

Missouri Department of Agriculture Specialty Crop Block Grant Annual Report

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Project 1: Wilson's Creek Farmers' Market-Southwest Missouri's Newest Producer-Only Market

Project Summary: At multiple community input meetings in the City of Battlefield, attendees expressed the importance of sourcing home-grown foods and the desire to see a farmers market held closer to home. The Wilson's Creek Farmers Market was created as a producers-only market, focusing on local Missouri-grown produce and other specialty crops. The market was made possible through support from the City of Battlefield, the Battlefield Chamber of Commerce, and the Wilson's Creek Farmers Market Committee. The market was held every Friday evening from 5:30 PM to sellout, May through October 2009, at the Battlefield City Park.

The purpose of the Wilson's Creek Farmers Market:

- 1-Give the community a place to buy locally produced agricultural (specialty crops) items
- 2-Provide educational programs and community events which will focus on such topics as nutrition and gardening
- 3-Provide a sales venue for local Missouri growers to sell fruits, vegetables and other specialty crops
- 4-Promote community identity while increasing the local economy of City of Battlefield and surrounding area

Project Approach: Market startup costs for signs, brochures, a website, and advertising were the biggest known expenses. The grant funds received went towards these expenses. In-kind donations of time and talent greatly extended the reach of those funds.

Media Received

- KSGF Talk Radio (April 24, 2009) - Interview with City Administrator Rick Hess on the Vincent David Jericho Show
- Springfield Business Journal (April 27-May 3 2009) - "Signs of Spring, Seeds of Growth"
- KSMU (Public Radio) Interview (May 1, 2009) - Interview of Shannon McKaig-Buffington by Missy Shelton
- News-Leader / online edition (June 15, 2009) - "Farmers Market in Battlefield Finds Friday Niche"
- News-Leader / Friday paper (June 19, 2009) - "Battlefield Farmers Market Newest in Area to Blossom"
- Community Free Press (July 1-14, 2009) "Springfield, Area Farmers Markets in Full Swing"

Goals and Outcomes Achieved: The initial grant goal of \$40,000 in retail vendor sales was not met for one main reason: the market could not secure enough vendors to meet that sales goal. This was due to a variety of possible reasons that are outlined below.

Rules and Regulations

- Lost many potential vendors due to requirements other markets in the area don't have.
- The number one complaint was the initial insurance requirement by the City for a Business License. Not only is it difficult to find insurance for farmers market vendors, it is also relatively expensive for small producers. The city removed this requirement by June 1st, but by then it was too late to gain lost vendors.
- The number two reason for lost vendors was the requirement for a City Business License, which no other local markets require. See below for details.
- The number three reason was requiring a sales tax ID. Other local markets don't ask for proof of a sales tax license. Those who just want to sell small amounts of produce from their garden are not willing to turn it into a full-fledged business.

City Business License

- Vendors did not like this requirements additional hassle or fee.
- Hassle to keep track of a vendor who initially sells only produce (therefore not required to have a business license) but then adds non-produce items later in the season.
- Gave the impression that there were too many hoops to jump through to be part of the market.
- Licensing needs to be an all or nothing requirement for all vendors
- I recommend that the City waive the business license requirements for Market vendors. The Market itself will still carry a business license.

The market's final estimated vendor sales total was \$11,182,83. Through these vendor sales, much needed sales tax revenue was brought to the City of Battlefield. In addition, articles in several local newspapers and word of mouth from customers brought positive press to the City of Battlefield, as well as the local movement to buy and eat local foods, and thereby supported local businesses.

The information below outlines events and presentations that were attended by vendors and the public.

MARKET EVENTS

Grand Opening (May 1st)

- Ribbon Cutting by the Battlefield Chamber of Commerce
- Bagpipes by Beau
- Celtic Music by Galloway Crossing
- Face Painter Rebecca Kauffman of Brightening Artworks
- Guest Speaker Galen Chadwick of the Well-Fed Neighbor Alliance speaking on local sustainability
- Approximately 150 customers. Surprisingly good turnout despite rainy cold blustery weather!
- 4 vendors

Kid's Day / Summer Vacation (June 19th)

- Balloons For Kids balloon artist
 - 4-H presenter Velynda Cameron handed out brochures
 - Pat's Clogging Studios and Celtic Fire Irish Dancers
 - Girls Scouts were a no-show
 - Approximately 23 children all evening
 - 20-30 viewers for dance performance (12 were parents/relatives of dancers)
 - 4 vendors
 - As part of Kid's Day, estimated 220 customers. Really busy at 5:30 and earlier, but died by 6 PM
- Civil War History / Wilson's Creek Battlefield (August 7th)
- Living history Civil War camp setup and demonstrations by the 3rd Missouri Cavalry Dismounted Regiment, Tim Ritter, Captain
 - Traditional music by the Sac River Trio
 - Community and Conflict: Civil War in the Ozarks presentation by Brian Grubbs of the Springfield-Greene County Library, in partnership with the Springfield History Museum
 - Handouts and coloring books for kids donated by the Wilson's Creek National Battlefield
 - 8 vendors
 - Average customer turnout and sales
- Fall Festival (October 30th)
- Held in conjunction with the City's Halloween Haunt
 - Hundreds of kids and their families
 - Bean bag toss game
 - Decorating bean bags ghosts and pumpkins
 - Decorating miniature pumpkins
 - Handed out local apples
 - 1 vendor

MARKET PRESENTATIONS

May 1st: Galen Chadwick from the Well-Fed Neighbor Alliance / Thousand Gardens

- 10 viewers
- 4 vendors

May 8th: Lasagna Gardening by Master Gardener Shelley Vaugine

- 1 viewer
- 5 vendors

May 15th: Environmentally Sound Gardening by Master Gardener Renae Bernskoetter

- 4 viewers
- 5 vendors

May 22nd: Child Safety Seat Demonstration by Lori Minor of the Traffic Safety Alliance

- 3 viewers
- 6 vendors

May 29th: Rain Gardens, Rain Barrels and Watershed Awareness by Missouri Department of Conservation Community Conservationist Ronda Headland and Tiffany Frey, Project Assistant for the James River Basin Partnership

- 10+ viewers
- 6 vendors

June 12th: Low-Cost Lawn Care by Master Gardener Mark Bernskoetter

- 3 viewers
- 4 or 5 vendors
- Estimated 100 customers
- Market note: very busy early with parking lot full at 5:30 PM but died down about 6:45 PM
- News-Leader reporter took photos and did interviews for article

June 19th: 4-H is So Much More

- Approximately 23 children all evening
- 4-H presenter Velynda Cameron handed out brochures, but had no “sit-down” audience
- 4 vendors

July 10th: Composting presentation by Master Gardener Mark Bernskoetter

- 2 viewers
- 4 vendors
- Market note: slow with not many customers and below average sales

August 21st: Wind and Solar Energy / Organic Fertilizer with Teri Leigh Baird of Gladewinds

- 3-5 viewers
- 6 vendors

Beneficiaries: The grant money awarded to the Battlefield Chamber of Commerce was used for signs and market promotion. For the 2009 season, the market had 4-8 vendors per week. Customer attendance was approximately 50–150 per week. Overall average market sales of \$1,863.00 per month.

For the 2010 season, the market has had an average of 5 vendors per week as of the end of June. Average attendance has been slow, but it is early in the season for many vegetables (namely tomatoes) which draw customers. And it has been really hot for June, which has been slow for business and may discourage vendors from wanting to spend their evening in a hot parking lot. Time will tell if money spent on advertising and the change of venue will increase vendor sales at the market.

Lessons Learned:

Volunteers

- Needed more volunteers. Initially several volunteers helped shape market rules and direction. After market started, there was only one occasional volunteer (besides Paula and myself) who helped the market manager.

Market Space

- We knew going in that the space available for the market was awkward and different from the usual open parking lot. We had to keep customers out of the market area, sometimes having to kindly ask them to park in front before the market opened. The inability to put vendors in front of city hall was a nuisance because the market tended to look empty and new vendors didn't understand why they couldn't set up there. Limited space for trailer parking and turnaround was an issue, with some vendors ending up unhooking their trailers to get into their market stalls.

Market Time

- For the most part, we heard positive comments on the market day and time. But it became evident as the season went on that the majority of customers came right at the beginning and crowds thinned after 6 PM or so. Several customers would even come earlier, around 5 PM, and turn around and leave when told they'd have to wait until 5:30 for the market to open.

Community Room Presentations and Events

- Community Room presentations were sparsely attended. Windows are darkened so looks closed. Promise of air-conditioning seemed to have no impact. Hard to get signage to direct inside as no good place to set chalkboard and wind blows over. Only occasional attendance by someone who saw a flyer or heard about it somewhere else.
- Event days had slightly better turnout than the average for the month, but lack of volunteers for planning and promotion made it difficult to pull off. Because of this, only 4 of the 6 planned events were held.

Information Table Space

- Couldn't get any non-profit organizations to set up information tables. This was partially due to lack of volunteers to seek them out.

Signs

- Signs too small
- Couldn't read "Farmers Market"
- Limited places to put them out on the highway
- During dry spells, would not go into ground as dirt was rock-hard
- Lots of work to put them up and take them down for each market
- Attaching balloons to draw attention a waste of time as they pop on sign edges

Vendor Packet

- Too much information scared off vendors
- Will remove all form/license copies and have available if ask for

Bathrooms

- In September, the City started locking the bathrooms at 5 PM before the start of the market, so both vendors and customers had no access.

October

- Too cold, rainy and dark
- No vendors with fall goods
- Few if any customers

Additional Notes:

Market managers is a tough issue. Our paid student "intern" for the 2009 season was our biggest non-grant expense and required a lot of supervision. In 2010, our paid student "intern" did not work out. Requirements for someone to be responsible, punctual, available to be at every market, place signs, help vendors, collect vendor fees, keep market records, etcetera is a big job, and it's hard to find someone able to do all that, paid or not. Requires a lot of supervision. For the 2010 season, our vendors decided to take on the job of market managers themselves, splitting up some of the duties such as putting out signs, collecting vendor stall fees, and keeping attendance records.

Update on the 2010 Season:

New location in church parking lot with main highway frontage and lots of room for trailers, but no bathrooms. Changed to a daily vendor fee of \$5.00 instead of an annual or monthly fee. Changed the opening time to 4:30 PM (was 5:30 PM last year). Pre-purchased advertising in 3 local papers and the local public radio station with the remaining grant funds (in March of 2010). Have attracted several new vendors this season. The market was also featured in an article in a major local newspaper.

Contact Person:

Shannon McKaig-Buffington, Market Organizer (shannon@jabuffington.com)
Becky Wright, President, Chamber of Commerce
(becky_wright@empirebank.com)

Project 2: Columbia Farmers' Market Spring Round-up Community Day

Project Summary: The Spring Roundup Community Day provided a forum for exchanging ideas, facts, and feedback between mid Missouri farmers, customers, and community leaders. Farmers interacted with the community and promoted their farms and products while learning what their customers' needed and wanted. Customers became more educated on the costs and needs of growing their local food supply and as such, have a better appreciation and understanding of the farmers' role in a sustainable community.

Project Approach: The event was held the first Saturday of April which was the third week of the market season for Columbia Farmers Market. It was used as a season kick-off and increased customer awareness of the farmers' responsiveness to the needs of the robust local food supply.

During the morning market, Chef Craig Cyr, owner of Wine Cellar & Bistro, shopped the market purchasing items for his chef demo that afternoon. Two media crews followed him through the market; Brownfield Network and Columbia Missourian. Both groups promoted local food systems through their reporting.

Demonstrations, speakers, and displays were used to engage community members in supporting and understanding the need for a sustainable local food supply.

Afternoon schedule:

Keynote speaker: Dr. Kamyar Enshayan, director of the University of Northern Iowa Center for Energy and Environmental Education. Approximately one hundred people came to hear Dr. Enshayan presentation with financial statistics on the local food system established in Iowa. Among those in attendance were two Columbia City Council members, the City of Columbia's mayor's family, and three University of Missouri professors.

Benefits: We were told later that the City Council members discussed and had high praised for the presentation during their next City Council meeting. We felt that the University of Missouri professors were a positive source of promoting local food systems through their teaching and other educational activities.

Chef demo by Craig Cyr: Chef Cyr prepared all the items purchased that morning at the Columbia Farmers Market. He had been supplied with a low cost beef cut which he had marinated in advance. The meal consisted of beef on a bed of braised greens which was sampled by fifty-five people at the demo. This was the most popular presentation.

Benefits: Chef Cyr was able to show the audience that it does not have to be overwhelming to shop at a farmers market, purchase and prepare items not typically found in a grocery store (such as arugula or Swiss chard). Chef Cyr dispelled the misconception that grass fed meats are too high priced. He proved that economic cuts of meat can be purchased at a farmers market and be prepared deliciously.

Home food preservation by Vera Massey: This was a very popular seminar with fifty-five people in attendance. Vera Massey is the MU Extension Nutrition and Health Education Specialist. We were pleased that she was able to join our efforts. The Columbia Farmers Market has promoted home food preservation during the height of the season because there is an abundance available.

