops—a relatively new crop in Colorado. A prototype CSA (Community Supported Agriculture) project also provided small farmers with information about varietal choices, planting dates and expected yields on a wide range of vegetables as well as logistics required for the successful operation of a CSA farm. All work was done on certified organic research facilities (Rocky Mountain Small Organic Farm Project) at the CSU Horticulture Field Research Station near Ft. Collins.

High tunnel demonstration plantings were evaluated in 2010 including 21 varieties of tomatoes, 10 cultivars of cucumber, 5 cultivars of asparagus (yard-long) bean, 5 cultivars of okra, and 8 cultivars of pepper. Mitigation of insect vectored diseases and hail damage are two primary benefits of high tunnels, as well as season extension and provision of microclimates amenable to heat loving crops such as okra and asparagus bean.



Demonstrations of market farm scaled crops were done at CSU's Rocky Mountain Small Organic Farm Project site. Artichoke, bean, beet, broccoli, cabbage, carrot, cauliflower, celery, eggplant, kale, lettuce, melon, onion, pepper, potato, pumpkin, radish, shallot, spinach, squash, sweet corn, Swiss chard, tomato, cover crops, raspberry, table grape and culinary herbs were grown for demonstration and cultivar evaluation purposes and fed into the CSU CSA. The CSU CSA serves as a production and marketing training platform for students, outreach to the local community, and provides valuable information to local CSA operators regarding cropping systems, variety performance and consumer dynamics.

Demonstration/evaluation of biodegradable plastic mulch (corn starch polymers) used for weed control, soil warming, and moisture retention was added to the production systems component of this project, because of inquiries by local farmers.

Hop variety trials continue to attract considerable attention as a growing number of specialty crop producers consider this new crop. In addition to yield data of well-established plants, a new planting (fall 2009) evaluating different fall planting dates of tissue-cultured virus-indexed plants



promises to provide interesting new information about use of tissue cultured plantlets rather than traditional rhizome plantings. This information is critical in terms of initiating a clean stock hop program in Colorado and reducing the likelihood of importing diseased planting stock (rhizomes) to Colorado. Colorado producing tissue-cultured hop plantlets represents a support industry responding to the need for disease-free plant material in Colorado and elsewhere.

A full report of the high tunnel and field research may be found on the CSU Specialty Crops Program web site, [www.specialtycrops.colostate.edu](http://www.specialtycrops.colostate.edu).

## II. CSU Specialty Crops Program ( CSU SCP) Outreach

CSU SCP engaged in a variety of outreach efforts in 2010 including over 20 presentations to audiences of over 1500 growers, extension personnel, students, international policy makers and educators. On a daily basis there is a steady stream of telephone and e-mail requests for specific information about specialty crop production and marketing.

### Public presentations in 2010 related to CSU SCP activities and technical specialty crop expertise:

Title	Approximate number of Attendees
<u>2010 Hops Variety Trials</u> ; 2010 Colorado Big and Small Farm Conference, Greeley, CO.	75
<u>2010 Vegetable Variety trials</u> ; 2010 Colorado Big and Small Farm Conference	75
<u>2010 High Tunnel Research Results</u> ; 2010 Colorado Big and Small Farm Conference	120
<u>Community Supported Agriculture</u> . Cochran Fellowship Extension Program Development. Ft. Collins	35
<u>CSU Specialty Crops Program Hops Research in 2009</u> . Big and Small Conference. Greeley.	65
<u>Department of Horticulture Field Day</u> . CSU SCP provided 3 of the 6 presentations during the day. Each talk was delivered 6 times to a total of 214 visitors. The talks included:	
<u>High tunnels and field vegetable trials</u>	214
<u>Organic hop research at the Horticulture Field Research Center (HFRC)</u>	214

<u>The CSU CSA as a student training and farmer demonstration project.</u>	214
<u>Essential Oil Analysis of Hops (CSU SCP trials); 2<sup>nd</sup> Annual Colorado Hop Production Workshop, Hotchkiss, CO. (56 people attended; most of these were growers or potential growers.)</u>	56
<u>Growing in the Wind. From the Ground Up - Short summers? Extend the Growing Season;</u> State/Regional Master Gardener Conference, Cheyenne, WY	75
<u>Hoop House Design Considerations;</u> Big and Small Conference, Greeley.	45
<u>Organic Agriculture and Sustainability;</u> FSHN 500 class lecture/tour. CSU HFRC tour.	30
<u>Organic Crop Production.</u> Invited lecture Science, Society and the Environment, CSU CNR lecture series.	60
<u>Organic Pest Management in Hops ; 2<sup>nd</sup> Annual Colorado Hop Production Workshop, Hotchkiss, Organic Production of Fruits and Vegetables;</u> Live Green; Students for Global Sustainability lecture. Ft. Collins	55
<u>Organic Production;</u> Invited lecture for Front Range Community College. Ft. Collins.	30
<u>Organic Research Needs.</u> Radio interview; KFKA Farm Show.	
<u>Organic Vegetable Production; Case Studies in Colorado.</u> Invited lecture Front Range Community College. Ft. Collins	30
<u>Principles of Organic Gardening.</u> Twilight Series. CSU Extension. Ft. Collins	60
<u>Research Needs in Organic Agriculture;</u> 2010 Colorado Ag Forum. Denver	40
<u>Specialty Crops Program and Community Supported Agriculture.</u> Cochran Fellowship Extension Program Development. Ft. Collins.	12
<u>The Specialty Crops Program at CSU.</u> International Visitor Leadership Program; Water, Agriculture, and Sustainable Development. Ft. Collins	25

### III. Grower Research and Education Grants (GREG)

The CSU SCP Grower research and Education Grant program was launched in 2002 with USDA SCPBG funds allowing specialty crops farmers and marketing interests to study a wide array of opportunities to enhance their competitiveness. Including the 2010 round of awards, CSU SCP has awarded 76 GREGs. These projects have been very impactful for nearly all of the participants and other producers that have utilized the information resulting from these farmer-driven research projects. In 2010 the target audience for CSU SCP GREGs narrowed to target “small, new or socially disadvantaged farmers”. In February 2010 a panel of CSU faculty reviewers and I awarded six GREGs after a call for proposals resulted in 10 proposals submitted from around the state. The relatively low response rate was attributed to the narrow target audience of this RFP.

Summaries for the projects awarded in 2010:

#### 1. The Effectiveness of a Subterranean Heating and Cooling System High Tunnel for Year Round Market Gardening

Dennis Vanderheiden and Sandy Charles, Ft. Collins, CO  
The award was \$3,500 X 3 years.

The objective of this study is to identify optimal planting dates and varieties of marketable greens grown through the winter months in a subterranean (geothermally) heated/cooled high tunnel in a cost effective manner. To

date, I have been successful consistently growing, harvesting and selling over 20 different varieties of greens from January through December. Sales of produce have been to individuals and the Food CoOp with an income total of \$2697. Daily average cost of electricity to operate 2 thermostats, one inflation fan, two circulating fans and the inline duct fan in the winter months is \$0.44. I calculate total cost of electricity at \$91 a year. I also pay a few dollars for city water during those months, and figure total expenses for utilities at \$100/yr.



I harvested winter greens weekly from the first fall harvest in November to the last in May except for two weeks. In all, I harvested whole heads of lettuce from January 28 through August 2.

I collected data on temperatures within the greenhouse at different locations: exhaust duct, ground level, and outside air temperatures for the months of January–April. I also have relative humidity, dew point, and light meter information for the month of March.

#### CSU SCP GREG outreach (demonstrations, presentations, field days)

Several tours have been given to other small growers and people interested in season extension and self sustainability. In February findings were presented to the Garden Network – a speaker series at Fort Collins Gardens at Spring Creek. In addition, several students of Polaris High School spent a week at the farm in May assisting with many of the tasks needed to get the garden up and running.

## 2. Weed Management by Natural Methods

Zia Parker, PI, Longmont, CO. The award was \$904 X 1 year

This project collected data with the intention of demonstrating the relative efficacy of these five methods of natural weed control: solarization, sheet-mulching, cardboard mulch, succession, and agriculture-grade vinegar. The most experimental method tested was the use of natural succession by local, well-adapted annual weeds to control perennial weeds. Although I cannot provide explanations for some of our data, some numbers indicate the weed control methods used were definitely helpful. Sheet-mulching and deep-berm mulching provided the most clear-cut improvement. Weed control by succession, even though germination troubles hampered results, showed some strong indications that these annuals could be helpful within specific guidelines and applications.



Site 1, 10.09, the Fall before the study. The thick Kochia, with no Bindweed was one of our observations that catalysed the study.

Overall, Willow Way Permaculture Herb Farm did establish itself on the Front Range market in 2010, the first year of market production. We developed a product line with packaging, labels, an informative website and a CSA system that delivers herbal products seasonally. (<http://ziaparker.com/blog/2010/07/csa/>) We are going into our third year of offering a 100 hour Permaculture Design Course (with certificate verified by the International Organization). This Weed Control Study has provided us with important information about our methods and how to modify them, which we have ample opportunity to share with the broader community—commercial growers and gardeners alike.

### CSU SCP GREG outreach (demonstrations, presentations, field days) by Z. Parker

Education is the first priority at Willow Way, and we try to have as many people actively involved, getting “their hands in it” as possible. The primary structure for outreach has been the Willow Way Permaculture Design Course (PDC) and Internships, where participants have the opportunity to see the study in progress, and learn about the challenges as they arise and be involved in problem-solving. Our PDC runs through the growing season, from April through October, meeting two Sundays per month. This makes it accessible to people that live within a two hour drive, and allows us to address all aspects of the growing season with hands-on experiential work.