Benefits: Attendees were able to learn how to preserve specialty crops when supplies are in abundance and thus have a source of local food outside the typical growing season. Encouraging home food preservation can increase sales during the regular growing season.

Community Gardening presentation by Bill McKelvey: Bill McKelvey was part of the Missouri University Extension's Healthy Lifestyle Initiative and president of the Columbia Garden Coalition. He discussed different gardening and volunteer opportunities around the City of Columbia. Twelve people attended his presentation.

Benefits: Attendees were encouraged to grow their own food and made more aware of where food comes from besides the grocery store.

Urban Agriculture presentation by Adam Saunders: The Columbia Center for Urban Agriculture was a new non-profit organization with a demonstration garden. Their presentation promoted growing your own food on a small plot. We wanted to help them promote their mission because they took the time to explain the process and labor that goes into food production. Twelve people attended their presentation.

Benefits: Attendees were encouraged to grow their own food and made more aware of where food comes from besides the grocery store.

Worm Bins & Composting presentation by Dorothy Canote: Dorothy Canote is a retired high school science teacher. Her presentation had hands-on displays and was quite in depth. She also provided hand-outs. Fifteen people attend her presentation.

Benefits: Attendees were exposed to the complexity of science of maintaining healthy soil and ecosystems. They were made more aware of how food is grown.

Organic Pest Control presentation by Rex Roberts and Sue Baird: Rex Roberts was president of the Columbia Farmers Market and a heirloom tomato grower. Sue Baird is president of the Missouri Organic Association. Their presentation was a lively discussion attended mostly by five members of the Columbia Center of Urban Agriculture.

Benefits: Attendees were exposed to the complexity of science of maintaining a healthy ecosystem. They were made more aware of how food is grown.

Bee Observations presentation by Vera and Art Gelder: Vera and Art Gelder own Walk About Acres and sell honey at the Columbia Farmers Market. Their presentation was on the importance of bees to food production. Eighteen people attended their presentation.

Benefits: Attendees were exposed to the complexity of maintaining a healthy ecosystem. They were made more aware of how food is grown.

Children's Area: Kimberly Penton, an early childhood education specialist, set up a hands-on children activity area that consisted of two different activities: cutting and tasting fresh produce; planting seeds in a newspaper pot that could be set directly in their home garden. Kimberly also had a compost bucket and explained how the composting worked. Twenty-five children participated in the children's area, some more than once.

Benefits: Children were able to taste, feel, smell, experience fresh produce. Children were able to take home an outgoing gardening project so that they could realize their ability to grow their own food.

In addition to the scheduled activities, there was an 'meet a farmer' area where ten farmers displayed photo albums of their farms and offered products for sale including fresh grilled hamburgers and locally made honey ice cream. Approximately two hundred people attended the 'meet a farmer' area during a three hour period making an atmosphere conducive to visiting with the farmers. Missouri University Extension's Healthy Lifestyle Initiative was a sponsoring partner and had an interactive display with educational games about nutrition and exercise. The two hundred event attendees were able to visit these interactive areas at their own pace.

Goals and Outcomes Achieved:

We were able to increase the interconnection between local farmers and consumers by giving them a central location and convenient time to meet and discuss farm production and customers' needs. While ten farmers actually set up displays, eight other farmers from the market were in attendance to talk with the public. Attendees were able to learn first-hand some of the obstacles farmers face in providing local food, different production methods, and the rules that govern selling at our market. Farmers were able to establish a more personal relationship with their customers and potential new customers.

From fifty-five surveys collected the day of the event we learned that 95% of the attendees (52 attendees) wanted information on purchasing, preparing, and eating local food and less than 5% (three attendees) wanted to grow food themselves. Every survey was positive and everyone said they would attend another event with the same theme. However, in the Columbia Farmers Market board meeting discussion it was determined to have more information on purchasing, preparing and eating local food and not so much on growing it.

During the 2009 season, the Columbia Farmers Market reached a new customer count record of 6,700 shoppers during a four hour period on Saturday morning.

Additional long term achievement: We were pleased that members from the City Council of Columbia were in attendance and that they had a positive dialogue about the Columbia Farmers Market's effort to have a sustainable food system. A year later, May 2010, the Columbia Farmers Market successfully gained permission by an unanimous vote by the City Council and the new mayor to open farmers markets in three additional locations despite

the planning and zoning laws prohibiting such operations. The City of Columbia has deemed the Columbia Farmers Market as a positive impact on the future of the community.

Beneficiaries: This event was such a win-win situation. Everyone was pleased and looked forward to the upcoming season. Attendees said they would make a point of sharing the information with their friends, family, community leaders whom they wished had attended. Visitors came from Moberly and Hermann, Missouri.

Lessons Learned: Unfortunately the weather was beautiful, sunny and warm, the day of the event. Many farmers said they had to be in the field because of the terrific work conditions. If the weather had been rainy or work conditions muddy we most likely would have had more farmer participation.

The event was scheduled before the grant was awarded which made planning and implementing a little more difficult because of the unknown source of funds to pay all the expenses if the grant was not awarded. However, the market manager was able to obtain sponsorships to cover part of the costs and in the end the grant was awarded. The market manager now takes closer consideration to the timeline of the work plan.

Contact person: Caroline Todd, Market Manager
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Project 3: 10th Year Anniversary at Webb City Farmers' Market

Project Summary: The Webb City Farmers Market is the major source for the direct sale of specialty crops in the Joplin/Webb City area yet reaches less than 5% of the potential shoppers in the area. This project was designed to capitalize on facility improvements, expanded access for EBT/debit/credit, expanded days and the 10th anniversary of the market, through increased publicity. The goal was to increase the number of customers, the dollar amounts going through the market and the use of EBT.

The market has worked, and continues to work, to increase the supply of local produce available to market customers. The market's extensive training efforts (typically 5 – 7 workshops per year, plus on-farm advisory visits - as often as once a week to our immigrant farmers) is directed almost exclusively to our specialty crop producers. Training farmers and urging them to farm better and more expansively makes it incumbent on the market to provide sufficient numbers of customers to buy their produce. This project was designed to:

1. make it easier for existing customers to remember to come to the market through a brochure they could keep at home and through billboard reminders (forgetting it's market day is the most frequent reason cited by customers not making it to the market).

2. expand the market's customer base with an eventual goal of making shopping at the market a routine experience for a majority of community members.

To achieve these goals, the market designed, printed and distributed full color brochures with extensive information on the market. The market designed and mounted a stationary billboard publicizing the market, its location and hours. The market designed and posted special event information on electronic billboards on selected days.

Project Approach: Through the design, printing and distribution of a full color tri-fold brochure and billboards promoting the market, its 10th anniversary, its expanded days, its winter market and its acceptance of EBT, debit and credit cards, the market expanded regional awareness of the availability of specialty crops at the market.

The market had distributed self-produced flyers for several years and felt that a professional brochure would better suit the image the market has attempted to develop – that of a well-organized abundant source of local produce. The market also felt customers would be more attracted to the professional brochure and more likely to keep it where they would likely discard a black and white photocopied flyer. The professional flyer also allowed the market to be placed in the travel center of the state of Missouri that is about 15 miles from the market. The two major natural food stores in Joplin agreed to make the brochures available to their customers, the state social services and county health department offices agreed to place the brochures in a prominent place in their client waiting area. The brochures had the advantage of publicizing the market/specialty crops throughout the year, rather than just during the summer as the billboards did.

The stationary billboard was selected to reach a broader audience 24/7 during the summer season, while the electronic billboards were selected to promote special events designed to increase sales of high season high quantity specialty crops such as zucchini, tomatoes and blackberries.

Goals and Outcomes Achieved:

Not all of the project goals were met, however, given that the Webb City Market assisted four other area markets open in 2009, the number of customers shopping for local specialty crops throughout the area has significantly increased. In addition, Winter Market was impacted by the severe winter. Held as an outdoor market, in 2008 we had one bitterly cold day, in 2009 we only had only two days that were not bitterly cold.

Goal	2008	2009	% Increase
Tuesday & Friday summer market sales 30%	\$252,755	\$294,655	16%
Saturday summer market sales* 100%	\$63,129	\$80,195	27%
Winter market sales 100%	\$17,007	24,529	44%
# of EBT charges 100%	128	282	120%
EBT sales 100%	\$1,324	\$5,337	303%
# of Debit & credit card charges 100%	313	489	58%
Debit & credit card sales 100%	\$8,494	\$12,713.82	51%

* all four of the new area farmers markets were open on Saturdays

Federal law prohibits treating EBT customers differently from other customers at the market, so no separate surveys were conducted. However, observations indicated that EBT purchases were typically made for families of two to four persons so, taking an average of 3 per family, EBT charges represented an increase of from 384 persons in 2009 to 846 in 2009 (repeat purchases are not taken into account as there is no way to identify repeat purchases. It can be assumed that some EBT customers were repeat customers, buying market tokens two or three times a month during the market season.).

We believe these results are, in large part, due to two factors: increased public awareness of the market through the grant-funded brochures and billboards and increased produce selection as a result of extensive training provided by the market to growers - & the growers response to that training. In addition, some benefit was derived from the increased web presence of the market, particularly through the institution of a blog. (In 2010, the market instituted a facebook page, which is proving to be extremely useful in connecting with consumers.)

Beneficiaries: In 2009, 39 specialty crop growers, plus the market-sponsored Kids Community Garden, sold at the Webb City Farmers Market and benefited from grant-funded publicity and resulting increased sales.

In 2008, an average of 470 customers attended the market each market day (total estimated customer visits in 2008 – 41,830). In 2009, an average of 560 customers attended the market each market day (total estimated customer visits in 2009 – 49,840). Again, it is important to bear in mind that four other farmers markets opened in the area. Some customers who shopped at the Webb City market in 2008 would have switched their business in 2009 to their new more local markets, so the increase in new customers at Webb City is probably larger than indicated by the numbers.

As demonstrated above, significantly more EBT clients accessed local specialty crops during the grant period and buying significantly more fresh, local produce. This number is unaffected by the new markets, as they do not accept EBT.

Our county health department tells us that eating specialty crops is a key component of better diets, better nutrition and better health and the department has worked with the market to increase access by placing market brochures in their offices.

The market was able to show growth, both in dollars and number of customers served, despite the expansion of farmers markets in the area from two to six. Unexpended funds were allowed by the state to be spent on a second customer brochure promoting five of the area markets, expanding the grant's reach to serve even more area specialty crops growers.

Lessons Learned: Little or no impact was observed in advertising special events on electronic billboards. Given the high expense of such media, the market will not use that avenue again. Advertisers must find the electronic billboards effective because they are heavily used, but it appears that use of the electronic billboard is effective only when used long-term allowing for repeated exposure. Our budget allowed for purchase of only one or two days of intermittent displays per event and did not result in any perceptible increase in attendance.

It was also felt that the stationary billboard had limited impact. A better design and location would probably significantly increase the stationary board's effectiveness. The main lesson learned is that billboards must be very simple. In general, billboards can be used to convey only a very limited amount of information – a flashy graphic and 5 to 10 words at most. In addition, small clients, such as the market, may have limited access to high visibility boards. Perhaps more lead time with a better feel for when funding would be available would allow the market to reserve a board with higher visibility and traffic.

We were very happy with the brochures. They seemed to be an effective way to get detailed information out to the public and were in high demand at the market, as well at the other locations where they were placed. The market updated and reordered brochures for the 2010 season and worked with the four new area markets to create and publish an area brochure for their use.

Contact person:

Eileen Nichols

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Additional information:

One of 4 electronic billboard designs used to promote “Attack of the Giant Zucchini” event, which included a children’s craft table (photos below), zucchini dishes and a zucchini weigh-in:

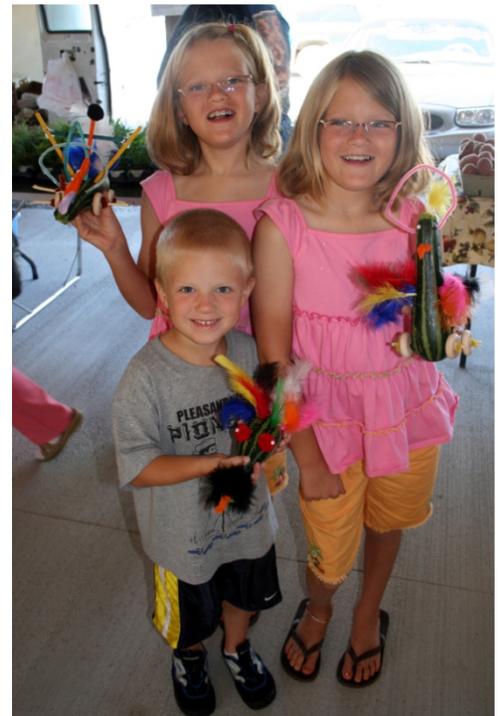


Photo of stationery billboard:



Copies of three brochures published enclosed

18,00 of regional brochure printed

10,000 of Webb City brochure with vendor in red shirt printed

4,000 of Webb City brochure with baby printed

Project 4: Tower Grove Farmers' Market "Eat Local" Campaign

Organization Information

Tower Grove Farmers' Market

3877 Connecticut Street

Saint Louis, Missouri 63116

Telephone – 314-772-3899

Fax – 314-480-7119

Email – contact@tgmarket.org

Web – www.tgmarket.org

Market Officers & Board Members

Patrick Horine, President

Jennifer Ryan, Vice-President

Timothy Ryan, Secretary

Chris Geden, Board Member

Shannon Earnest, Board Member

Project Summary: The Tower Grove Farmers' Market (TGFM) is committed to increasing awareness of Missouri-grown produce and to the education of St. Louis metropolitan area citizens on the importance of supporting local farmers and growers of specialty crops. TGFM used the funds from this Missouri Department of Agriculture (MDA) grant, together with matching funds from TGFM Friends' donations, to mount a promotional and educational "Eat Local" campaign. The Market worked with its community and media partners (South City YMCA, KDHX Community Media, and Sauce Magazine) to increase Market attendance and sales and to enhance the public's understanding of the economic and environmental benefits of supporting small Missouri farmers.