The participants for the 2010 PDC gave their final group design presentations as a workshop for the public in the global sustainability event on 10/10/10. This event included over 6,000 workshops world-wide. Our students presented a design for the Community Park in Lyons, including the community gardens. Also a PC design for the JenLo therapy farm in Lyons. This was another opportunity for to talk about the weed control study.

We have also shared information about the study with presentations and tabling at many sustainability conferences and events such as: the Willow Way tour for the Bioneers Conference 2010, workshop & tabling at the Auraria Sustainability Fair (twice per year), presentations for the Earth Guardians Youth Eco-Corp, Resource Recycling Yard Opening, Greenspaces in LODO, Denver Public Library, Denver Botanical Gardens, Laramie Food Sustainability Group,

Cheyenne Botanical Gardens. This circuit serves the promotion of the Permaculture Design Course, so it will continue to provide avenues for continuing discoveries associated with this study.

I've also spoken about the study when I am in a student role, including the Extension Service Native Plant Series, the Boulder County Extension Service "Building Farmer's Program", and Brigitte Mars herbal certificate class.

### **3. Raspberry Varietal Field Trials**

Adam Silverstein, PI, Hotchkiss, CO. The award was \$9,000 over 3 years.

The objective of this project was to evaluate performance of several varieties of raspberries and black berries on the western slope of Colorado, where tree fruit is commonly grown, but brambles are less commonly produced and offer market farmers another way to diversify their operations. This year we experienced our first real production from the berries. Several varieties produced well, while several others did not produce well at all. The less productive varieties were the same varieties that froze back to the ground last winter. Some varieties produced a late crop in September, but these were hurt this year by a lack of water – our irrigation went off August 2, about a month earlier than usual. We did have a couple of rains later in the season, but it wasn't enough and the berries clearly suffered from the stress caused by lack of water.

Overall one of the biggest overall conclusions was the importance of frost hardy varieties for our area. Even in the mild winter of 2011–2012, several varieties froze to the ground greatly reducing the following year's harvest. Another important conclusion from the commercial harvesting perspective is that blackberries are much easier to pick than raspberries. The thornless blackberry varieties we grew were exceptionally easy to deal with and harvest off of. In addition, the consistently large berry size of the blackberries meant that filling pints of berries went much more quickly. As I add to the berry patch I plan to plant mostly blackberries from this point on.

Picking berries is hard work, even with the plants tied up on trellises, picking involves plenty of hunting through thorny canes. The reward is a delicious crop, but for the farm to profit, it also needs to be quick enough to pick that it pays to hire someone to pick it.

The raspberries were generally small and it took an average of 109 raspberries to fill a 6 oz container. The blackberries were consistently larger, with the smallest blackberry matching the largest raspberry. It took an average of only 41 blackberries to fill a 6 oz container. In addition, the thornless blackberries were truly thorn free, almost soft to the touch. They were a pleasure to work in, for all stages of production – pruning, trellising and harvest. Unless the market becomes saturated, I would plant these thornless blackberries over any of the other berries. Chester stands out as the biggest producer in our trials. On the raspberry side, Kilarny was the clear winner, producing early and over a long period with large berry size. Bristol, the only black raspberry in our trial, was also a large producer, and although the berries were small on average, they were borne in exposed clusters, making them a bit easier to harvest. Read seasonal updates and the full report online at <http://www.roundearth.com/projects/raspberry-blackberry-research-project>.

#### 4. Sweet Potato Production Study in Boulder County, CO.

Peter Volz, Boulder, CO. The award was \$5,370 X 1 year.

Sweet potatoes present an opportunity for direct market growers on fine textured soils. Soil and air temperature are primary growth factors for successful yield. This project evaluated varieties, date of black plastic application, use of row cover, and irrigation water applied in their role for providing optimal yields at Oxford Gardens near Longmont, CO. There was no clear advantage in this study of applying plastic to the soil in April instead of waiting until May. Row cover caused high air temperatures that inhibited root growth and caused lower yields in pounds and in number of sweet potatoes that made a USDA grade. Making USDA grade is a clear indicator of marketability of sweet potatoes in direct markets. All varieties had satisfactory performance except for Vardaman. Just less than one acre-foot per acre of irrigation water was used; however some excessive drying did occur in the sandy loam soil.

#### CSU SCP GREG outreach (demonstrations, presentations, field days)

A field day was hosted at the research site on September 9, 2010. Ten people attended. An overview of the project was offered, including a handout of the research to date. Participants had time for Q and A, an explanation of using the soil moisture monitoring technology, and witnessed harvest of some of the beds for demonstration of yield.



Instrumentation used to monitor and record soil and air temperature, moisture and water use.

## 5. Bottom Heated Greenhouse Versus High-Tunnel Winter Salad and Micro-Green Research

Michele Martz, Cahone, CO. The award was \$4,500 over 2 years.

The primary project objective was to fabricate an innovative design using energy efficiency and alternative energy for a bottom heated greenhouse. The secondary objective was to compare growing winter salad greens and micro-greens under this systems approach versus that of an unheated high-tunnel and to determine the feasibility of producing crops in the winter. While we found that it is possible to grow winter salad mix in the high tunnel environment, it is impossible to get trays of micro-greens to even sprout in the late fall due to the lack of warmth and sunlight. In conclusion we feel our hothouse design objective of utilizing energy efficiency with an alternative energy heat source was a success. This building provides protection from the elements and a stable temperature environment. This is necessary for our off-the-grid homestead to get an early start on the market season and we hope it will serve as an example to other off the grid farmers. The hothouse has enabled us to grow many the seedlings needed for our summer vegetable market and has provided an additional source of revenue from the sale of sunflower micro-greens.

The secondary objective was to compare the growth of winter salad mix and micro-greens between the hothouse and high tunnel and also to determine if these crops could feasibly be grown during the off-season. In our research we grew winter greens directly sown in the high tunnel the first winter and micro-greens in trays the next winter. The greens sown directly into the soil in the high tunnel did well with the exception of the winter hardy lettuces which did not germinate. However, around winter solstice all growth slowed dramatically.

This winter we tested micro-greens in trays, comparing the hothouse to the high tunnel. We decided not to do winter salad mix because of the cost associated with growing in trays. Salad greens could not return a profit at \$5/pound versus \$16-\$32/pound for the micro-greens. Our data shows that it is impossible to get micro-greens to grow in the wintertime in an unheated, unprotected environment. It also shows that even though these crops grew for us in the hot house, they took three times as long as in the summer months and provided less than half the harvest (sunflower micros) due to irregular growth.

Overall, we feel that there are serious concerns with growing any wintertime crops, namely, the lack of sunlight hours and inadequate compensation for labor hours. The micro-greens that did grow in the winter did not grow with vigor or with any consistency. The feasibility of taking a crop to market must take into account all measures, especially the harvesting and packaging of said crops. With the inconsistent growth, due to lack of sunlight, we spent twice as long harvesting these micro-greens than those harvested in the summer months. In our opinion, this is not a financially sustainable endeavor in the winter months.



CSU SCP GREG outreach (demonstrations, presentations, field days)

Provided tours and discussed our research with Mesa Verde Organic Growers Club, the farmers and staff at Seven Meadows Farm, Confluence Farm, numerous community members that have visited the farm. We intend to publish an article in the Small Farmers Journal and provide more tours to interested groups.

**6. Research Development and Demonstration of Solar and Solar Assisted Hops and Herb Drying for Small Farm Applications**

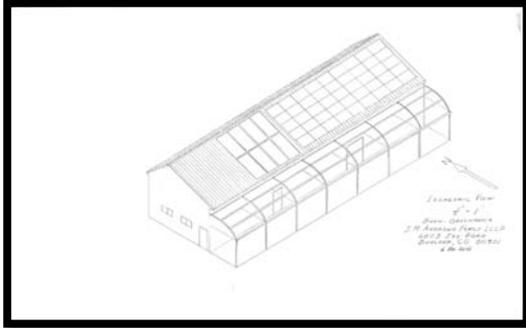
Jessie and Rich Andrews; Boulder, CO. The award was \$10,000 over two years.

The proposal anticipated a two year program of research, development and demonstration of solar hop and herb drying starting with the summer season of 2010. The project required the construction of considerable facilities for the execution of the program, including a new barn and attached greenhouse where the studies would be conducted. Unfortunately, the building of these facilities was greatly delayed by protracted review and approval processes of the Boulder County Land Use Department and permits were not issued until late June 2010 leaving insufficient construction time. Refer to the 2010 yearend report for limited accomplishments of the 2010 season.

During 2011, partial completion of the needed greenhouse was accomplished, and solar hot air collection system was built along with substantial revisions to the hop dryer and appurtenances. A series of eight solar hot air hop drying tests were performed during the 2011 hop drying season in late August and early September 2011. The drying systems were instrumented with chart-recording, manually readouts of thermocouples, various remote wired and wireless sensors, pen chart recorders, and data logging temperature and humidity sensors. In addition, measurements of air velocities in the dryer were made with hot wire anemometer instrument and solar radiation intensity recorded. Measurements of moisture content of the hops were made throughout the drying process. Hops were successfully dried using only solar energy with two hot air collection systems during these tests, as well as ambient warm air. Due to some overly cloudy days with diminished solar intensity during the latter part of the 2011 hop harvest period, the desirability for solar energy storage systems was apparent to be able to continue hops harvesting in periods of less than optimal solar energy conditions, during night hours, and to ensure that rapid drying during optimal harvest timing for quality can occur.

A workshop seminar presentation was made during July 2011 in Paonia, Colorado on solar drying technology and optimizing hop quality in the drying process, plus methods to determine optimal hop quality and harvest timing. The presentation was well received and reached local Colorado hop growers as well as numerous people from out of State. As part of this outreach program two technical PowerPoint presentations were updated by the project manager and made available to interested parties, technical advisors, and collaborators on this project. The project manager also met with several individuals on site at the Andrews Farm during and around harvest time who expressed interest in hop growing and processing. Tours and explanations of the solar drying system were provided.

Construction of the remainder of the greenhouse and a hop picking machine was completed in the Summer of 2012. The solar hot water and thermal energy storage systems is planned to be installed prior to the 2012 hops and herb harvest seasons to complete this project during the calendar year 2012. A final report on the project will be completed at the end of 2012.



Solar hop drier design. Andrews Farm.



Figure 5 (a) – Solar Hot Air Plenum System for Hop Dryer Tests 6 thru 7 (2011): Hot air concentrating plenum system inside greenhouse roof, black plastic film inside of polycarbonate greenhouse roof glazing; air intake on right vertical wall; induced draft fan intake at top on left



Hop picking machine in action summer 2012.



Fig 6(b) – Dryer fan and tray configurations for 2011 test numbers 4 thru 7 (hot air from top of greenhouse in tests 4 & 5 or from greenhouse roof plenum in tests 6 & 7 enters via the insulated ducting on lower left, channeled to bottom of dryer tray stacks to left center in updraft mode)

CSU SCP GREG outreach (demonstrations, presentations, field days)

1. Research Development and demonstration of solar and solar assisted hops and herb drying for small farm applications; 2<sup>nd</sup> Annual Colorado Hop Production Workshop in Hotchkiss, CO.
2. Local Boulder County Hop Farming – The Other Essential Ingredient for Craft Beers, Hop picking and drying demonstration. Andrews Farms, Boulder, CO.
3. Timing for optimal quality hop harvesting, Paonia Hops Workshop, 2010
4. Solar hop drying in a custom greenhouse system using hot air collectors, Paonia Hops Workshop, 2011

**Copies of the complete GREG final reports are posted on the CSU Specialty Crops Program web site, [www.specialtycrops.colostate.edu](http://www.specialtycrops.colostate.edu).**

***CSU SCP Coordinator – additional support for GREG recipients:***

CSU SCP Coordinator made annual farm visits to all SCP GREG recipients, as well as GREG recipients from previous years. During these trips around the state he also met with regional extension agents and CSU AES scientists participating as technical advisors on these projects to discuss the progress being made. These linkages between CSU SCP, grower, extension personnel around the state have become valuable connections for all involved – leading to collaborations improved communication.

***Goals and Outcomes Achieved:*** The objectives of the CSU SCP are to increase competitiveness of specialty crop producers in the state by facilitating farmer-driven innovation, providing technical expertise, and by conducting applied research and demonstration projects, expose specialty crop producers to new and innovative methods in production and marketing. The three prong approach used (outreach, applied research and demonstration, providing funding for on-farm research and innovation through the GREG program) has been illustrated in the previous sections;

- Outreach - highlighting the 20 plus presentations about specialty crop production to over 2000 people working or studying in the fields associated with specialty crops.
- Applied Research and Demonstration – completion and demonstration of several projects that have moved specialty crop production forward in Colorado.
- GREG administration – whereby six specialty crop growers (identified as new, small or socially disadvantaged) have explored challenges or opportunities in their production systems and shared these with producers facing the same challenges.

Performance Measure	Goals	Actual Result		
		Baseline	2010	2011
The number of on-farm research, demonstration and marketing project grants awarded to small acreage, socially disadvantaged and beginning specialty crop producers.	10	From 2002 thru 2006 CSU awarded 60 grants to specialty crop producers.	6	6 new projects and 4 ongoing multiyear projects (awarded previous year)
For results and recommendations to be presented to producers at Field Day events and conferences targeting specialty crop producers, as well as made available online and through various other means	Similar result as 2008	For 2008, CSU's Field Day event drew more than 300 attendees. Findings were also presented to more than 200 producers at the Colorado Agriculture Big & Small Conference and results were posted to CSU's Specialty Crop Program website.	2010 CSU SCP field days were attended by over 300 people. Presentations at Colorado Big and Small Conference were attended by over 225 people. Additional programs and invited lectures were attended by over 750 people.	2011 SCP Field Day was attended by over 100 people. SCP/ WSARE on farm workshops were attended by approximately 75 people. Approximately 525 people attended other programs and invited lectures, and over 2000 individuals viewed YouTube "Sustainable Winter Agriculture". Two web-broadcasts on high tunnel production were viewed by an unknown number of viewers.
Percent increase in the number of average weekly or monthly visitors to CSU's Specialty Crops Program website	5%	Readings began late in 2009. No baseline established.	16,238 visits 33,512 page views	16,933 visits 35,512 page views

**Beneficiaries:** Beneficiaries of the CSU Specialty Crops Program activities from 2010–2012 include the GREG recipients; new, small or socially disadvantaged operators that have far fewer resources and support than many of their larger, well established competitors. This group of producers needs to be especially creative and innovative in order to find profitable and sustainable paths. And importantly, it needs to have technical expertise available, founded on applied research that is appropriate for their scale and regional uniqueness.

Beneficiaries also include those that are students and guests attending outreach functions of the GREG recipients. Remotely, web browsers that search for and find useful information provided by the GREG participant and by CSU SCP. With this perspective the number of beneficiaries quickly expands into the thousands of people.

***Lessons Learned:***

The applied-research and demonstration projects that have been undertaken for this program are very time/labor intensive, and without external funding or self-funding opportunities the scope needs to be carefully considered. That said, the response to these projects has been very positive and has been an excellent venue to receive input from growers that are not otherwise involved in SCP programming (eg. GREG projects), and to introduce GREG opportunities to a wider potential audience.

The number of proposals received for GREG funding has been somewhat disappointing in light of efforts to target “new, small, and socially disadvantaged” farmers. Barriers may include language, education, and time to prepare a proposal. These issues should be addressed if a broader demographic of farmers is expected to participate.

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## **Culinary Training & Outreach to Celebrate Produce Harvest – Final Report**

**Project Summary:** The ACF Colorado Chefs Association (ACFCCA) has developed an extremely successful relationship with Colorado growers and producers. Targeted marketing efforts in the past have included the promotion of Colorado lamb, Colorado beef and Colorado potatoes and recently Colorado specialty crops. Successful tours, educational programs and competition have had a major influence on the Colorado culinary community and consumer in the use of these products. These programs have been very influential in increasing the knowledge and use of these products by the Colorado culinary community. Both the ACFCCA staff and its members are committed to the continuation of these efforts in the promotion of Colorado specialty products.

Project Goals Include:

- Increase consumer and foodservice trade awareness of the exceptional taste of Colorado fruits and vegetables.
- Expand the use of Colorado fruits and vegetables within the foodservice industry and the consumer public.
- Increase sales of Colorado fruits and vegetables from retail operations.
- Produce ongoing educational programs promoting Colorado fruits and vegetables to the Colorado culinary schools.
- Develop an ongoing relationship with the major Colorado foodservice distributors and media in the Colorado agriculture community to groups who produce Colorado specialty crops through tours, seminars and competitions.

Funds from the Specialty Crops Grant were used solely to promote Colorado specialty crops. The funds were used for product, educational materials and travel. Funds used to promote Colorado lamb and Colorado beef came from grants issued by the Colorado Lamb Council and the Colorado Beef Council. When the products were promoted together it was to showcase how specialty crops enhance center of the plate produce.

**Project Approach:** The ACFCCA Colorado Specialty Crops education program is an ongoing educational process that encourages members to support local products throughout the year. Each ACFCCA meeting, seminar, competition and event incorporates the use of local products. The educational efforts through the past years are proving that the use of Colorado produce is not just something that chefs are encouraged to do; it's a natural thing chefs are expected to do. They are Colorado chefs; they support Colorado agriculture. As support for Colorado produce, chefs not only promoted the importance of the specialty crops themselves but stated that the demonstration or presentation was funded through the USDA's Specialty Crop Block Grant Program for each of the activities that follow.



Activities include member meetings held on a monthly basis. Educational meetings and dinners are held for approximately 200 members and their guests. At each meeting chef hosts conduct presentations and are encouraged to use specialty crops grown in Colorado. Along the same line, the ACF also hosted an educational conference for chefs from the western area of the U.S. Fourteen states. Demonstrations with Colorado specialty crops were represented by leading chefs and culinary students. The conference included networking, competitions and (specialty crop) educational seminars where chefs learned of the value of Colorado specialty crops and

were encouraged to cook with the produce. Colorado potatoes were featured at the luncheon as a year round specialty crop.

In addition, the ACF sponsors special events (activities) to educate on the value of Colorado specialty crops. In January 2010, the ACF conducted a Farmer and Rancher Appreciation Dinner featuring Colorado Products. Participating members took their teams to Greeley, CO to prepare a dinner for Colorado's northern farmers and ranchers. Approximately 150 attendees were presented with and sampled dishes featuring Colorado potatoes, beans, sweet corn, onions and chiles. Everyone learned of the diverse specialty crops Colorado provides.