Project Approach:

- Completed design and development of "Eat Local" campaign by March 15, 2009. Project was awarded to local, freelance designer.
- Added three new specialty crop farms to 2009 TGFM roster by the end of April, 2009. Patrick Horine, TGFM founder and manager will managed farmer recruitment.
- Began running advertisements in April, 2009. Patrick Horine coordinated all advertising details.
- Completed print materials by April 15, 2009. Patrick Horine coordinated all printing.

Goals and Outcomes Achieved:

Goals

- Increase market attendance by 20%. 2008 attendance averaged 2,000/week, 2009 target attendance was 2,400/week. Results to be verified through weekly visitor counts.
- Increase market sales of existing TGFM specialty crop farmers by 20%. Results to be verified by meeting with farmers monthly.
- Add at least three new specialty crop farms to the 2009 TGFM roster with a goal of 100% retention in 2010.

Outcomes

- In 2009 market attendance increased to over 3,000 shoppers per week. Instead of a 20% increase, we saw a 50% increase!
- Keeping with the attendance number increase, farmers surveyed had sales increases of at least 50% in 2009 over 2008.
- In 2009 we added the following specialty crop farmers: Builaland Family Farm, Ozark Harvest Farm, Ivan's Fig Farm, Double Star Farms, Whetstone Farms, and Ringhausen Orchard. All six vendors have returned for the 2010 season at TGFM.

Beneficiaries: The additional 1,000 shoppers added to the weekly attendance benefited from the project funds, and all 3,000 weekly shoppers benefited from increased variety and offerings at the market. A significant impact was made on the income levels of vendors and farmers at TGFM and three of the six added specialty crop farmers were new to the world of farmers markets and their involvement has changed their career possibilities. In addition, TGFM has

gained more attention regionally and attracted more farmers in 2010. We have increased from 20 vendors in 2008 to more than 40 in 2010 and become the largest grower-only farmers' market in the St Louis region.

Lessons Learned: The lesson impressed upon our organization the most is the importance of promotion and advertising. The \$5,000 grant awarded to us enabled us to reach a new audience, place ads in media that would not have been possible otherwise, and increase our attendance and farmer count. We feel very fortunate to have been awarded this grant!

Contact Person:

Patrick Horine, Tower Grove Farmers' Market Founder & Manager
314-772-3899 or 314-479-4329
contact@tgmarket.org

Additional Information:

Please see our website at www.tgmarket.org. In addition, in 2010, we launched a new mid-week farmers' market, the Downtown Farmers' Market in downtown St Louis. More information on that market is available on our website, as well.

Project 5: Ste. Genevieve's Wine Trail-Route du Vin

Name: Jennifer Johnson, Marketing Director, Chaumette Vineyards & Winery, representative of

Organization: Ste Genevieve's **Route du Vin** Wine Trail: Chaumette Winery, Cave Winery, Charleville Winery, Sainte Genevieve Winery, Twin Oaks Winery, Sand Creek Vineyard & Winery

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Financial Officer: Region's Bank, Ste. Genevieve, Missouri

Project Summary: A relatively new and growing wine region, the Route du Vin Wine Trail in the Ste. Genevieve area has limited resources to promote their region, with income only from quarterly wine trail events. The Route du Vin's fundamental problem is lack of resources to institute an effective public relations campaign introducing the wine region to interested consumers who would visit the region upon knowing about it, particularly in such close proximity to where they reside.

Project Approach: The awarded specialty crop grant allowed the Route du Vin, a.k.a. Ste. Genevieve Wine Trail to produce a six month advertising campaign in the monthly St Louis food and wine publication Sauce Magazine, introducing their regional wine trail to a dense and specified targeted wine/culinary consumer market from April through October. This time of year was chosen, as it runs concurrent with the Missouri winery tourism season, for greatest potential yield for increased visitor traffic and increased sales volume.

A series of six monthly ads in 2009 from April through October in Sauce Magazine included a **redeemable coupon** to use in the retail shops at any of the winery locations. Coupons redeemed were tracked and collected by individual wineries. Upon redemption, wineries distributed customer profile surveys, which provided such data as customer contact information to utilize in the Route du Vin newsletter database, as well as a series of market-research related questions that provided insightful information for future Route du Vin marketing efforts. Data collected included such statistics as demographic information, how familiar the consumer is with the wine region, what types of events the consumer would be interested in attending, whether road signage was helpful in traveling to the region, etc.

Additionally, the advertisements included a **link** directing consumers to the Ste. Genevieve Tourism website, to also allow the consumer to download the coupon from the site. The website link provided the visitor profile survey as well and collected the same information listed above. The Ste. Genevieve Department of Tourism assisted in accumulating visitor profile survey information through their website and collecting data from completed surveys from wineries.

The Route du Vin also designed an **insert** to be placed in their current map brochure, offering the same redeemable coupon. Brochures were distributed at off-premise events each individual winery participated in for the 2009 calendar year. The insert included the web link, suggesting the consumer fill out the survey online, though the survey was still be available to complete in each winery's tasting room.

Goals and Outcomes Achieved: We, (Route du Vin wineries,) feel that the long term benefits of this project were achieved: increased visibility and the better establishment of brand identity in a targeted marketplace that is in close proximity to our region. The Route du Vin has benefited also from marketing research data to allow us to continue to market to and connect with interested consumers, which has increased overall sales volume and visitor traffic. We have also seen our quarterly wine trail event consumer participation and database increase, which has generated additional actual and potential income to further promote and market our wine region.

Coupons Redeemed and Tracking Data: Less than 25 coupons were redeemed in total from advertisements, wine trail maps, (print collateral,) and the Route du Vin website. We understood from the initial onset of the project that this might be the case, since we were only able to offer a discount on non-beverage merchandise due to liquor control law. Therefore, in addition to serving as a coupon, the advertisements directed readers to the Ste. Genevieve Tourism website using a specific url to track "click-throughs" to the Route du Vin website, which allowed viewers to either download either the coupon or the wine trail map. From June 1st through August 4th, 2009, we tracked 174 click throughs to the Route du Vin website and 1,446 click

throughs to specific winery websites. We are still waiting for statistics for the remaining months from Ste. Genevieve Tourism, but we feel confident that these numbers steadily increased.

Surveys: Visitor profile surveys were collected from multiple sources, including the Ste. Genevieve Department of Tourism, through our website, www.RdVWineTrail.com and from all Route du Vin winery tasting rooms. Information collected has been instrumental in better understanding our market, their visiting preferences and how they became acquainted with the Route du Vin.

Please see statistics attached, and here is a brief overview: We discovered that more than half of those surveyed were familiar with the Route du Vin; that the majority became acquainted with the Route du Vin through winery visits, word of mouth and "other" sources; that the majority of Route du Vin visitors visit once per year on Saturdays during the autumn months and typically go to 2-4 wineries, and that the majority would be willing to visit more frequently if the Route du Vin hosted more wine events during winter months. We discovered that though the largest segment surveyed were St Louisans, that almost as many came from southeast Missouri as well as out of state. In addition, we accumulated 100+ email addresses, either directly or indirectly from surveys, from either completing the survey or from signing up on our website. Again, this information has been very useful in determining strategy for our future marketing efforts, particularly in terms of who to target, when to target and how to reach our customers.

Beneficiaries: Each of the seven Route du Vin wineries benefited from this project's accomplishments: Chaumette Winery, Cave Winery, Charleville Winery, Sainte Genevieve Winery, Twin Oaks Winery, Sand Creek Vineyard & Winery. Total employees for these wineries exceeds 150, 95% of whom reside within a 30 mile radius of the Route du Vin. The Route du Vin saw ticket sales growth of 25% for the 2009 wine trail events and a 15% decrease in ticket sales since 2010. (Please note that this marketing campaign ended November 2009.)

Lessons Learned: We have learned that our marketing efforts have been on target in terms of marketing to St. Louisans, but that we may also want to consider emphasizing marketing efforts to Southeast Missouri and to out of state visitors. We have also learned that in addition to marketing through traditional print and other media publications, effective marketing strategies may be to focus on word-of-mouth referrals from our customers and marketing our wine trail in our Tasting Rooms. We have identified that the purpose of our website serves as an informational source and less as a call to action source for visitor traffic.

We have also learned that we may want to consider more progressive tracking strategies for future marketing campaigns that give prospective Route du Vin visitors an easier way to act, (visit and/or stay in touch,) such as through social media. (Incidentally, our findings prompted us to establish a Facebook page as

of March 2010 that has been quite effective.) We have concluded that there were perhaps too many steps involved in our tracking efforts that did not give us as much data as we were hoping to accumulate.

In many ways our conclusions point to emphasizing a specific marketing strategy within our overall marketing plan: communicating with our customers in personal, reciprocal and constant ways. This can and should be done through both traditional and progressive marketing forms, such as through advertising in media publications as well as by enlisting our our current customers to spread the word about our wine trail, through social media, by ensuring our visitors have excellent experiences at our wine trail events, by providing more opportunities for winery guests to learn about our wine trail in our individual tasting rooms, etc. These non-traditional methods are less cost consuming yet more time consuming, and we will be evaluating exactly how to utilizing these in future Route du Vin marketing efforts.

Contact Person:

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Project 6: Support for Local Producers and the Next Generation of Food Entrepreneurs: Lafayette County

Project Summary: The overall objective of this project was to increase the production and consumption of locally produced, healthy food through the recruitment, training and networking of local agricultural producers, and the promotion of local agricultural products in Lafayette County. Lafayette County has the unique opportunity to be a part of two University of Missouri Initiatives, The MU Extension Healthy Lifestyle Initiative and the Regional Cuisines Old Trails Project. The presence of these two projects, working in conjunction, puts Lafayette County in the position to have a greater impact on the food and Ag sector in the county. Many of the current food entrepreneurs in the county travel to Kansas City to market their products, and strengthening and promoting the Lafayette County Farmers Market will provide a market that will meet their needs without having to travel outside the county. This will enhance the quality and availability of locally grown foods and stimulate the local food economy, as well as increasing ag awareness by making the connection, “food comes from farms.” Although the Lafayette County Farmers’ Market has operated in Higginsville for a number of years, organization and promotion will help expand the market to other communities and encourage more growers to participate. The availability of local outlets for farmer sales will increase the farmers share of the food dollar.

Project Approach: Provide training for new growers and existing producers through 2 series of workshops to help support the expansion of the Lafayette County Farmers Market from one market location to three community market locations operating under the Lafayette County Farmers Market structure.

Youth entrepreneurs would receive training through 4-H program presentations and FFA classroom lessons.

Local restaurant and food service personnel would learn about local foods from visiting the farms and orchards and meeting the farmers. Local county leaders would become more informed of the increasing economic impact of local food efforts by attending a "Lafayette County Local Food tour," that would showcase emerging operations in food production and agritourism.

Goals and Outcomes Achieved:

*Goal 1: Bylaws, rules, regulations and board established
Application for non-profit status submitted*

Bylaws and an organizational structure were developed, including election of officers, committee assignments and a Board of Directors composed of growers, community members and supporters. Marketing plans were developed for promotion of the individual market locations, including print advertising, special events and promotions.

Application for non-profit status was tabled for present time. Two bylaws workshops were held with 10 market vendors and 3 University Extension support staff attending.

*Goal 2: 10% increased sales at Lafayette County Farmers Market (LCFM);
10% increase in attendance at LCFM; Develop & implement marketing plan; Development of cooperative marketing model*

The Customer mail list increased from 21 in Sept. '08 to 57 at the May '10 market season opening. Customer count was tracked to show average attendance of 100+ per market at Higginsville location; new markets in Concordia & Lexington are generating good attendance but no baseline is available. The Concordia Market concluded the season with an average of 119 shoppers and has had a high attendance of 174 in the 2010 season so far. The Lexington market had 72 shoppers opening night and has shown a steady increase weekly, in spite of inclement weather. A marketing plan was developed for the Higginsville Market for 2010, including advertising, weekly Market Table presentations and special events.