In May 2010, the ACF participated in the Italco Food Show Culinary Competition. Some of Colorado's leading chefs gathered to see who would come on top in a Mystery Basket Showdown. Teams of two were given a mystery basket of items that included Colorado potatoes and pinto beans. They had to incorporate every ingredient found in the basket. Fun was had by all as they demonstrated creative uses for specialty crop products.



In June 2010 eight chefs from the ACFCCA joined with the White House, First Lady Michelle Obama, the USDA and chefs from across the U.S. to help fight childhood obesity through the "Chefs Move to Schools" initiative. These chefs brought new ideas from the event back to Colorado that will be utilized here. One such idea that is being established is local chefs are working with county School districts to bring a program into the state that educates them on the uses of Colorado specialty crops. The program promises to enhance specialty crop usage in Colorado.

The ACFCCA continues to work on the Chefs Move to Schools program and has become a vital part of the Douglas County School District's push to bring healthier fare to the county's elementary school cafeterias. With an emphasis on showcasing the connection between farm to table, many Douglas County school students have tended to a school garden in an effort to integrate curriculum, healthy lifestyles and a greater appreciation for fresh nutritious food, including Colorado specialty crops.

Under the supervision of ACFCCA chefs, elementary students at various schools picked their school garden vegetables and enjoyed fresh garden salads with healthy dressings prepared by chefs. The hope was to show students that salads are tasty and nutritious. Students acted as "sous chefs" to put their culinary skills to work creating something that could be easily prepared at home.

"Spending time with these young people resorts my hope in humanity," said Walter Hawley, corporate executive chef for Nestle Professional. "These kids were focused, polite and absorbed in every detail of food knowledge like little sponges. They helped build and serve a chopped salad, with an Asian flair, for all 650 elementary lunches."

District elementary school students also participated in Colorado Proud School Meal Day, a day to celebrate Colorado agriculture and fresh, healthy local foods. Chefs helped students prepared fresh fruit smoothies and a variety of other foods to introduce students to the benefits of eating fresh fruits and vegetables.



In July 2010 the Colorado Lamb Council held their annual Wool Growers conference. ACF Colorado Chefs volunteered to prepare both lunches and the awards dinner for the attendees. The menu featured Colorado produce including tomatoes, Olathe sweet corn, potatoes and Palisade peaches. Attendees learned of the diverse specialty crops Colorado has to offer.

The ACF is continuing its educational programs, events, competitions and seminars. The Colorado culinary community is receptive and enthusiastic about the use of locally grown products.

**Goals and Outcomes:** Surveys were conducted and results according to the performance measures are in the table below and build on past successes of these measures. ACF will also continue to develop the educational program of local chefs in the schools to educate on usage of specialty crops in Colorado schools.

Desired Outcome	Performance Measure	Actual Result			
		2008 (Baseline)	2009	2010	2011
To increase knowledge among culinarians that Colorado is a producer of fruits and vegetables.	Percent of culinarians that “are generally knowledgeable” that Colorado is a producer of fruits and vegetables	72%	74%	76%	88.7%
To increase purchasing levels of Colorado fruits and vegetables among culinarians.	Percent of culinarians reporting that “at least 10 percent” of fruit and vegetable purchases are of Colorado origin	36%	38%	40%	63.8%
To increase promotion of Colorado fruits and vegetables.	Percent of culinarians that “at least occasionally” identify the Colorado origin of fruits and vegetables on their menus	13%	15%	20%	61.4%
To increase awareness among culinarians of Colorado MarketMaker.	Percent of culinarians that “are generally aware” of Colorado Market Maker	No baseline	N/A	50%	50%

**Beneficiaries:** The partnerships created through the ACFCCA and various state governments has created a positive impact on the health of area school students throughout Douglas County while promoting Colorado specialty crops.

This educational program was not one event, one seminar or one project. It was (and continues to be) an ongoing educational process that encourages members to support local products throughout the year. The educational efforts are proving that the use of Colorado specialty crops is not just something that chefs are encouraged to do. It is a natural thing that chefs are excited to do. They are Colorado chefs well versed in sustainability and work with local growers, producers and companies to provide their clients, members and guests with the best local experience.

The ACF Colorado Chefs Association has over 1000 members. All members were given educational materials regarding Colorado Specialty Crops. Seminars and competitions were held during the year. Colorado specialty crops were showcased at these events. Average attendance was 200 which included chefs, growers, culinary students and vendors. Attendance not only included ACF members, but students from the Colorado culinary schools which include: Johnson & Wales, International Culinary School at the Art Institute; Escoffier Culinary School of Boulder; Colorado Mountain College and Pueblo Community College. Each of these schools has an average of 400 culinary students. While not all attended every event, the promotional materials including information on specialty crops were distributed to the schools and through their instructors.

The flow of information begins with the students at their schools and then carries on to their restaurants and culinary establishments in which they currently work and on to future culinary establishment. These can be culinary establishments not only in the USA but in countries abroad. What the students are taught today, they will carry with them as they grow in their culinary careers. The scope of people who were touched by Colorado specialty crop information during the grant period will be infinite.

All specialty crop growers in Colorado can benefit from this project's efforts in educating chefs and restaurants about the availability of fruits and vegetables. Encouraging chefs to incorporate produce into their menus helps Colorado growers develop new markets and make more sales.

**Lessons Learned:** Responses from surveys have been very low. In the past, hard copy surveys were used at monthly Chefs Association meetings. The most recent survey was conducted online through Survey Monkey. The online methodology resulted in very few responses. Chefs that were questioned about the online survey said they felt they had already done this in the past and did not need to do so again. Typically chefs are more difficult to respond to these types of questionnaires.

The survey regarding Colorado MarketMaker (CMM) also had a low response rate. The overall responses indicate knowledge of CMM, but not necessarily strong use. The ACFCCA provided a link to CMM on their website, [www.acfcoloradochefs.org](http://www.acfcoloradochefs.org), and a June 2011 meeting featured a speaker that talked about how to use CMM.

Chef Aran Essig, Executive Chef at the University of Northern Colorado in Greeley, Colorado, had this positive comment about CMM..“I used the site last summer in working with our Residential Education department who wanted to set up a farmers market on campus. I was able to locate farmers within the area and invite them to participate in our on campus market by

e-mailing an invitation to them. It is a fantastic site and a wonderful resource, very easy to navigate.”

This type of chef testimonial will encourage other chefs to use CMM as a tool to find local fruits and vegetables.

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## **Colorado Proud – Final Report**

**Project Summary:** Since its inception by CDA in 1999, *Colorado Proud* has served as the state's primary program to promote agricultural and food products that are grown, raised or processed in Colorado. The program is a great fit with the Colorado consumer's desire to buy local products. Surveys, as recently as September 2010, have found that 92 percent of Colorado consumers would be more likely to buy food that was produced in Colorado than outside of the state. The appeal for local products also lies with restaurants, chefs and retailers. A National Restaurant Association survey conducted in October 2010 found that 86 percent of chefs surveyed believe local produce is one of the "hot" new trends for restaurants.

The purpose of this project was to continue to educate consumers, retailers, and restaurants about the wide range and availability of Colorado specialty crops, resulting in increased purchasing of locally grown products. Program funds were used solely on television advertising and online components associated with the television campaign.

This award directly supported the *Colorado Proud* project approved as part of CDA's FY2009 Specialty Crop Block Grant Program application. The funds provided the resources for CDA to implement an advertising campaign during the summer of 2010 aimed at encouraging consumers to "buy local" and emphasizing Colorado's fresh fruits and vegetables.

**Project Approach:** Approximately 1,400 companies, many of which are suppliers and processors of fresh fruits and vegetables, were participating in the Colorado Proud program when the advertising campaign with Channel 9 KUSA-TV was implemented in the summer of 2010. Project funds were utilized to continue the successful summer television advertising campaign. The television ad (which can be viewed at <http://bit.ly/ColoProudAd>) showcases a variety of Colorado specialty products including cantaloupe, potatoes, onions, peaches and sweet corn and directs consumers to find the products at grocery stores, farmers' markets and restaurants. The advertising, which prominently featured Colorado's bountiful array of fruits and vegetables, was timed to coincide with harvest beginning in August and running through early October 2010. The ad was nominated for a Heartland Emmy award in 2010.



Colorado Proud ran 876 ads, and based on viewer tracking surveys, household advertising reach and frequency for Colorado Proud ads only, was 97.6 percent with an average frequency of 12.1 times, resulting in 18,145,000 household impressions. Among the program's target audience, adults 25-54, reach and frequency totaled 94.4 percent an average of 6.0 times, generating 9,930,000 target audience impressions.

In addition to the on-air campaign, Colorado Proud had a dedicated section on the [www.9news.com](http://www.9news.com) website featuring recipes, a crop calendar, produce picking tips and other consumer information. The number of visits to this section increased from the previous year, with 64,328 page views in 2010 versus 62,546 in 2009 and 23,075 in 2008.

Findings from telephone surveys conducted by Survey USA of consumers in the Denver metro area found that 68 percent of consumers are aware of the Colorado Proud program and logo and 57 percent indicated they are looking for the logo when shopping more now than they used

to. The survey also found that 84 percent of consumers had knowingly purchased at least some Colorado products in the prior 30 days.

**Goals & Outcomes:**

Performance Measure	Goals	Actual Result		
		2008 (Baseline)	2009	2010
Percent of consumers aware of the Colorado Proud logo	65%	59%	67%	68%
Percent of consumers reporting purchases of Colorado products in the past month	83%	77%	84%	84%
Number of Colorado Proud members	1,276	1,050	1,160	1,392 (as of 11/30/10)

**Beneficiaries:** Besides impacting consumers across Colorado, the television advertising and online communications brought broad benefit to the more than 1,400 Colorado companies that are licensed members of Colorado Proud, especially the more than 150 members that are specialty crop producers and the nearly 400 members that operate restaurants, retail stores and farmers markets. (No SCBGP dollars were used to promote non-SCBGP products.)

**Lessons Learned:** CDA’s Colorado Proud program plays an important role in encouraging consumers to buy food and agriculture products that are grown, raised or processed in Colorado. This helps to support Colorado’s fruit and vegetable producers and helps to position those producers to capitalize on current “buy local” trends. While advertising has proven an effective means of reaching consumers, Colorado Proud could be even more effective with a more fully integrated approach consisting of advertising, public relations, and retail marketing.

CDA should continue to explore avenues to develop the program to be statewide and more year-round. Retail marketing initiatives could also help to facilitate the call-to-action message delivered by the advertising and public relations efforts. In 2012 the Colorado Proud brand manager will be researching opportunities to promote the program year-round through paid advertising, in-store and foodservice merchandising and expanded public relations efforts.

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## **Specialty Crop Water Test Plots – Final Report**

**Project Summary:** Continuing depletion of the Ogallala Aquifer presents a serious threat to agriculture in northeast Colorado. Nearly one-half of all acres in crop production in the District are irrigated, so any restrictions on water use significantly and negatively impact yields and producer profitability. As such, the District had the goal to identify as many as 20 high-value specialty crops and establish test plots to determine the potential for growing these crops under varying levels of irrigation. The project was to serve to assist producers to identify alternative cropping systems that would continue to yield high levels of profitability, but do so without continuing to deplete water resources.

The goal was for producers to be able to observe the plots through a field day event and will have access to yield data that will be posted to an online database (Regional Efficient Agriculture Communication Hub-REACH). Once producers are equipped with this knowledge they can begin making the transition to lower water use specialty crops.

**Project Approach:** In spring of 2010 Yuma Conservation District (YCD) planted and raised 32 crops and 91 varieties to identify potential low irrigation value added crops. Crops included shallots, egg plants, cucumbers, white sage, teff, asparagus, herbs, tomatoes and onion. The largest challenge to the project was a large population of grasshoppers. The use of an organic certified grasshopper control was used with the introduction of chickens to noticeably reduce the insects. Crops were measured on a variety of factors such as the amount of water applied and rainfall, comparison to closest grown crop, yield and possible market.



After extensive examination the YCD found that two years data was not enough time to make a final determination. However, they identified several crops that were a good fit for the region's growing conditions and utilized the little amount of water with the highest value. YCD anticipates that these crops will continue to be studied under the FY10 SCBGP.

- Shallots were identified as having a higher value per acre and lower water use than onion. Forty pounds were planted and the harvest yield was 180 lbs which were sold at the local farmers markets, to gourmet food stores and restaurants. They estimate the total per acre yield to be 13,168 lbs. The total amount of water applied and rainfall was 13.41.
- White Sage is also identified for low water use and high value. YCD harvested 10 plants which averaged 1 lb per plant. They estimate the total per acre yield to be 6.25 lbs. It would be sold loose or crumbled at \$24/lb to specialty shops, direct online sales or as additives for homeopathic products. The total rainfall and water applied was 9.97.
- Tomato was identified for its ability to provide local access to fresh produce. Five varieties were planted with the Taxi (yellow) variety producing the most saleable product at 52 lbs of produce from 25 plants. The average price of heirloom tomatoes is \$3.99/lb to grocery stores, restaurants, farmers markets and/or direct sales. The total rainfall and water applied was 12.93. All results were published in a Specialty Crop Test Book that was utilized in outreach and is available online.



A Field Day began on August 20<sup>th</sup> with a locally grown breakfast that included Colorado specialty crops and a general introduction to the purpose of the Specialty Crop Test Plots. The 14 producers in attendance that day then took a walking tour of the plots that looked at each crop, compared varieties if relevant, spoke about planting, maintenance, and harvesting techniques and the reason the crop was chosen for the test plots. Questions were answered through the tour. District representatives also spoke about the organic pest control methods utilized and the weather events that impacted growth. Producers were then shown a variety of the crop seeds that were unusual or otherwise interesting. The tour ended with the plans for next year, producers were interested in seeing the plots progress and two contacted the district afterwards to get more specific information about crops they were interested in.



YCD also presented a test plot book to the local Rocky Mountain Farmers Union (RMFU) chapter weeks later. Because word was starting to get around about the tour, there were 16 producers in attendance at the meeting. After the RMFU meeting, the YCD received several calls and visits to the office. In order to increase interest in the test plots, the district will feature the SCBG program at their Annual Meeting on February 18, 2011.



The REACH database is currently in a transition phase. YCD is working to set up their server and transfer the data to it. They anticipate that the conversion should be complete by early February. In the meantime, a copy of the Specialty Crop Test Plot Book is available online now on the district website at: [http://www.yumaconservation.org/Feb%2009%20YCD%20site/TEST%20PLOTS/test\\_plots\\_main.htm](http://www.yumaconservation.org/Feb%2009%20YCD%20site/TEST%20PLOTS/test_plots_main.htm). This Test Book contains all research data for the project.

**Goals & Outcomes:** Though project results were less than the goals established at the beginning of the project (see table below), YCD was very happy with the outcome. Not as many crops were identified as were estimated in the goals. However, YCD will continue research in the FY10 SCBGP and this number may increase as research continues.

The number of producers was not as high as anticipated but YCD knows that producers are slow to change and that with further education acceptance of the project will come. YCD was able to generate initial excitement about the project through outreach and will continue to build momentum through development of the REACH database, presenting at various agricultural meetings throughout the year and expansion of the test plots through a Risk Management Grant. In addition, the two producers that have agreed to plant test plots will generate more acceptance through word of mouth as they show their successes. This in turn will increase attendees at field day events wanting to participate.

Performance Measure	Goals	Actual Result 2010
Number of specialty crops determined to have potential for production	At least 5 crops	Estimated three crops
Number of producers attending a field day event	25	14
Number of producers planting at least a test plot of a vegetable, floral and/or nursery crop	3	2

**Beneficiaries:** Though acceptance by local producers is coming slowly there has been an unintended benefit from this project. To date, the community has directly benefited by rejuvenation of the Yuma Farmers Market. Since the Specialty Crop Test Plots began the district saw the need to increase the availability of local marketing. Though some producers currently sell in the local grocery stores there was still a need for the smaller producers. Thus the district started the farmers market again. It had been over five years since the community had a farmers market which provided local access to fresh locally grown produce and value added products. The market served an average of 80 consumers a week and had between 2-12 local vendors. By providing a market for local specialty crops this Farmers Market will benefit the specialty crops industry through enhanced sales as well as community identification and adaptation of local fruits and vegetables which includes the test plot crops.

A longer term benefit to the community at large is that over time the overall mentality of the agricultural community will shift and the benefits will include crop diversification, creation of new markets, reduction of applied irrigation leaving more water in the Ogallala Aquifer, employment and a strengthened community.

**Lessons Learned:** The Yuma Conservation District is hopeful that identification of low water high value crops such as shallots, white sage and truck vegetables will enhance their specialty crop production (especially at their new Farmers Market). However, the change is coming slow for local producers. A major obstacle for the large scale adoption of these crops is crop insurance. Yuma Conservation District approached Risk Management Agency (RMA) with the issue. RMA looked at the YCD approach to doing more trials and asked YCD to apply for a grant to complete the trials. YCD has applied for the grant and is planning to expand the study to include sweet potatoes, mushrooms and nopal cactus (beyond the scope of this project).



As a result of the tour, two producers are going to incorporate some of the specialty crops into their operations next year, they have also agreed to share their growing and yield information with the district. CDA believes this approach will help ease producer concerns with the crops. As more value is identified from these crops and it is presented at future Field Days, more producers will incorporate these specialty crops into their operations. This also positions YCD to attain successful results from the USDA approved FY10 SCGBP award.

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**Veggies in Colorado Reader – Final Report**

**Project Summary:** Since 1991, CFA has been providing materials and resources to Colorado schools and educators to help address the lack of understanding about agriculture’s importance to our society. With today’s students and educators often four to five generations removed from the land, bridging this gap is more important than ever. CFA has distributed over five million Colorado Readers on various topics including corn, dairy, eggs, general agriculture, food safety, livestock, ranching, soils and wheat. This new Reader, *Veggies in Colorado*, will help to promote a broader awareness and understanding of the vegetables grown in Colorado, as well as inform students of the nutritional importance of vegetables and instill the concept of “buying local”. In future years, CFA envisions producing and distributing Readers focusing on fruits and Colorado’s green industry.



The *Veggies in Colorado* Reader built upon CFA’s *Specialty Crop* Reader that was produced and distributed in the fall of 2007 as part of Colorado’s FY06 SCBGP.

The *Veggies in Colorado* Reader is also available online at <http://growingyourfuture.com/civi/colorado-reader>.