Expansion of 2 new Farmers Markets (Concordia in 2009; Lexington in 2010) as cooperators under the Lafayette County Farmers Market, using one set of bylaws, officers and vendor applications, with individual market masters for each location was developed.

Goal 3: 2 producers participating in cost-share program; 5 vendors expanding operations; 2 restaurants serving local food

A workshop was held with 7 growers attending for a presentation by NRCS on USDA programs for high tunnel cost share and cold storage facilities. Three participants applied for cost share assistance for cold storage and high tunnel production under USDA programs. (continued)

Goal 3 continued

Table Tents recognizing supporters of locally grown foods were provided to 4 county restaurants using local produce and with two Lafayette County wineries also participating.

Farm to Cafeteria efforts were supported with a tour for eighteen area school food service managers. County growers currently providing vegetables and apples for use in school lunch hosted the group at their farm and orchard. A chef demonstration provided training on preparing fresh produce, and recipes featuring those products were shared with attendees. Tastings for students and a visit from “the farmer” were held in cooperation with OPAA food service in 3 school districts using local fresh fruit and vegetables.

5 new vendors participated in the Lafayette County Farmers Market for 2009.

Goal 4: 50 people attending training events by end of grant period.

Attendance at workshops varied from a high of 42 to a low of 7, for both series. Participants attending represented 4 counties and included students, beginning farmers and established growers.

Total attendance =83

Goal 5: 50% of Farmer’s Market Board of Directors trained by end of grant period

The Lafayette County Farmers Market President completed the Lafayette LEAD 2009 leadership development program.

Seven board members attended workshop trainings for accounting and tax reporting, and sales and marketing.

Goal 6: Develop training for local youth

Programs were presented by the VISTA worker for 3 county 4-H clubs and 3 FFA chapters encouraging youth entrepreneurs and explaining requirements for operating a successful business. 74 youth and 30 adults attended these presentations.

Beneficiaries: Farmers Market growers were the beneficiaries of workshop trainings including topics such as Food Defense and GAP practices, accounting and tax requirements, health department requirements and food safety, High Tunnel production presented by a producer panel, and sales and marketing, including a presentation on customer service by the Higginsville Chamber of Commerce. Local growers benefited from increased customer traffic, and selling opportunities afforded at the 2 newly established markets. Currently, 16 vendors have “full season” stalls in Higginsville, 11 in Concordia

4-Hers and FFA students were beneficiaries under the programs presented for youth entrepreneurs by the VISTA worker and Rebecca Brunkhorst, a local high school student who has a honeybee project, producing honey for sale at

the Farmers Market and in a local coffee shop. Grants awarded by the Lafayette Healthy Lifestyle Alliance for students growing for the new Lexington Farmers Market helped support 7 young growers.

Residents of Lafayette County have benefited by having additional opportunities to purchase fresh, locally grown and produced food. Also, participation by local restaurants is providing both local diners and tourists visiting the area menu selections featuring fruits and vegetables produced in Lafayette County.

Lessons Learned: An advertising survey was conducted with shoppers at the 5-4-09 (Opening Day) market to determine success of Newspaper advertising. When asked, "How did you learn about Market?" 80% replied signs and word of mouth vs. Newspaper and Radio advertising.

Baselines and benchmarks were not always available to track progress due to no prior year's data and vendor reluctance (or inability) to share sales information.

Local restaurant owners appreciated the help in developing relationships with local growers to supply their needs, not only through Farmers Market purchases, but with direct marketing as well. The Table Tent signage displayed stimulated comments on the taste of menu items and moved diners to visit local roadside stands in search of fresh produce.

Contact Information:

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Project 7: On-Line Registry to Locate and Protect Pesticide-Sensitive Specialty Crops

Project Summary: A number of specialty crops are known to be sensitive to the effects of pesticide applications that drift off-target. Examples of these crops include fruits such as grapes, apples, raspberries, strawberries, and melons, vegetable crops such as tomatoes, lettuce, potatoes, and broadleaf vegetables, some ornamental nursery plants, bee colonies, plus all crops grown on certified organic acreage. If applicators were aware of the locations of these crops then they could take appropriate precautions when working in the area, especially if the pesticide they were applying was one known to have a tendency to drift under certain conditions. The IPM Program developed a voluntary on-line registry, the Pesticide-Sensitive Crop Locator, as a risk management tool for producers of specialty crops and for pesticide applicators.

Project Approach: The project was initiated after several members of the Missouri Grape Growers Association approached Missouri Department of

Agriculture about the possibility of the department providing a crop locator service similar to those available in several other states. Grapes are a high-value specialty crop with an increasing acreage in Missouri but the crop is known to be very sensitive to commonly used hormonal herbicides (for example: 2,4-D, dicamba, clopyralid, and triclopyr). Certified organic acreage is another type of at-risk specialty crop because if pesticides drift onto certified land then the affected acres and crop lose their certification (and market advantage) for 36 months.

Preventing off-target damage from pesticides is the responsibility of the applicator but producers can also help prevent damage by being proactive and communicating with their neighbors, local pesticide dealers and applicators to let them know the location of crops that are susceptible to pesticide drift. The Pesticide-Sensitive Crop Locator is another tool that both applicators and producers can utilize to prevent damage.

Initially registration forms were direct mailed to members of the Missouri Grape Growers Association and certified organic growers since these two groups have the most at-risk crops. Returned forms were entered into the database with location descriptions. During the course of the project we transitioned to electronic submissions although growers without computer access can still request paper forms.

Working through the department's IT group we developed an on-line registration form and after some trial and error were able to include the capability for participating growers to map their crop locations through Google Earth. The mapping feature enhances the value of the registry by providing an aerial map to go along with the written field location description. Some similar registries only give a field description or GPS address which makes an applicator have to do extra work to find field locations. Our objective was to provide interactive aerial maps as a way to make it easy for applicators to know where the fields are.

All registrations are reviewed by the project coordinator before they are included on the database. Minimum acreage requirements for specialty crops ensured that the registry targeted commercial scale growers and not backyard gardeners. To be listed as organic acreage, the growers had to list their certifying agent. Options are being explored to list acres that are being transitioned to certified organic.

Field maps with icons for each crop type are available through the search function. One can zoom in or out of the map plus move the map around if looking for other fields in the area. Information that appears on the public side of the database only lists the farm name, field location, crop type and acreage as a way to protect privacy. The grower's name and contact information is not available to the public.

Goals and Outcomes Achieved:

Goal	Outcome
Develop searchable on-line tool to register locations of pesticide-sensitive crops	Registration form and search feature available at http://mda.mo.gov/plants/ipm/sensitivecrops/ . Searches can be done by county and crop with results shown with text or map options.
Provide maps for field locations	Participants can map their fields for each crop. Search results have options for either text descriptions or maps. Can zoom in and out on maps which also show any other registered fields in the vicinity.
Register 50 producers in 2009 and additional 50 in 2010	As of March 2011, there are 141 producers with 204 field locations registered through the site
Emphasize prevention of chemical trespass during Pesticide Applicator Training	In 2009-2011, leaflets were distributed to about 4,200 attendees during Ag Plant, Ornamental/Turf, and Right-of-Way category training sessions. In 2010 and 2011, sensitive crop registry also included in presentation during general session – shown to almost 4,000.
Signs for participating growers to alert applicators	Signs were sent to current participants. Budgeted for signage for the first 200 locations registered. Sign is shown below.
Design database to require minimal oversight after grant funding ended	Made the registry so it could be kept “in-house” to avoid annual maintenance costs that occur with web outsourcing.

Beneficiaries: Have 141 specialty crop producers registered currently. Vineyards and organic acreage are the majority of listings along with some vegetable, small fruit, orchard, beehives and nursery stock listings. A total of 204 locations are currently registered representing a total of 8,728 acres and 54 beehives.

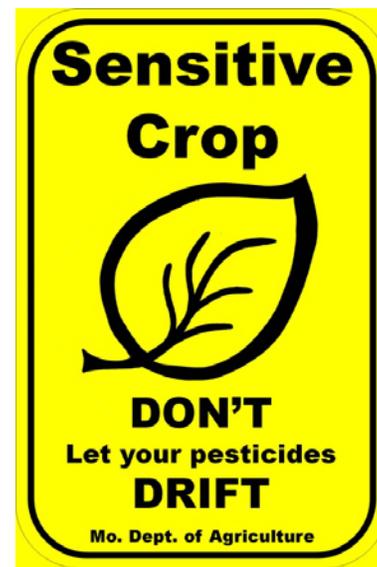
By being aware of the locations of sensitive crops, pesticide applicators can take precautions to prevent damaging crops and the resulting consequences. Missouri Department of Agriculture and the University of Missouri Extension team up annually to conduct Commercial Pesticide Applicator Training sessions. At these regional trainings over 3 years (2009-11) leaflets about the registry were distributed during select category training sessions to about 4,200 Ag Plant, Ornamental/Turf, and Right-of-Way attendees. In addition, during a presentation at the general session in 2010 and 2011 about 4,000 attendees heard about the sensitive crop registry and how they can use it to conduct searches for locations in their areas.

Lessons Learned: Need to find better and more effective ways to promote the registry and reach growers and applicators.

- A display table was set up at appropriate conferences but results definitely improved when a staffed booth was present at key grower conferences. However, booth cost can sometimes be prohibitive, for example, space at the annual Midwest Wine and Grape Conference held in Missouri.
- Wireless access was advantageous at tradeshow booth to be able to demonstrate how site worked and to sign up interested producers at the event rather than waiting until getting home. In addition, if they ran into problems registering or making a map then someone could assist them.
- Commercial Pesticide Applicator Training occurs in January of each year so need a mechanism to remind applicators about the registry closer to cropping season when pesticides are being used.
- Difficult to get on the program at various specialty crop conferences to show how the registry works and how it is easy to use. Presentations such as this may have increased participation. Lesson learned is that having a display is not enough promotion. However, it takes time to build up a new program and have a repeat appearance at key conferences.
- Beekeepers were wary of registering hive locations due to thievery issues and also they hesitated to outline projected foraging areas because it implied they owned the land.
- Promoted the project and similar ones in surrounding states at the Great Plains Growers conference for 2 years. This target audience was a great fit since growers are primarily from Missouri and also Kansas, Nebraska and Iowa.

Underestimated the time required to develop informational brochures and signs plus get departmental approval of them.

Participants received two sensitive crop signs (right) to post in



obvious places. These sturdy, high visibility aluminum signs are 12 by 18 inches in size. Having the signs available for conferences and workshops increased interest plus reduced mailing costs. Shipping was costlier than anticipated because the signs were made of a heavier aluminum than originally planned (no gauge choice was given with original order). However, a thinner gauge was available for the second set of signs which did reduce shipping costs.

We received a number of compliments on the sign, in particular the friendly approach of it, the simplicity of the design, and the legitimacy given the program by listing the Missouri Dept. of Agriculture on it.

Contact Person:

Anastasia Becker, 573.526.0837, Anastasia.Becker@mda.mo.gov

Additional Information:

Registry website: <http://mda.mo.gov/plants/ipm/sensitivecrops/>. On-line registrations of field locations can be done by selecting Registration Form. Searches can also be done at this site by selecting the Search option. Amount of funding expended: \$23,784.00

Project 8: Reynolds County Health Department Community Garden

Project Summary:

It was a wonderful experience for those students who participated and parents seemed to value the experience and knowledge their children were given. Reynolds County is an example of a FOOD DESERT. Only one grocery store is present in the county. Obesity of adults and children as well is very prevalent in all areas of the county. Area school nurses have done BMI on all school age children and a large number of students fall in the obesity range for their age group. We do not have a Farmers Market in this area and when asked the children state no fresh fruits or vegetables are given to them at home. Low income families, single income families do not have enough money for fresh fruits and vegetables as they cost more and will not keep as long as frozen or canned. The distance people have to drive to get fresh produce is a 60 mile trip one way and there is not enough money for gas for people to travel this distance more than once a month. Fresh produce rarely lasts that long even if they could afford it. Most people have little money to put in a garden, they have little if any knowledge of gardening and many times not enough land that could support growing produce.

Children were told about the garden project before the end of the school year and ALL were invited to attend family and friends as well. Accessibility to the garden would be easy and all items needed would be provided. All that was needed from them would be energy and a willingness to learn. Any produce grown would be theirs to share with whomever they wished. A ride to and from the gardening spot would be provided if needed. The children came up with different ideas on what to do with the items they grew. The Maize children offered their father to build a produce stand when needed. Some of the children liked the idea of taking the food to the fair for display while others wanted to

take the food home to feed their family.

Project Approach:

We tried hard to follow our time line and meet our goals. The disastrous weather pattern and storms set us back and interfered with our replanting and useable produce.

Our garden project started off with high interest and expectations. The enthusiasm of the students and the cooperation of the Centerville Mayor Denny Caruso made this experience well worth the work and effort. Nancy Burns a University of MO Extension FNP was the project manager and did a wonderful job of working with the students and the general public. She has many years of education experience and her nutrition background in the local schools made her the perfect choice. The students knew her and liked her so the bond was made and the pattern set.