**Project Approach:** The *Veggies in Colorado* Reader presented information on the economic impact of growing vegetables in Colorado, how to buy vegetables, nutritional information on vegetables and the role vegetables play in a healthy diet. In addition, it discussed how potatoes, onions and broccoli are grown in Colorado. Intermixed were various math, graphing, charting and reading activities. The reader helped teachers work on Colorado Standards with their students.

The Reader was so successful that CFA produced an extra 45,500 readers for Denver Public Schools in addition to the original 55,000. In addition to local schools, the readers were distributed to various farmers markets and farm day events. Educators reported that after working through the reader, 90% understood that vegetables have not cholesterol and little fat, 90% understood the nutritional value of vegetables and 95% understood how vegetables got from the farm to the table.

**Goals & Outcomes:**

Performance Measure	Goals	Actual Result	
		Baseline	2010
Number of classrooms in which the Reader is distributed and the number of students receiving the Reader	1,300 classrooms and 32,500 students	The Colorado Reader series was distributed to about 1,300 classrooms in 2008-09 with an average of 25 students in each classroom	The Colorado Reader series was distributed to over 3,200 classrooms with an average of 25 students in each classroom
Percent of teachers reporting that the Reader was beneficial to helping students understand what vegetables are grown in Colorado, when they are generally available, and that vegetables contribute to a healthy diet	75%	No baseline survey data currently exists.	Teacher feedback was too low. However of those that reported, 90% of their students could identify five vegetables crops grown in Colorado, the nutritional value and how they got from farm to table

**Beneficiaries:** Clearly Colorado’s students benefitted the greatest from this project. With so few educational programs for specialty crops in Colorado, The Colorado Reader provides the opportunity to reach the state’s students and make them aware of the benefits of fruits and vegetables. The demand for more Readers from Denver Public Schools has made the project a much bigger success with an estimated reach of 80,000 students! Teachers also benefitted from the project. Again, with so few resources for educators on this topic, they were very grateful to include this in their curriculum.

**Lessons Learned:** The Colorado Veggies reader was very successful in educating children on the value of Colorado specialty crops. Overall, educators responded positively to the content. The biggest success was the request for 45,500 extra readers for the Denver Public School system. There was also a request increase for the readers from farmers markets.

Unfortunately, written evaluation feedback from teachers was low because of their workload demand. CDA recommends that CFA try electronic evaluation in future readers to try and capture this data and develop a baseline for success.

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## **Educating Consumers About the Benefits of Sod – Final Report**

**Project Summary:** Water conservation is a key concern in Colorado. Misinformation and assumptions regarding sod as a high consumer of water resources, coupled with the slowdown in housing and other construction, has led to a decline in sod sales. The Rocky Mountain Sod Growers Association (RMSGGA) will generate a strong online campaign to educate the public on how water may be conserved while still enjoying the positive environmental and property value benefits that sod provides.



RMSGGA planned to significantly expand its communication program from placing advertising with one major online advertiser to using three advertisers, driving more consumers to visit the RMSGGA website for information and contacts. These visitors will have access to correct information about sod, be able to ask questions of an industry expert, and click through to Colorado sod suppliers for purchasing. RMSGGA will track visitor counts, the number of queries received, and click thrus to member sites. Greater awareness of the RMSGGA site will establish RMSGGA as the 'go-to' experts for sod information.

**Project Approach:** RMSGGA began the project by updating the outdated website which is an educational conduit to the general public. RMSGGA partnered with CSU to ensure content was accurate as well as to provide expert advice and input. CSU staff also volunteered to answer questions received through the website as appropriate and provide information for articles as well. A key feature was to include Google analytics to better track how people are using the site, where they are from, and how many visitors view the website each week.

RMSGGA issued an advertising request for proposal to three of the major television networks (*KUSA – NBC, KCNC - CBS, and KMGH - ABC*) in the Denver metro region. The request was to advertise on their websites, working with them to achieve the most exposure for the funding available. Ultimately each station was selected with a different campaign. All campaigns were monitored on a regular basis to establish effectiveness and to update content.

All websites had the new sod content by May 1, 2010. The initial message was that grass can be part of xeric landscapes. Ads and articles were posted to reinforce this theme. In July, the ad and article message was changed to address how lawns could increase property values by 15%. At the end of the campaign the focus was on the benefits of sod. One outlet has continued to allow RMSGGA to post articles for free because they feel the expert advice is useful to their viewership.

In order to create a baseline concerning possible increased sod sales, RMSGGA conducted a survey of all Colorado sod growers. Survey questions included current and past production acreage, total acres sold and total sales figure for 2009.

**Goals & Outcomes:**

Performance Measure	Goals	Actual Result	
		2009 (Baseline)	2010
Number of average weekly visits to the RMGA website when supported with online advertising	30,000	15,000	652 per week. Analytics were misinterpreted when goal was set.
Number of click thru's from RMSGA website to member sites	180	No baseline data currently exists	15 click thru's to other sites.
Number of queries received through RMSGA function where visitors may ask questions	100	12	15
Number of related industries utilizing the RMSGA website and/or referring others to the website	20	6	8

**Beneficiaries:** By conducting this project, RMSGA was able to correctly evaluate their analytics. This is very important for the sod industry to have a clear picture of who is interested in Colorado sod and where they need to improve on their message. They were also able to identify the best media campaign to utilize as they continue to target their marketing campaign in the FY 2010 SCBGP. We are beginning to see the impacts of this project by having a slight increase in related industries utilizing the new site and asking questions about Colorado sod. The message is getting through and they are seeing value of having RMSGA as the go to for sod in Colorado. Though RMSGA was the main beneficiary, related industries are starting to see the benefits as well.

**Lessons Learned:** Upon development of Google analytics, RMSGA learned that their past data interpretation of weekly site visits was incorrect. However, this provided them the opportunity to develop a more accurate baseline for tracking interest in sod and when and where this interest was coming from. RMSGA also found they greatly over estimated the measurable for click thru's, queries and referrals. The ads did generate interest in sod just not to the amount originally estimated. RMSGA believes these numbers are low because of the dry hot summer Colorado had in 2010. RMSGA is now going to utilize these results as their new baseline and target their position for a 2011 campaign to one network to get the most benefit from USDA approved 2010 SCBGP funds. CDA agrees that this award was beneficial to RMSGA to establish a realistic baseline and identify a focus for marketing Colorado sod in the future.

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## **Colorado Produce Growers Food Safety Plan Workshop Series – Final Report**

### ***Project Summary:***

On-farm food safety plans became a focus of Real Food Colorado (RFCO) through stakeholder feedback from RFCO's 2010 and 2011 *Connecting Local Farms and Schools* (CLFS) Conferences and RFCO's on-the-ground work with local school districts and producers through the Colorado Farm to School initiatives. It was identified that one significant barrier for most small to mid-sized produce growers' ability to expand into wholesale and institutional marketplaces is their ability to provide documented food safety plans. Though there are multiple resources that advocate, as well as provide access to information on the need for food safety plans and implementation methods, it has been tutorial workshops that have produced a positive impact on producers with the ability to place "pen to paper" with interactive relationship and technical assistance with experts in the field. Through the CLFS Conference's workshops focused on food safety, one of the primary requests that came direct from producers was the request for hands-on-tutorial guidance on the development of on-farm food safety plans. In addition, RFCO produced two additional workshops addressing food safety plan development for the Southwest Colorado Farm to School conference in late Fall 2011 and Arkansas Valley Organic Growers in Pueblo, CO, where direct feedback from producers clearly indicated that an extensive workshop series focusing on the implementation and development of on-farm food safety plans will greatly assist more small to mid-sized produce growers in Colorado.

Food safety has become of paramount importance especially with institutional buyers such as school districts, who have increased their direct-from-producers purchases. RFCO is currently working on several projects focused on local producers' ability to work with institutional buyers (such as schools) within the institutional procurement framework, which includes navigating the realm of food safety. Institutions are usually governed by hearty and complicated rules and regulations that require necessary documentation that, if lacking, can eliminate local produce growers in farm to institution sales. With recent development in the area of food safety concerns of fresh produce products, there is a sense of urgency to directly engage Colorado produce growers in their ability to adhere to current and upcoming food safety measurements. In addition, Colorado produce growers will need to meet food safety guidelines given the pending releases from the FDA Food Safety Modernization Act concerning mandatory produce safety standards.

RFCO partnered with Colorado Department of Agriculture (CDA) Fruit and Vegetable Section and Colorado State University (CSU) Extension in developing a Colorado on-farm food safety curriculum addressing the understanding and awareness of Good Agriculture Practices (GAP) as well as the development of on farm food safety practices.

The Colorado Produce Growers Food Safety Plan Workshop has not been funded by any other state or federal program and is the first partnered food safety workshop with CDA.

### ***Project Approach:***

The Colorado Produce Growers Food Safety Plan Workshops process included the following steps:

- Partnered with Tracy Vanderpool at the Fruit and Vegetable Inspection Division of CDA to identify key Colorado produce regions, which resulted in Tri-River area (originally identified as Western Slope region), Pueblo and Weld Counties.
- Partnered with CSU Extension (on-campus in Fort Collins) to coordinate Workshops following CSU-produced Food Safety Webinar held on March 27, 2012 at 6 PM.