Mayor Caruso put in a water line and spigot and assisted us with locating a local farmer who could till the ground. We had soil sample run by the MO Extension and seeds, plants, and books were secured. Students and their parents planted the garden under the supervision and guidance of the project manager. All was going well until Reynolds County and the surrounding area sustained the "inland tornado" a terrible storm that all but demolished the garden. The seeds and seedlings were almost all destroyed and replanting was scheduled. Due to the severe weather and storms our produce was much less than expected. This was disappointing but we still persisted and concentrated on the "Eating from the Garden Curriculum" as best we could.

All participating students entered a project into the Reynolds County Fair and all students were awarded at least one ribbon. Although their entry was not edible they displayed their creative ability with the garden produce. Nancy and I assisted students one entire day in the canning process. Together we made homemade salsa, strawberry freezer jam, and canned cinnamon apples. It was a wonderful learning process and filled with laughter from the children and they were in awe at the finished products. Each student sampled the fruits of their labor and took home jars of fruit to share with their families.

Almost all of the students asked to have the opportunity to do the garden again. There was not much participation from the community as we expected and hoped for at the beginning of the project.

Goals and Outcomes Achieved:

The garden was established, planted, watered, and harvested. Students increased their knowledge about gardening, nutrition, teamwork, canning, and responsibility. Overall the experience was a positive and all students entered a project into the county fair and won a ribbon.

Pre and Post tests were given to the children and they improved greatly and were able to identify different garden tools, seeds and parts of the plant and where the plant took in the nourishment and water. Children were asked about

their entries in the county fair by the fair committee and judges along with the general population who viewed them. It was up to the parents to take the entries to and from the fairgrounds following the fair rules, time and regulations. All was handled very well according to the fair staff. Linda Meloy was in charge of the exhibits along with several volunteers and they stated the public enjoyed the Community Gardeners exhibits and they children were very happy with the ribbons and prize money they received.

Yes, the knowledge gained showed in their willingness and effort they took in the garden and pride they displayed when asked about their efforts. There was much sadness in their efforts and the long hard hours of work in the heat after the storm damaged their garden and crops and then they found out some people came in and helped themselves to the harvest without asking or announcing their presence. They watched and waited for the watermelons watering, and keeping the rabbits away and preventing others from riding their bikes through the garden and damaging the plants.

Increased knowledge showed in the paperwork they completed daily and in the lessons and in the questions they asked such as what exactly a hot pepper was and how it differed from a milder pepper. They were also interested in the different variety of plants, their different colors and taste and that some were easy to raise while others were more difficult. The canning and preserving day was the most fun and the very best learning experience. They had no idea that food needed to be cleaned and processed before eating and could be saved for long periods of time. We have forgotten to pass along our knowledge and experience to the next generation and much of our ability to care and feed ourselves has been lost. They are very familiar with fast foods, frozen foods, and prepackaged dinners and family mealtime has almost become a thing of the past.

Beneficiaries:

Mayor and city hall were active participant and helpers. The students and parents were engaged in the process. We even engaged the inmates at the local county jail to assist with putting up a wire fence to keep out the rabbits.

Although local participation was small it generated a lot of interest and conversation and many citizens took home produce. I believe the knowledge and experience of the garden was a tremendous positive impact on the students.

They will remember always how to grow food and how to process food for eating. The general public benefitted by helping themselves to the garden produce. One elderly gentleman gathered tomatoes, and green beans to cook at home.

The Centerville Courthouse staff stated they loved looking out their windows and seeing the beautiful flowers and the people in Centerville drove around to see how the garden was growing and offered advice to those who were

were working. Many elderly people came out to check it out and offered words of encouragement.

We had 18 children ranging from 4 years up to 13 years of age. Some of the children were local and some were visiting for the summer.

Lessons Learned:

The donated site was the lot a house was on and the soil was not as beneficial as it needed to be. I would do raised beds and several of them to get a better yield and make the work easier.

I would get a written agreement from the parents for their children to “regularly” participate. We were in competition with Vacation Bible School, parent’s vacations, visiting their families in other counties and other commitments that cut their regular participation down. I would start early in the year and engage local citizens in designing and running the project. Community participation agreements are needed to foster follow up participation and accountability for all phases of the project. Verbal agreements are NOT enough. As obesity is identified more and more as the cause of many of our chronic diseases I am hopeful we can once again bring up the idea of community gardens and canning and preserving foods. Many other grants are focusing on nutrition and increased physical activity but it takes more than just a small handful of interested people. This is a true commitment and a “lifestyle change” and unfortunately the majority of the people are not ready to decide to make the necessary changes. We need to take our children, who are our future, and show them the way and also work WITH them to get to a healthier lifestyle. It takes the whole community!

Contact Person:

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Additional Information:

Workbook or log on file at the Reynolds County Health Center. Invoices for expense verification and timesheets to validate payroll is on file at the Reynolds County Health Center

Project 9: Locally Grown Organic Potatoes for Maplewood School District

Project Summary: The Maplewood Richmond Heights School District joined in a partnership with St. Louis University, the Missouri Farmers Union and Sappington Farmers' Market to provide a certain percentage of locally grown, sustainably grown, and organic food if possible to its students. This farm to school program is called Healthy Eating with Local Produce (HELP). The grant for this project is for three years. The first food delivered by this partnership was served in August, 2009. When we heard of plans for this in 2008 we realized that this represented a new market for growers in the Missouri Organic Association (MOA). In particular HELP estimated that they would need a

minimum of 6000 pounds of potatoes for 2009. Since there were about 20 MOA members who were participating in a group seed potato purchase, we thought that we could help meet the needs of this market by assisting these members with harvesting and storage during the three years of this project. We submitted our grant application during the first week of January, 2009. We were notified that we had been awarded the grant in mid-April, 2009. Since potatoes had already been planted for 2009, we requested and received a start date of July 1, 2009 from the Missouri Department of Agriculture. This allowed us to acquire a potato digger and conduct training prior to the planting of the 2010 crop. The time period for our grant project is July 1, 2009 to June 30, 2012. Since Terry Durham received his own specialty crop block grant for elderberries in 2009, John R. Wilkerson took Terry's place in managing this project with the help of Paul Krautmann, Eric Lober, and Charles Feldewert.

Project Approach: Harvesting of potatoes using a garden fork or a potato plow is very labor intensive. We decided that if we acquired a potato digger that was pulled by a tractor it would greatly increase the growing potential. We planned to provide training on the planting, growing and harvesting with the goal of making efficient use of the potato digger. The storage requirements of potatoes would also be included in the training.

Goals and Outcomes Achieved: We had originally planned to fly in members of the Rockey family to provide training. This family has been supplying our seed potatoes for about 10 years. Their company is Potato Garden aka Milk Ranch Specialty Potatoes and it is located in Austin, CO. As we entered into discussions with them they suggested that we partner with them to make a training video that both parties could use. So we agreed to pay for the production of the video and they agreed to supply the location, farm equipment, and people to be filmed. So we entered into an agreement with Mara Ferris of Grand Junction, CO to film and edit the video. John R. Wilkerson of MOA traveled to Grand Junction in Sept, 2009 to coordinate the filming of the video. The video entitled 'Growing, Planting, and Harvesting Potatoes' was completed in time for showing at MOA's conference on Feb 6, 2010. There were 26 people in attendance.

The video is available to viewers in hardcopy form from John R. Wilkerson, Terry Durham or Debi Kelly of the Missouri Alternatives Center. It is available online on the Facebook page of Potato Garden. We sent the video to the webmaster for the Missouri Organic Association website but it is not available on this site.

We contacted ATTRA to obtain information about potato diggers. They sent information about two diggers. After talking to Terry Durham, Walt Gregory, Small Farm Today Magazine staff, and others we decided to go with US Small Farm Equipment of Torrington, WY. They had two models - the D-10T and the D-10M. The D-10T could be towed without the use of a trailer. It also had a longer cleaning bed and with some additional options could be used for sweet

potatoes. So we entered into an agreement to purchase the D-10T in Sept., 2009. It was delivered to Eric and Kathy Lober's farm near Villa Ridge, MO during the first week of Oct, 2009. As always there was some necessary items that did not come with the digger. We had to purchase a lift cylinder and associated hoses to control the blade. Also we needed some items to safely tow the digger - a trailer lighting kit, safety chains, etc.

On June 28, 2010 we held a field day at Eric and Kathy Lober's farm to demonstrate the digger. Fifteen people were in attendance. With Eric operating the digger approximately 1000 feet of potatoes were harvested in less than 2 hours in heavy clay soil. In contrast it would have taken 10 hours to hand dig these not counting the time to pick them up. We were pleased with the operation of the digger. Paul Krautmann pointed out some risks in towing the digger. We decided to make a few modifications to the digger to reduce these risks. These were discussed with Larry Anderson of US Small Farm Equipment. Paul is working on these modifications so that the digger can be towed safely for the 2011 harvest season.

Beneficiaries: In 2010 Eric and Kathy Lober planted 1375 lbs of seed potatoes and dug 6700 feet of potatoes using the D-10T digger. Eric works full time off the farm and his job required some overtime. This lack of time and the extremely warm and wet weather contributed to yields lower than expected. He says 'The digger is a nice piece of equipment which will help many backs and save a lot of harvest time. I see the importance of soil quality and keeping cultivation up to help the digger do its job.'

Walt Gregory and Diana Root of 'R' Farm used the digger in 2010 to harvest the crop resulting from planting 1350 lbs of seed potatoes. They transported the digger to their farm on a trailer. They experienced difficulty using the digger due to an abundance of weeds caused in part by the warm and wet weather.

In 2011 we expect at least five growers to use the digger - Eric and Kathy Lober, Charles Feldewert, John R. Wilkerson, Mike McGowan and EarthDance. EarthDance operates an apprenticeship program at the Mueller Organic Farm in Ferguson, MO. They have planted 350 pounds of seed potatoes this year. As graduates of this program start farming a worthy goal is to allow them access to a tractor that will allow them to use the digger.

Lessons Learned: This project was based on the estimate of a minimum of 6000 pounds of potatoes per year. No contracts were issued for potatoes for the 2009 growing season. So the HELP project took potluck as far as potatoes. Charles Feldewert, Eric and Kathy Lober, Walt Gregory and John R. Wilkerson sold HELP around 1000 lbs of in 2009. Then at a meeting in December, 2009 at St. Louis University we were told that less than 2000 lbs of potatoes would be needed for 2010. Again no contracts were issued for the 2010 growing season. Farmers are reluctant to commit to growing a product without a contract. Two farmers did increase their order of seed potatoes to supply HELP and to take advantage of the potato digger. For 2011 HELP has

said it needs 4000 pounds of potatoes. We have a better understanding of the price they are willing to pay and will supply more of their potatoes this year.

As my mother said 'The world was not made in one day.' This year we will make the modifications to the potato digger to allow it to be towed safely. Next year we will work on plans to use the digger for other crops such as sweet potatoes, garlic, or carrots which are also used by the HELP project.

One of the lessons learned is that it is difficult to make the digger work efficiently on a wide variety of tractors. We tried to get someone to agree to use their tractor to make up rows for some of the small growers and then to harvest them with the digger using the same tractor. We were not successful this year in this endeavor.

An unexpected benefit of this project has been an agreement with St. Louis University that allows us to use their loading dock and a nearby room at the Salus Center to receive and distribute the group seed potato purchase. This has resulted in a significant reduction in freight charges. The last year before this agreement our freight charges were 30 cents per pound. Since this agreement our freight charges were 16 cents per pound last year and 19 cents per pound this year.

In order to fund the maintenance and insurance for the potato digger, we will charge the users a basic rental fee of \$100 per day. We plan to have another field day this year to demonstrate the use of the digger with the tractor is straddling two rows. St. Louis University, one of the partners in the HELP project, has indicated that they are in discussions with three other school systems regarding a farm-to-school project. So we will work with St. Louis University to explore additional opportunities for our growers to use the digger for crops such as carrots, garlic, and sweet potatoes

Funds Spent:

This grant was for \$9000 with the Missouri Department of Agriculture (MDA) supplying \$5000 and MOA matching this with \$4000. \$5000 of the Specialty Crop Block Grant funds and \$3369 of the matching funds leaving \$631 of matching funds to be expended this year.

Digger equipped with wheels for towing - \$6500

Additional parts for digger - \$242

Insurance against theft or damage - \$222

Training video - \$900

Field Day to demonstrate digger - \$505

Total Funds Spent to Date: \$8369

This leaves a balance of \$631 some of which will be spent for safety modifications being made by Paul Krautmann.

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Project 10: Growing Missouri’s Vegetable Industry

Project Summary: With the renewed interest in fresh, locally produced food, we saw a need to better educate local growers and encourage new produce growers. To that end, Missouri Vegetable Growers Association (MVGA) applied for and received a grant with the purposes of assisting in membership growth and helping growers become more successful. Our main goals were to sponsor 8 farm tours with a planned attendance of 50 at each.

Project Approach: We did sponsor 8 field tours but, unfortunately, not every presenter had an accurate count of attendance. Those who did had a range from 45 to 120. I believe it is safe to accept 75 as an average attendance number, which far exceeds what we thought possible. In tabulating the returns we got, it appears that the flyers sent out in advance of the meetings along with the availability of a meal while the event was going on both contributed up to 50% of the surpassing of our goals. Additional results indicated that the tours helped make the extension person involved in each tour more visible in their community with MVGA helping in the process of promoting the tour. Every participating extension person was willing to do it again this next year and we are planning on repeating the tours with different emphases.

Goals and Outcomes Achieved: The MVGA gained 91 new members from the tours, which is 121% of the goal expected. It is obvious that it has exceeded the stated goals and has provided much needed information to a large number of farmers as well as local gardeners and has elevated MVGA in their ability to provide valuable information to their members and the public.

Below is a table that provides more information on the series of tours.

Tour region	Date	MU Specialist assisting	Number attending	Notes on farms/businesses visited as part of tour
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SW - Dunnegan	June 23	Pat Byers	86	The tour visited 4 vegetable growers who are using high tunnels near Dunnegan, in Polk County. Among the tour highlights were HT fruits of several types (raspberry, sweet cherry, strawberry), grafted heirloom tomatoes, succession planting in tunnels, HT cucumbers, different colors of plastic mulch, innovative methods of heating high tunnels, and custom designed implements.
NE- Green Top	July 31	Jennifer Schutter	55	Tour started by visiting the Southern Iowa Produce Auction from 10 until noon and then went to 3 farms. Included were greenhouses and high tunnels with tomatoes. (1 st farm). Pumpkins on the second farm and a roadside stand and a visit about the crops (sweet corn, tomatoes, & cantaloupes) for the last stop.
Central- Latham	Aug, 26	James Quinn	105	Event started at the Central Missouri Produce Auction. Two tour routes were offered (due to the large crowd), each with 3 farms/greenhouses. The usual field crops were viewed (tomatoes, cucumbers, watermelons, peppers, fall squash) and greenhouse tomatoes. Ornamentals (mums & spring production systems) and alternative heating systems (e.g. wood fuel) rounded out the fare.
NW- Harrison County	Aug. 28	Tim Baker	65	University of Missouri Extension and Iowa State University Extension tour was in northern Harrison County, Missouri as well as a few stops across the border in Iowa, including the new produce auction in Lamoni, Iowa.

East Central- Hillsboro	Sep. 3	Nathan Brandt	45	Bellews Creek Farm, Stuckmeyer's Farm Market, & Thies Farm & Greenhouse all featured their production and operations
West Central- Osceola	Sep. 21	Marlin Bates	80	Kottwitz Feed & Farm Supply - General Production; Tomatoes, Cantaloupe, Strawberries, Tomatillos; high tunnel & 2 greenhouses. Wisner Farms- 75+ varieties fall gourds & pumpkins; Sunflowers; Corn-binder; Wholesale; Retail Display. Gordon's Orchard- Peaches, Apples, Pears, Strawberries,; Asparagus, Corn, Cider ; Wholesale; Retail Sales; Wagon Tours.
SE- Perryville	Sep. 30	Kate Kammler & Donna Auffenberg	60	County Line farm- Pumpkins, Vegetables, Season Extension Structures Stonie's Sausage Shop- Meat Processing, Specialty Meats, Amish Foods Perryville Pumpkin Farm- Pumpkins, Gourds, Fall Decorations, Agritourism Hemman Winery- Grape Vineyard, Winery
South Central- Rolla	Dec. 17	Andy Read	70	participants learned how to use high tunnels to grow crops throughout the winter without supplemental heat -learned to use floating row cover - learned about federal programs to assist with the establishment of high tunnels - learned about succession planting

The extension specialists made most of the tour logistical arrangements- contacting the farms and businesses to be visited, handling food, and promotion. In some cases the regional director for MVGA provided advice/suggestions on farms to visit. The MVGA president and secretary attended all the tours. Other MVGA officers attended at different locations. The farms or businesses visited told us about their operations and answered

question.

Beneficiaries: Tours of farms benefit individual growers as they learn what other growers are doing. This includes what they are doing right, and mistakes that they can learn from and hopefully avoid. It gives them an opportunity to pick up new ideas for their farm.

When you support MU Extension's tours of farms, Missouri citizens will enjoy healthful, nutritious local foods in greater quantity. Participants learn what other farmers are doing, and capture new ideas for their farm. This leads to more efficient and profitable farming, which leads to an increased supply of healthful, nutritious, local-produced food, which benefits everyone.

An estimate of the type of attendees was made at several of the tours and was averaged to provide the following breakdown:

- Growers/farmer- 50%
- Home gardener or consumer- 30%
- Industry, government, university or other professional- 15%
- Other- 5%

No quantification on Amish/Mennonite was attempted.

No quantification was attempted to assess learning gained and its potential impact their success in farming. MU specialists sometime evaluate events like this, but what is gathered is customer quotes on the value of the event, and their satisfaction with the event. 'Quantifying' impact is quite challenging in an informal setting especially when the typical attendee is only contacted at 'one' of these events. More formal settings with multiple contacts (e.g. a series of classes) makes quantification more likely to obtain.

Lessons Learned: We plan on continuing to offer a meal when conditions warrant. Hopefully next year we will be able to have an expanded time frame between the time we are notified of the tour date and the actual date of it. Too many times, we received less than 2 weeks advance notice and we feel that may have limited attendance but it did re-enforce the value of mailed flyers.

Every participating extension person was willing to do it again this next year and we are planning on repeating the tours with different emphases.

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Additional Information: MVGA would like to thank the Specialty Crop Grant Program for the funding of this project. It is obvious that it has exceeded the stated goals and has provided much needed information to a large number of farmers as well as local gardeners and has elevated MVGA in their ability to provide valuable information to their members and the public.

Project 11: Establishment of a Specialty Crop Growers Association

Project Summary: South Central Missouri boasts a large number of specialty crop producers. Many of these growers produce on a part-time basis supplementing their main income by selling farm products. Produce from these farms is mainly marketed through farmers markets.

Very few growers are marketing to restaurants, florists, grocery stores or directly to consumers through ways other than farmers market. Expanding marketing outlets reduces risk and enhances the producer's ability to market value-added and niche products.

Many growers are also unaware of how new production techniques can be adapted to their farming situation. High tunnels, plastic mulch and low cost drip irrigation systems are being used very little in the south central region although they have been shown to improve production and efficiency in other parts of the state.

Expanding marketing outlets and improving production techniques will increase the likelihood that part-time growers will be able to become full time. Becoming a specialty crop producer will become more attractive to new growers and young people interested in farming by establishing a more successful model for specialty crop production and marketing

Growers throughout the region have very few opportunities to visit with other growers to discuss regional issues. It is important to bring together the local growers who are successful with younger growers and those wishing to improve their operations. The trade of information is invaluable between growers operating under similar economic and market conditions.

This project will facilitate the creation of a specialty crop growers association in the South Central region of Missouri through a series of workshops and farm tours.

Project Approach: This project facilitated the development of a Specialty Crop Growers Association for the South Central Region. The purpose of the growers association is to bring growers together to deliver information about up to date production practices and programs. The association meetings also allow growers to network with each other and to trade ideas and experiences.

In addition to informational seminars a field day and a farm tour were held to demonstrate the types of crops and systems that are currently being used successfully by growers in the region.

A cooking demonstration for seasonal produce was held at the St. James Farmers Market. The cooking demonstration was held to increase consumer awareness about the culinary possibilities of the foods available.

Workshops were held in Salem, Camdenton and Mtn. Grove this summer. These were half-day workshops and covered information about marketing specialty crops, growing cut flowers, small fruit and vegetables. A full day workshop was held in Rolla this fall at Missouri University of Science and Technology.

Speakers for the workshops included University of Missouri Extension horticulture specialist and business development specialist, Missouri State Fruit Experiment station faculty, Lincoln Universities State Vegetable Specialist as well as independent growers.

A tour of the MSU Fruit Experiment Station allowed growers to see many varieties of fruits and cut flowers that are not commonly grown but have economic potential. The tour was also useful for growers to be able to see and ask questions about production practices used at the station. A high tunnel tour was held in December to showcase low input lettuce production during the coldest part of the year.

Goals and Outcomes Achieved:

Goal: Develop South Central Specialty Crop Growers Association with beginning membership of at least 20 growers.

Outcome: The South Central Specialty Crop Growers Association now has 65 members and has introduced many growers to the Missouri Vegetable Growers Association who became members to that organization also.

Goal 2: Increase participant's awareness of and knowledge about marketing to florists, restaurants, community supported agriculture and other direct marketing techniques.

Outcome: According to surveys completed by attendees, 54% said that the program was definitely a valuable use of their time and they learned about marketing and production. 35% of attendees said they probably learned about marketing and production, 9% said maybe and 2% said probably not. 47% of attendees said they would definitely make changes in their production and or marketing practices due to information gained during the workshops. 35% said they would probably make changes, 21% said they may make changes and 1% said no changes would be made.

Almost every participant in the workshops reported that information they learned about marketing would help their farm or business to become more profitable.

Participants commented that they “learned definitive steps to sell products”, “enjoyed and learned a lot from hearing from growers who are actually marketing their own products”, “learned that consistency is important for wholesale accounts”, “I enjoyed the marketing and business insight”, “business planning info and information about marketing to restaurants was very helpful”,

Goal 3: Educate participants on sustainable and profitable production techniques for specialty crops.

Outcome: According to surveys completed by attendees, 54% said that the program was definitely a valuable use of their time and they learned about marketing and production. 35% of attendees said they probably learned about marketing and production, 9% said maybe and 2% said probably not. 47% of attendees said they would definitely make changes in their production and or marketing practices due to information gained during the workshops. 35% said they would probably make changes, 21% said they may make changes and 1% said no changes would be made.

Nearly every participant reported that production information learned at the workshops would help make their operation more profitable. According to survey responses high tunnels are of great interest to growers in the south central region.

Goal 4: Educate consumers about cooking with local and seasonal food.

Outcome: Because the cooking demonstration was held at a farmers market it was not possible to survey everyone who took part in the demonstration. Growers selling at the farmers market did report that they sold out of all of the main ingredients that were being used at the demonstration.

Beneficiaries: The main audiences for these events were current and prospective specialty crop growers. Attendance for individual events:

Summer Workshops:

Mtn. Grove – 17

Camdenton – 12

Salem – 30

Fall Workshop:

Rolla – 65

High Tunnel Tour:

Bland – 75 Another tour is planned for late winter because we had to turn away approximately 50 people after registration was filled.

Lessons Learned:

Summer Workshops

Growers benefited from the fact that they didn't have to travel far since the workshops were spread around the region. Attendance was significantly lower for the summer workshops than for events held during the off-season. In the future it would be better to not include a meal with workshops during the growing season and only include information pertinent to conditions during the current growing season. An example of the types of meetings that would be a better use of resources are the "tailgate meetings" held by MU's wine and grape program. "Tailgate meetings" can be held very inexpensively and offer growers timely and useful information.

Fall Workshop

The fall workshop was a huge success. During the fall workshop a steering committee was formed for the South Central Regions Specialty Crop Growers Association. The steering committee is made up of growers and grocery store owners who are interested in supporting and promoting local value added agriculture enterprises.

According to survey responses the growers present really liked practical information rather than statistics. Participants claimed that they learned more valuable information from presenters who also grow crops themselves.

A couple of the presenters did not have handouts which reflected poorly on the surveys. In the future I will ask that all presenters bring handouts.

High Tunnel Tour

The high tunnel tour turned out to be the sleeping giant of for this program. Attendance was very high. The tour was so popular that we had to cut off registration at 70 and start a waiting list for another tour. The waiting list contains names of another 30 people and a school teacher who wants to bring a class of 20.

Having an outdoor farm tour in the winter was challenging but participants dressed properly and stayed fairly comfortable. In the future it would be best to use a tent that has side-walls. The tent we used did not have side-walls so the heat generated by the propane heaters blew out fairly quickly.

I plan to focus more on tours in the upcoming seasons as a way to bring growers together and deliver programming.

Farmers Market Cooking Demonstration

The cooking demonstration was another success. Farmers Market customers were introduced to easy and innovative ways to prepare common produce items. Vendors appreciated that they sold out of items that typically were not big sellers. Vendors reported selling out of any of the main items used in the cooking demonstration.

Recipes and nutritional information was given out to customers during the demonstration.

Cooking demonstrations really add a lot to a farmers market. Customers and vendors benefit from having the demonstrations.

The only drawback for the demonstrations is the cost of the supplies. A portable kitchen setup is expensive but is also a one-time expense that should last a long time. Another drawback to farmers markets is paying for someone to run the demonstration. The cost of non-reusable materials for the demonstration was negligible.