- Connections with Regional partners for Tri-River, Pueblo and Weld County to become a local liaison for Workshop logistics as well as provide marketing support:
  - Rocky Mountain Farmers Union to provide state-wide marketing and communication support of Workshops to Colorado producers,
  - Weld County Public Health and Environment and CSU Extension Weld County
  - New Farms and CSU Extension Pueblo County
  - Tri-River CSU Extension
- Connected with Gretchen Wall of the Produce Safety Alliance (PSA) to provide key insight into the Workshop curriculum.
- Identified Beth LaShell of Fort Lewis College (FLC) as Workshop presenter with expertise in GAP and on-farm food safety.
- Collaborated with Martha Sullins of CSU Extension, Tracy Vanderpool of CDA, Beth LaShell of FLC, and Gretchen Wall of PSA in the format, materials and approach to the Workshop curriculum:
  - *Food Safety Begins on the Farm* (developed by Beth LaShell)
  - *Fundamentals of Creating a Colorado Farm Food Safety* (developed by CSU)
  - *Food Safety Plan Guide* (Developed by CSU)
  - *Checklists and Forms* (developed by Penn State University)
  - *Resource Guide* (developed by CSU, CDA, PSA and RFCO)
  - *Workshop Survey* (survey developed by CSU, CDA, Beth LaShell and RFCO with implementation through CSU Extension's i-clicker survey technology)
- Designed, produced and assembled Colorado Produce Growers Food Safety Workshop Workbook including companion USB.
- Organized all components of each regional workshop.
- Implemented all three Workshops and was successful in securing at least 15 registrations with more than 70% registered attendees under a farm operation.

RFCO gratefully acknowledges the technical support and expertise of key partners on the Colorado Produce Growers Food Safety Plan Workshops:

**Martha Sullins, CSU Extension** (Fort Collins): Martha is the Small Farm Agribusiness Management Specialist for CSU Extension. She has worked for Extension for 6 years, during which she has been developing resources and tools for AG producers starting or expanding value-added agricultural enterprises including agritourism, branded beef and other direct market activities. She has worked on evaluating and expanding the Colorado Building Farmers program, and on helping producers navigate food safety and business regulations pertaining to processing and marketing AG products. She is a faculty affiliate in the Department of Agricultural Resource Economics. Martha was instrumental in pulling extensive resources and intelligence house within the CSU Extension on-campus offices including but not limited to:

- CSU produced food safety webinar aired on March 27, 2012 that was also included into the curriculum of the Colorado Produce Growers Food Plan Safety Workshop series;
- Provided the Colorado based Food Safety Plan template;
- The instructional *Food Safety Plan Guide* that offered step by step guidance in how to utilize the Colorado Food Safety Plan template;
- Workshop survey with i-clicker technology;
- Provided extensive insight and technical advice in the design and implementation of the food safety workshops;
- Acted as a panelist for each regional workshop.

**Beth LaShell, Fort Lewis College:** Beth is an Agriculture Professor at FLC and Education Coordinator of the Old Fort at Hesperus. She grew up on a diversified farm in West Central OH and received her Animal Science degree from The Ohio State University and Masters in Beef Cattle Breeding and Genetics from Colorado State University. Beth has taught at FLC since 1995 including courses in Animal Science, Agriculture Marketing, Field Techniques in Agriculture, Agriculture Issues in Society and Community Based Agriculture. Until, 2010 she also worked as a Research Associate at the San Juan Basin Research Center in Hesperus at the site of the original FLC campus. The 6500 acre property, now under the management of FLC, will be used as an academic and community resource for both traditional and small acreage educational projects in sustainable food production, biology, physics, engineering, exercise science and community development. The students operate a  $\frac{3}{4}$  acre market garden and three hoop houses at the Old Fort to provide food to an on-campus farm stand and local restaurants. Beth's projects currently include organic weed management for market gardens, Beginning Farmers program, WRME Managing Risk with Food Safety Education and GAPs implementation training, development of an agriculture land incubator and encouraging her students to become involved in entrepreneurial marketing of local foods. Beth was instrumental in providing direct expertise by:

- Producing and presenting the on-farm food safety presentation *Food Safety Begins on the Farm* at each three Workshops;
- Facilitated discussions between Workshop attendees and panelists;
- Provided technical assistance in the overall presentation of materials at the three regional workshops.

**Tracy Vanderpool** is a native of the San Luis Valley of Colorado and is the Section Chief of the Fruit & Vegetable Inspection Section of the CDA, overseeing all services and responsibilities of fruit & vegetable inspection work conducted within the state. This program uses more than 30 inspectors to conduct statewide inspection services on more than 2.1 billion pounds of fresh produce annually.

He is a member and past president (2008) of the Association of Fruit & Vegetable Inspection and Standardization Agencies (AFVISA). Among other things, this group of state representatives from all over the nation was an instrumental partner with USDA in the formation of the Good Agricultural Practices / Good Handling Practices Audit Verification Programs services that USDA provides nationally.

Tracy was a valued partner and technical advisor on the regional workshops by:

- Providing invaluable insight into industry expectations to provide a comprehensive Workshop curriculum that would address current needs regarding on-farm food safety;
- Acting as a valued panelist at each regional Workshop;

**Julia Erlbaum and Andrew Nowak of RFCO**, a local food group focused on the development of infrastructures, processes and systems that allows meaningful connections between small to mid-sized producers and their institutional purchasers. RFCO's end goal is to develop a network of various collaborative partners to improve health and nutrition of Colorado citizens and ensure that our local farms prosper and thrive for generations to come while developing economic benefit for all Coloradans. RFCO provided the on-the-ground team that organized, managed, implemented and facilitated all components of the Workshop series that included identifying the key partners.

**Goals and Outcomes Achieved:**

RFCO committed to produce three regional Workshops that targeted produce growers with the goal of 15-25 producers attending per Workshop. Upon releasing the Workshop dates, RFCO received several requests to be allowed attendance from local Health departments and community partners working with local producers. Attendees from the following workshops included:

<b>Regional Workshop</b>	<b>Total # of Registered Participants</b>	<b>Colorado Producers</b>	<b>CSU Extension</b>	<b>State and Local Offices</b>	<b>Other (community partners, local food distributors, etc.)</b>
Tri-River (Mesa County)	35	25	1	5	4
Pueblo	24	18	5	1	0
Weld*	20/33	9/18	3/3	3/3	5/9

*\*Weld County Workshop was the only Workshop that resulted with only 20 of the 33 registered participants attending. The first set of numbers is the actual number of attendees followed by total number registered. Both Tri-River and Pueblo had all registrants attending and/or had 20% walk-ins from word of mouth.*

Activities associated with cultivating attendees included:

- Creating a registration website on [www.eventbrite.com](http://coloradofoodandsafetyplanworkshops.eventbrite.com/) (<http://coloradofoodandsafetyplanworkshops.eventbrite.com/>) to allow online registration for each Workshop;
- Cross-marketed Workshops with regional partners such as Rocky Mountain Farmers Union, Weld County Public Health and Environment, CDA Markets Division, New Farms (Pueblo regional partner), CSU Extension on-campus and regional offices including Tri-River, Pueblo and Weld Counties;
- Emailed Workshops to RFCO producer mailing list.

The Colorado Producer Growers Food Safety Plan Workshops proposed an end goal of at least 30% of participating producers committing to producing an on-farm food safety plan. The three regional Workshops produced the following results:

<b>Regional Workshop</b>	<b>Attending Colorado Producers</b>	<b># committed to develop an on-farm food safety plan</b> (please see Workshop evaluation print-outs)
Tri-River (Mesa County)	25	18 (72%)
Pueblo County	18	15 (83%)
Weld County	9	10* (111%)

*\*Weld County Workshop attendees included a community gardener who is developing an on-farm food safety plan as they are providing food to their local food banks and at farmers' markets.*

Ultimately, this Workshop series was developed to provide technical assistance and resources to Colorado produce growers so they can develop their on-farm food safety plan. By identifying key partners such as CDA, CSU Extension and Beth LaShell and tapping into specific expertise—the Colorado Produce Food Safety Plan Workshop series was able to provide technical information along with imparting the urgency in the development of food safety plans, as illustrated by the table below:

<b>Regional Workshop</b>	<b># of Producers with a completed food safety plan (pre-Workshop)</b>	<b># committed to develop an on-farm food safety plan</b> <small>(please see Workshop evaluation print-outs)</small>
Tri-River (Mesa County)	5	18
Pueblo County	1	15
Weld County	0	10*

**Beneficiaries:**

The target audience for the Colorado Produce Food Safety Plan Workshop series was Colorado producers; however we drew the attendees from local distributors and food processors, local food community partners, and local health departments.

Local distributors and food processors: on-farm food safety education is not unique to producers alone. Other businesses that purchase local farm products are navigating the realms of food safety requirements to better understand food safety expectations within their operations.

Local Food Community Partners: play an active role in facilitating relationships between producers and buyers in supporting local food initiatives. Understanding food safety expectations can assist community partners’ ability to effectively connect farms and buyers.

Health Departments: a primary goal of these Workshops was to address how the lack of a food safety plan can be preventive for producers who wish to enter into wholesale and institutional marketplaces. Local health departments can be invaluable partners to local food initiatives by their own understanding of on-farm food safety measurements.