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Additional Information:

Photos of the fall workshop and high tunnel tour as well as a newspaper article about the high tunnel tour can be viewed at:
<http://extension.missouri.edu/phelps/Horticulture/homegarden.shtml>

Project 12: Influence of Cluster Exposure to the Sun on the Fruit Quality and Composition of Norton Grapes

Principal Investigators

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Project Summary: The purpose of this project was to enhance the competitiveness of Missouri – grown Norton grapes and wines through investigating means of maximizing fruit and resulting wine quality. Norton presents a unique challenge to wine growers in terms of high acidity, high pH and high malic: tartaric acid ratio. Extensive efforts to address this situation have been made through several management studies but with inconclusive results. Hence, more basic and fundamental research was necessary to develop strategies to maximize fruit quality. Hence, the project was proposed to examine the impact of exposing Norton grape clusters to sunlight. Three levels of cluster exposure (fully exposed, partly exposed and fully shaded) were imposed on Norton grapevines grown in two different row orientations (East – West and North – South) at a commercial vineyard in Hermann, MO. The desired treatments were obtained by shoot thinning, shoot positioning, leaf removal or any of these practices in combination. Periodic observations were recorded on berry temperature and photosynthetically active radiation (PAR) in the cluster zone was measured from fruit set till harvest. Fruit samples were collected at harvest for analysis of several quality parameters such as total soluble solids, titratable acidity, juice pH, total phenols, anthocyanins, tannins, organic acids (citric, tartaric, malic and lactic) and sugars (glucose and fructose).

Project Approach:

Experimental Procedures:

Location: Hermann, MO

Spacing: 8' x11' (vine x row)

Training system: Bilateral High Cordon

Row orientation: East – West and North - South

Year of Planting: 2001

Treatment details and experimental design:

Vines for this experiment were selected based on the vegetative growth (pruning weight) produced during the past season. Vines which produced pruning weight in the range of 1.75 to 2.5 lbs/vine were selected.

Fifteen uniform sized vines were selected in each row orientation. Six basal clusters per vine were selected for use immediately after fruit set. Clusters were divided into two groups of three, with each group located on either side of the canopy (North and South side of the canopy in East - West oriented rows and East and West side of the canopy in North – South oriented rows). Three cluster sunlight exposure levels were established. Fully exposed clusters received direct sunlight (Fig 1), partially exposed clusters had one to two layers of leaf for shade (Fig 2) and fully shaded clusters were located in the canopy interior with four or more leaf layers (Fig 3). Selective canopy management practices like shoot thinning, leaf removal, shoot positioning were performed to achieve the desired exposure level. The experiment was designed as a split plot with the row orientation as main plot and exposure level and canopy side as sub plots. Each treatment was replicated seven times distributed on fifteen vines with all the treatments placed on the same vine.

The treatment combinations were as follows:

On East-West oriented rows:

- Fully Exposed Clusters on North side
- Partially Exposed Clusters on North side
- Fully Shaded Clusters on North side
- Fully Exposed Clusters on South side
- Partially Exposed Clusters on South side
- Fully Shaded Clusters on South side

On North-South oriented rows:

- Fully Exposed Clusters on East side
- Partially Exposed Clusters on East side
- Fully Shaded Clusters on East side
- Fully Exposed Clusters on West side
- Partially Exposed Clusters on West side
- Fully Shaded Clusters on West side

A visit was conducted to the experimental site on a weekly basis to ensure the correct exposure level was maintained.

Light measurements:

Photosynthetically active radiation received at each cluster was measured on clear sunny days at fortnightly intervals from fruit set till harvest during solar noon (11:00 am to 1:00 pm). The PAR was measured using a hand-held Light Meter and Light Sensor (Model, LI 250A, Li Cor Biosciences, Lincoln, NE) placed at the middle of the cluster and oriented perpendicular to its plane. Cluster exposure to sunlight was expressed as actual PAR with respect to cluster location (Fig 4).

Temperature measurements:

Berry temperature was measured on two separate days, at veraison and a month after veraison using a handheld thermometer (HH 147, RS – 232 Data logger Thermometer) connected with dual hypodermic thermocouples (Omega Engineering, Inc, Stamford, CT) (Fig 5). Berry temperature was measured by insertion of the probe into the berry center. On each day berry temperature was measured at two hour intervals from 8:00am to 6:00 pm. Temperature was recorded from four berries per clusters in each exposure category and averaged. Berries were removed from the cluster and discarded immediately following temperature measurement. Air temperature in the cluster zone was measured by using HOBO pendant loggers, Model UA – 002 – 08 (Onset Computer Corporation, MA) throughout the period of berry development (Fig 6).

To prevent bird damage to the clusters, bird exclusion cages were constructed using PVC pipes on each experimental vine and bird nets were spread on the cages (Fig 7)

Fruit analysis:

All clusters from each treatment were harvested and placed in plastic bags and transported to the laboratory in ice chests. Berries were randomly selected and

separated into three 100 berry samples. One 100 berry sample was analyzed fresh for basic fruit composition parameters such as total soluble solids (TSS), pH and titratable acidity. The other berry samples were stored in sealed plastic bags at -17°C until analysis for anthocyanins, tannins and phenols by spectrometer and for organic acids and sugars by High Performance Liquid Chromatography (HPLC).

For fresh analysis, the weighed and counted 100 berry sample was crushed by hand and homogenized at room temperature utilizing a circulating mixer (Stomacher Model 400) in the bag. The resulting must was squeezed by hand through two layers of grade 60 cheesecloth with consistent pressure. Soluble solids were measured using an ABBE refractometer (Reichert Mark II Plus) in the temperature-compensated mode. Titratable acidity was determined by titration to pH 8.2 endpoint utilizing degassed, deionized water as the diluents and 0.1N NaOH as the base. Juice pH was measured with a temperature compensating electrode and the pH meter calibrated with pH 4.01, 7.00 and 10.00 buffers. The juice samples were also used for analysis of mineral elements.

Juice color, tannins and total phenols were analyzed from a frozen 100 berry sample. Samples were removed from the freezer and thawed overnight under refrigerated conditions. Berries were processed in a blender (model, Retch GM 200) for 20 seconds and about 1 gram of the resulting paste was used for analysis. The paste was dissolved in 50% ethanol, agitated on a shaker table for one hour and centrifuged for 10 minutes. The extract was diluted with 1N HCl, incubated at room temperature for 3 hours, and the absorbance was read at 520 nm (for total anthocyanins) and at 280 nm (for total phenolics) utilizing a spectrophotometer (Thermo Scientific Spectronic Genesys 2). Tannin content was analyzed using the MCP tannin assay developed by the Australian Wine Research Institute (AWRI Standard Methods 2007, Cooperative Research Centre for Viticulture, www.crcv.com.au)

The final 100 berry sample was utilized for analysis of organic acids (malic, tartaric, citric and lactic) and carbohydrate (glucose and fructose) utilizing HPLC. Samples were removed from the freezer and thawed overnight under refrigerated conditions. Later, thawed samples were heated to 70°C in a circulating water bath and were pressed through cheese cloth to get hot pressed juice, which was used for analysis of organic acids (tartaric, malic, citric and lactic acid) and sugars (glucose and fructose).

Statistical Analysis:

Data were analyzed using SAS statistical software (version 9.1; SAS Institute, Cary, NC). Tukey's studentized range test was used to separate means between different treatments.

Goals and Outcomes Achieved: The proposed project was initiated to achieve following objectives:

1. Understanding the importance of light and temperature (canopy microclimate) on fruit composition of Norton grapes
2. Manipulating canopy for optimization of light exposure to bunches
3. To improve fruit composition of Norton in terms of soluble solids, pH, titratable acidity and nutraceutical properties
4. Maximizing the net returns to growers and wine makers by improving fruit quality

Results from the initial season of the study are given below:

Fruit Composition

Influence of Row Orientation:

Row orientation significantly impacted fruit composition of Norton grapes (Tables 1

and 2). An east-west row orientation resulted in grapes with higher TSS, anthocyanin content and tannins (Table 1). Titratable acidity, total phenols and juice potassium content were lower in grapes from east-west oriented vines than in grapes from north-south oriented

vines. Grapes from east-west oriented vines also had higher levels of tartaric acid, glucose and fructose than grapes from north-south oriented vines (Table 2). A different result was obtained for citric and malic acids. For these organic acids, north-south row orientation produced the highest levels when compared to east-west row orientation.

Influence of Exposure Levels:

Exposure level of clusters to sunlight had a significant effect on fruit composition (Tables 1 and 2). Fully shaded clusters had the lowest TSS and highest juice potassium content (Table 1). Fully exposed clusters displayed the lowest titratable acidity. Exposure level did not significantly effect pH, phenols, anthocyanins or tannins. Fully shaded clusters had higher malic acid content and lower levels of glucose and fructose than fully or partly exposed clusters (Table 2).

Influence of Canopy Side:

The side of the canopy where clusters were located had a limited impact on fruit composition (Tables 1 and 2). Fruit pH was higher for clusters on the south and west side of the canopy when compared to clusters on the north or east side (Table 1). Clusters on the west side of the canopy had a higher citric acid content than clusters on the north side (Table 2). The side of the canopy where clusters were located did not impact tartaric acid, malic acid, glucose or fructose levels in fruit.

Interaction Effect:

Significant differences for interactions were not recorded for fruit composition parameters with the exception of the interaction between row orientation and exposure level for TSS.

Light Intensity and Berry Temperature:

The effects of row orientation, canopy side and cluster exposure on mean mid day PAR (11.00 to 13.00 hours) at the cluster zone are presented in the Figure 8. Fully exposed clusters on the west and south side of the canopy received more than $1100 \mu\text{mole m}^{-2} \text{sec}^{-1}$ at mid day compared to less than $1000 \mu\text{mole m}^{-2} \text{sec}^{-1}$ on the east side of the canopy. Partially exposed and fully shaded clusters almost always received less than $100 \mu\text{mole m}^{-2} \text{sec}^{-1}$ at mid day regardless of the side of the canopy where they were located. Shaded and partially exposed clusters generally received less than 10 percent of the ambient photosynthetically active radiation at solar noon.

Air temperature measured in the cluster zone from fruit set till harvest did not differ significantly among exposure levels (data not shown). However, significant differences were observed in berry temperature for the different exposure levels. Berries on fully exposed clusters exhibited a temperature which was about $10\text{-}15^{\circ}\text{F}$ higher than air temperature; partly exposed clusters displayed a temperature which was about $6\text{-}8^{\circ}\text{F}$ higher than air temperature while fully shaded clusters were about $1\text{-}2^{\circ}\text{F}$ higher than air temperature (Fig 9)

Beneficiaries: Norton is the state grape of Missouri and also widely planted in many Midwestern states. There are approximately 300 acres of Norton planted in Missouri. Improved fruit and wine quality would increase the competitiveness of Norton wines for the 98 wineries currently licensed in Missouri, half of which offer at least one wine based upon Norton and are now competing in the competitive global wine market. Increased sales of Norton wine will likely to drive more sales of all Missouri wines due to the high profile of this wine based upon it being the flagship wine grape of Missouri.

The results of the present project can be disseminated to all the Norton grape growers to improve the fruit quality of Norton in terms of balancing the acidity and pH by various canopy management practices to optimize the quantity of sunlight recorded by clusters. The results will be disseminated at group meetings, tail gate meetings, workshops and field days. The results will also be published in scientific journals for the benefit of colleagues involved in Norton research. Furthermore, this project will support the marketing efforts of the Norton Says campaign currently underway by the Missouri Wine and Grape Board. Concurrently, this would enable Missouri wineries to offer higher fruit price to growers, thereby improving the entire wine industry's financial position.

Lessons Learned: Preliminary results from this study clearly indicate the significant influence of sunlight intensity on fruit composition of Norton grapes. The row orientation in which vines are planted plays a large role in determining the amount of sunlight intercepted by the vine canopy. It is clearly established from this study that light intensity and berry temperature are two interdependent factors. Though no significant difference was observed for cluster zone air temperature, a significant difference was observed for berry temperature at different exposure levels. The influence of light and temperature were clearly reflected in several berry composition parameters such as soluble solids, titratable acidity, potassium content, juice sugars and organic acids, tannins etc.

Furthermore, the preliminary results obtained in this study indicated that optimizing canopy management practices such as shoot thinning, shoot positioning and leaf removal to attain good exposure of all clusters to sunlight can overcome the problems associated with Norton grapes such as high TA, high juice pH with respect to increased accumulation of malic acid and juice potassium.

Even though the results from this study seem to be promising in improving the quality of Norton grapes it is too early to derive final conclusions. The 2009 season was characterized by cool and wet conditions with few days having high light intensity or temperature. The extremely high titratable acidity in fruit during 2009 is a good indicator of the environmental conditions this season. A more normal season with higher temperature may give different results. Hence, we are continuing this study for the second season to see the consistency in results before making final recommendations to the growers and industry.

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The results of the experiment was presented during the Viticulture Field Day organized jointly by Missouri Grape Grower's Association and Institute for Continental Climate Viticulture and Enology at Hermanhof Winery and Vineyard on 8 June 2010 (Fig 10). Participants of the field day were taken to the experimental plot and demonstrated different canopy management practices to achieve optimum cluster exposure to sunlight for getting better fruit quality. Also demonstrated the equipments used to measure light intensity, berry temperature and cluster zone air temperature (Fig 11).