Post Workshops evaluation surveys were conducted immediately following the completion of each Colorado Produce Growers Food Safety Plan Workshops. From each evaluation surveys, the following questions were asked prior to the beginning of the Workshop curriculum to offer a baseline of data regarding on-farm food safety:

1. Counties where you farm...
2. Tell us what you do...
3. How would you rate your current knowledge of food safety?
4. What are the main areas of risk on your farm?
5. Do you have a completed on-farm food safety plan?
6. Within the past year, have you conducted any of the following [audits]?

At the conclusion of each Workshop, the following questions were asked to offer measurable changes:

7. After this workshop, how would you rate your knowledge of food safety?
8. How confident do you feel writing your own on-farm food safety plan?
9. Now what do you think the main areas of risk on your farm?
10. Following this workshop, do you feel you have more resources to develop your own plan?
11. Following this workshop, do you intend to [next steps for on farm food safety assessment/plan]?
12. What other technical assistance would you benefit from?
13. Overall, how would you rate this workshop?

From the three regional Workshops, we are presenting quantitative data in reference to questions #3, #5, #7, and #11:

**Tri-River (Mesa) Workshop Evaluation**

**Question #3 & #7 comparison:**

<b>3.) How would you rate your current knowledge of food safety? (multiple choice)</b>	<b>Responses</b>	
Extremely knowledgeable	1	3.85%
Very knowledgeable	9	34.62%
Somewhat knowledgeable	14	53.85%
Very little knowledge	2	7.69%
No knowledge	0	0%
<b>Totals</b>	<b>26</b>	<b>100%</b>

<b>7.) After this workshop, how would you rate your knowledge of food safety? (multiple choice)</b>	<b>Responses</b>	
Extremely knowledgeable	4	15.38%
Very knowledgeable	17	65.38%
Somewhat knowledgeable	4	15.38%
Very little knowledge	1	3.85%
No knowledge	0	0%
<b>Totals</b>	<b>26</b>	<b>100%</b>

**Questions #5 & #11:**

<b>5.) Do you have a completed on-farm food safety plan? (multiple choice)</b>	<b>Responses</b>	
Yes	5	20%
Working on it now	8	32%
No, not yet	10	40%
Not applicable to me	2	8%
<b>Totals</b>	<b>25</b>	<b>100%</b>

<b>11.) Following this workshop, do you intend to....(all that apply) (multiple choice)</b>	<b>Responses</b>	
Conduct a risk assessment	9	23.08%
Write your own on-farm food safety plan	18	46.15%
Hire someone to help with food safety on the ...	1	2.56%
Conduct a self audit on your farm	11	28.21%
<b>Totals</b>	<b>39</b>	<b>100%</b>

## Pueblo Workshop Evaluation

### Question #3 & #7 comparison:

#### 3.) How would you rate your current knowledge of food safety? (multiple choice)

	Responses	
Extremely knowledgeable	0	0%
Very knowledgeable	6	35.29%
Somewhat knowledgeable	10	58.82%
Very little knowledge	1	5.88%
No knowledge	0	0%
<b>Totals</b>	<b>17</b>	<b>100%</b>

#### 7.) After this workshop, how would you rate your knowledge of food safety? (multiple choice)

	Responses	
Extremely knowledgeable	2	11.11%
Very knowledgeable	13	72.22%
Somewhat knowledgeable	3	16.67%
Very little knowledge	0	0%
No knowledge	0	0%
<b>Totals</b>	<b>18</b>	<b>100%</b>

### Questions #5 & #11:

#### 5.) Do you have a completed on-farm food safety plan? (multiple choice)

	Responses	
Yes	1	6.25%
Working on it now	8	50%
No, not yet	3	18.75%
Not applicable to me	4	25%
<b>Totals</b>	<b>16</b>	<b>100%</b>

#### 11.) Following this workshop, do you intend to....(all that apply) (multiple choice)

	Responses	
Conduct a risk assessment	8	21.62%
Write your own on-farm food safety plan	15	40.54%
Hire someone to help with food safety on the ...	2	5.41%
Conduct a self audit on your farm	12	32.43%
<b>Totals</b>	<b>37</b>	<b>100%</b>

## Weld Workshop Evaluation

### Question #3 & #7 comparison:

#### 3.) How would you rate your current knowledge of food safety? (multiple choice)

	Responses	
Extremely knowledgeable	0	0%
Very knowledgeable	4	26.67%
Somewhat knowledgeable	8	53.33%
Very little knowledge	3	20%
No knowledge	0	0%
<b>Totals</b>	<b>15</b>	<b>100%</b>

#### 7.) After this workshop, how would you rate your knowledge of food safety? (multiple choice)

	Responses	
Extremely knowledgeable	3	23.08%
Very knowledgeable	4	30.77%
Somewhat knowledgeable	6	46.15%
Very little knowledge	0	0%
No knowledge	0	0%
<b>Totals</b>	<b>13</b>	<b>100%</b>

### Questions #5 & #11:

#### 5.) Do you have a completed on-farm food safety plan? (multiple choice)

	Responses	
Yes	0	0%
Working on it now	1	7.14%
No, not yet	5	35.71%
Not applicable to me	8	57.14%
<b>Totals</b>	<b>14</b>	<b>100%</b>

#### 11.) Following this workshop, do you intend to....(all that apply) (multiple choice)

	Responses	
Conduct a risk assessment	8	30.77%
Write your own on-farm food safety plan	10	38.46%
Hire someone to help with food safety on the ...	1	3.85%
Conduct a self audit on your farm	7	26.92%
<b>Totals</b>	<b>26</b>	<b>100%</b>

***Lessoned Learned:***

RFCO learned much from this project and offer the following insights:

- Future Workshops may consider providing “technical assistance” in specific areas of food safety and risk assessment such as worker hygiene and training, traceability issues and water source issues.
- Timing of Workshops should be in consideration of the agriculture season. The Workshops occurred about a month later to follow the CSU food safety webinar.
- Some producers are more comfortable with one-on-one or smaller group interactions, which may pose a structural issue if hosting a Workshop in an open room format. Formatting for future Workshops may need to take into account the “culture” of certain regional growers and provide a compatible environment structure that would aid in offering a comfort zone to fully interact with the Workshop curriculum.
- Through the implementation of the Workshop series, we learned that many of the regional CSU Extension offices are not staffed with an on-farm food safety expert. A “train the trainer” program would be beneficial in arming local offices with knowledge, materials and technical training that would directly affect local producers.

RFCO believes that the intended outcome of the Colorado Produce Growers Food Safety Plan Workshop series accomplished its goals.

***Contact Person:***

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### **Program Administration**

**Project Summary:** A total of \$5,291.73 was utilized for costs associated with meetings of the Specialty Crops Advisory Council, program outreach and promotion at events including the Western Colorado Horticulture Society Annual Conference and the Colorado Big & Small Annual Conference, office supplies, and temporary personnel costs.

**Lessons Learned:** In the early years of the Specialty Crop Block Grant Program, it was relatively easy to increase the workload of existing staff to provide administration and oversight. The thought being that if additional assistance was required to assist with application and/or reporting functions, we could contract for temporary help. However, as new agreements with USDA were entered into and with some projects spanning multiple years, it became obvious that responsibilities for administration and oversight needed to be vested in a single staff position. As part of a reorganization of the Markets Division in early 2012, a new Marketing Specialist position was created. While we are in the process of filling a vacancy for this position, we believe creation of the position and having one staff person with broad responsibilities for program administration and oversight will greatly improve CDA's management of the Specialty Crop Block Grant Program going forward

**Financial Summary**

	Project Budget	Amount Spent	Balance	Cash & In-kind Contributions Reported
Farm to School Year 1	\$47,400.00	\$47,400.00	\$0.00	\$32,174.75
Farm to School Year 3	\$50,484.00	\$50,484.00	\$0.00	\$25,627.50
Promotion of Colorado Certified Seed Potatoes	\$23,250.00	\$19,590.43	\$3,659.57	\$8,069.62
Colorado Pavilion at PMA	\$48,500.00	\$48,500.00	\$0.00	\$112,850.00
Strengthening Colorado's Farmers Markets	\$17,500.00	\$10,927.14	\$6,572.86	\$11,571.00
Colorado Onions	\$6,053.00	\$6,052.17	\$0.83	\$13,302.17
Branded Potatoes-Yr. 1	\$120,000.00	\$120,000.00	\$0.00	\$30,000.00
Food Safety Training	\$45,181.00	\$45,180.05	\$0.95	\$11,295.01
Dry Beans-Year 1	\$33,000.00	\$32,289.97	\$710.03	\$22,208.25
Marketing, Research & Technical Support (CSU)	\$94,750.00	\$93,491.73	\$1,258.27	\$69,749.83
Culinary Training	\$10,000.00	\$10,000.00	\$0.00	\$11,970.00
Colorado Proud	\$56,058.00	\$56,058.00	\$0.00	\$247,615.00
Specialty Crop Test Plots	\$11,126.00	\$11,125.98	\$0.02	\$24,423.00
<i>Veggies in Colorado</i> Reader	\$12,000.00	\$12,000.00	\$0.00	\$15,510.00
Educating Consumers about the Benefits of Sod	\$20,000.00	\$20,000.00	\$0.00	\$9,115.00
Colorado Produce Growers Food Safety Plan Workshop Series	\$23,184.00	\$19,912.20	\$3,271.80	\$7,275.00
Administration	\$10,957.00	\$5,291.73	\$5,665.27	\$0.00
<b>Total</b>	<b>\$629,443.00</b>	<b>\$608,303.40</b>	<b>\$21,139.60</b>	<b>\$652,756.13</b>