Figure 1. Fully Exposed Clusters.

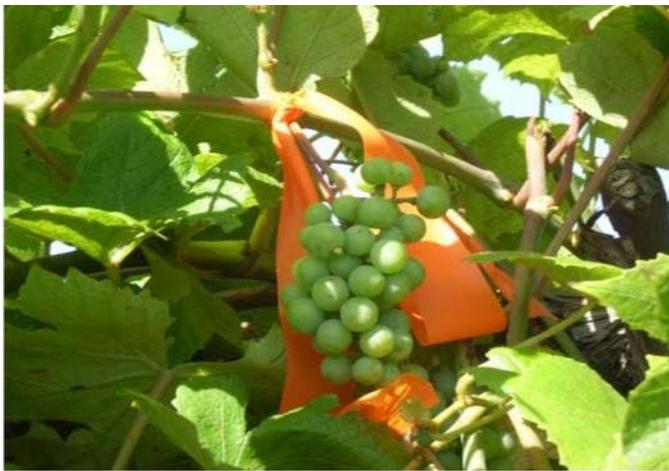


Figure 2. Partially Exposed Clusters.



Figure 3. Fully Shaded Clusters.

Figure 4. Light Meter and Light Sensor for measuring PAR at cluster zone.



Figure 5. Hand Held Thermometer connected to Dual Hypodermic Thermocouple to measure berry temperature.



Figure 6. HOBO Pendant Loggers to measure air temperature at cluster zone.



Figure 7. Prototype of Bird Exclusion Cage constructed on experimental vines and spread with bird net to avoid bird damage.

Figure 8. Mid day PAR received at surface of clusters exposed to different levels of sunlight in two row orientations.

Figure 9. Effect of cluster exposure, canopy side and row orientation on berry temperature at solar noon at veraison to harvest stage.



Figure 10. Results of the experiment were presented to grape growers during Viticulture Field Day on 8 June 2010 at Hermannhof Winery and Vineyard. Hermann, MO.



Figure 11. Field demonstration of the equipments used for measuring berry temperature and light intensity during Field day on 8 June 2010 at Hermannhof Winery and Vineyard, Hermann, MO.

Table 1. Influence of row orientation, cluster exposure and canopy side on fruit composition and polyphenolics of Norton grapes. Hermann, MO. 2009.

Treatments	TSS (%)	pH	TA (g/L)	Phenols (AU/g berry wt)	Anthocyanin (mg/g)	Tannins (mg/g)	Juice K (mg/L)
Row Orientation							
East - West	23.58a ^y	3.23	14.55b	2.66b	3.35a	3.29a	2228.0b
North - South	21.77b	3.31	15.69a	3.12a	2.77b	2.85b	2553.8a
Significance	<0.001^z	0.7353	0.0018	<0.001	<0.001	0.010	<0.001
Exposure Level							
Fully Exposed	23.35a	3.33	13.61b	2.90	2.96	3.12	2249.6b
Fully Shaded	21.93b	3.32	16.14a	2.85	2.99	2.90	2691.0a
Partly	22.75a	3.29	15.61a	2.93	3.23	3.21	2303.4b
Significance	<0.001	0.2909	<0.001	0.7490	0.0501	0.2902	<0.001
Canopy Side							
North	23.48	3.30b	14.97	2.72	3.41	3.18	2238.6
South	23.69	3.34a	14.13	2.61	3.29	3.41	2217.4
East	21.74	3.28b	15.84	3.08	2.84	2.99	2531.0
West	21.80	3.34a	15.53	3.17	2.70	2.72	2576.6
Significance	0.7949	0.0411	0.2044	0.5038	0.4351	0.3324	0.8562
Interaction Effects							
Orientation * Exposure	<0.001	0.3057	0.2259	0.6169	0.7539	0.3381	0.3774
Orientation * Side	0.7399	0.7358	0.4513	0.2460	0.8988	0.1405	0.6185
Side * Exposure	0.3874	0.4780	0.4224	0.3034	0.7551	0.1668	0.8998
Orientation * Side * Exposure	0.2301	0.4101	0.5731	0.9971	0.9478	0.4624	0.3272

^y Means within the column and treatments followed by one or more identical letters do not differ significantly at $\alpha = 0.05$ by Tukey's studentized range test.

^z values below 0.05 indicate significant differences, while values above 0.05 indicate non significant differences.

Table 2. Influence of row orientation, cluster exposure and canopy side on juice organic acids and sugars of Norton grapes. Hermann, MO. 2009.

Treatments	Tartaric	Citric	Malic	Glucose	Fructose
Row Orientation					
East - West	10.00a ^y	0.53b	3.63b	91.98a	136.16a
North - South	9.72b	0.57a	5.38a	79.54b	121.90b
Significance	0.028^z	0.0031	<0.001	<0.001	<0.001
Exposure Level					
Fully Exposed	9.75	0.56	3.15c	88.77a	131.53a
Fully Shaded	9.86	0.55	5.79a	80.80b	124.04b
Partly Exposed	9.97	0.54	4.56b	87.70a	131.52a
Significance	0.3868	0.7420	<0.001	<0.001	<0.001
Canopy Side					
North	10.08	0.51c	3.72	90.33	134.50
South	9.93	0.56ab	3.53	93.63	137.82
East	9.72	0.56ab	5.80	77.62	119.63
West	9.71	0.58a	4.96	81.46	124.17
Significance	0.7352	0.0236	0.3120	0.0868	0.0998
Interaction					
Orientation * Exposure	0.1912	0.8801	0.1617	0.4725	0.3190
Orientation * Side	0.5820	0.1915	0.4145	0.8677	0.7420
Side * Exposure	0.5358	0.9939	0.9127	0.8972	0.5817
Orientation * Side * Exposure	0.3491	0.7416	0.7771	0.8595	0.6497

^y Means within the column and treatment followed by one or more identical letters do not differ significantly at $\alpha = 0.05$ by Tukey's studentized range test.

^z values below 0.05 indicate significant differences, while values above 0.05 indicate non significant differences.

Project 13: Seedless Watermelon Trial at Three Locations in Missouri
Tim Reinbott, David Trinklein, and Sanjun Gu
University of Missouri Columbia and Lincoln University

Project Summary: Seedless, triploid, watermelons are gourmet items that command high prices at both retail and wholesale markets. The recent surge in demand for locally grown vegetables has made the production of seedless watermelon attractive for small growers throughout Missouri. Traditional production of watermelons in Missouri involve regions with deep, sandy soils characteristic of alluvial areas near the two major rivers in our state. Indeed, yield estimates of most varieties of seedless watermelons are based on these soil conditions. Data concerning the performance of the seedless varieties on claypan soils characteristic of a goodly part of Missouri is sparse.

Project Approach: In the summer of 2009, a study was conducted to evaluate the performance of 15 seedless watermelon varieties at three sites in Missouri. The varieties evaluated included Amarillo, Buttercup, Harmony, Imagination, Indiana, Lamar, Matrix, Melody, Millenium, Palomar, Seedway 4502, Sugar Coat, Sugar Crisp, Sweet Delight, Triple Threat and Troubadour. Tests plots were located on the Bradford Research and Extension Center near Columbia, MO; the Carver Research Farm near Jefferson City, MO; and the Toby Detwieller farm near Lamar, MO.

Seeds were started in a greenhouse in a peat-lite germination medium and transplanted into the field on June 15th at the Lamar location and June 16th at the Columbia location. Plants were established on raised beds covered with black polyethylene plastic for weed and moisture control. Prior to transplanting the soil was amended with 80 pounds of actual nitrogen, 46 pounds of P₂O₅ and 60 pounds of K₂O per acre. Four plants along with two pollinators were included per replication and each variety was replicated four times in a randomized manner. Plants were spaced two feet apart within rows spaced 10 feet apart. When warranted, supplemental irrigation was supplied via drip irrigation using polyethylene tape under the plastic mulch. At the Lincoln University site watermelon seedlings were transplanted in mid June and harvested in early September but data is not included because excessive rainfall in August severely reduced yield and quality.

Harvest was conducted on August 21 at the Lamar location and September 9th at the Columbia location. Data collected included total fruit number, average fruit weight, yield per plant, and sugar content measured as % Brix. The latter was based on two randomly selected fruit per plant from each replication. Data was presented by Dr. Sanjun Gu at the Great Plains Vegetable Conference at St. Joseph in January 2010 and is on the MU Bradford Web Page (<http://aes.missouri.edu/bradford>).

Goals and Outcomes: It was our objective to determine if certain varieties of seedless watermelons performed better than others at various locations in Missouri. The data below is the mean of the Columbia and Lamar locations. The Lincoln University location had water logging issues late in the growing season which affected yield and quality and is not presented. At Columbia and Lamar the data was extremely close and we are very confident in the results.

2009 Seedless Watermelon Trial					Yld/plant	Yld/acre*
Variety	Location	# Fruit	Ave. Wgt*	% Brix	*	*
Amarillo	Average	54	12.63	11.41%	42.6	18.6
Buttercup	Average	45	13	11.20%	36.6	15.9
Harmony	Average	35.5	16.01	10.92%	35.5	15.5
Imagination	Average	42	12.62	12.12%	33.1	14.4
Indiana	Average	35.5	13.68	12.57%	30.4	13.2
Lamar	Average	46.5	11.71	12.88%	34	14.8
Martix	Average	31	17.95	11.88%	34.8	15.1
Melody	Average	31	13.46	12.26%	26.1	11.4
Millenium	Average	47.5	14.47	12.63%	50	21.8
Palomar	Average	38	15.54	11.73%	36.9	16.1
Seedway 4502	Average	41.5	16.16	11.30%	41.9	18.2
Sugar Coat	Average	34.5	16.83	12.25%	36.3	15.8
Super Crisp	Average	37	16.49	11.85%	38.1	16.6
Sweet Delight	Average	24	16.10	11.75%	24.1	10.5
Triple Threat	Average	39.5	14.04	12.22%	34.7	15.1
Troubadour	Average	35	12.56	11.47%	27.5	12
* = In pounds						
** = In tons, based on 5x10' spacing						

Beneficiaries: According to the 2007 Agricultural Census for Missouri, in 2007 there were 318 farms growing 3,479 acres of watermelons in Missouri. This information has been passed to them in the form of a presentation given at the annual Great Plains Vegetable Conference in January 2010 by Sanjun Gu. which conference is attended by farmers, Extension, State, and Industry personnel. This data is also made available to area Horticultural specialists.

Lessons Learned: Overall the size was good for each and the sugar content was a little lower than normal because of the excessive rains. There was a wide variety of total yield and sugar content among different varieties with some such as Millenium having very good yield and sugar content. Others such as Harmony had good yield but sugar content was lacking. In general the yellow types such as Buttercup were lower in sugar than the red watermelons. This data gives watermelon growers valuable information in variety selection for yield, size and sugar content that fits their clientele.

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Additional Information:

Data was presented at the Great Plains Vegetable Conference, January 2010.

<http://extension.missouri.edu/buchanan/GPVGC2010.shtml>

More data is presented on the MU Bradford Web Site:

<http://aes.missouri.edu/bradford/>

Project 14: Symbiotic Relationship-Plants and Mushrooms

Project Summary: Mushrooms and certain crops can benefit each other when used together in a row crop and greenhouse setting. This symbiotic relationship can extend the growing season and increase profitability.

This will extend the farmers growing season and increase profitability in a greenhouse situation. The benefit of this procedure will help the Missouri farmer and farming communities by providing top quality, fresh, organic, and nutrient rich foods. The small farmer can extend the growing season throughout the year for plants and mushrooms.

The proposed project used a system of two greenhouses in an indoor environment. One greenhouse was designated the “cold” greenhouse. The other greenhouse was the “warm” greenhouse. The cold greenhouse was air conditioned, while the warm greenhouse received the warm air from the output of the air conditioner.

Outdoor crops used mushroom mulch as a fertilizing substrate.

Project Approach: This project was approached in indoor and outdoor settings. Mushrooms were used along with row crops and mulch outdoors. Indoors mushrooms were housed with plants and by themselves in connecting enclosed rooms.

The amounts of substrate needed to produce indoor mushrooms are as follows:

- Sawdust – 25lbs
- Grain (wheat and rye) – 50lbs
- Cottonseed hulls – 10lbs
- Cardboard – 15lbs
- Lime – 10lbs
- Oak shavings – 20lbs

Mushrooms returned by weight (indoors) as July 2010:

- Shiitake – 10lbs
- Oyster – 40lbs
- Lions Mane – 30lbs
- 30lbs of substrate is inoculated and still being measured.
- 20lbs of substrate was infected and discarded.

Mushrooms returned by weight (outdoors):

- Amounts will not be measured until Fall 2011

Vegetables produced will not be measured until December 31, 2010.

Vegetables documented will be tomatoes, peppers, and tomatoes. These vegetables were chosen because they are hardy producers in a greenhouse environment.

Peppers seemed to flourish the most while being housed with mushrooms. This continued when they were moved outdoors. Habaneras are producing the most fruit followed by jalapeño's. Manzana peppers are flowering, but not producing fruit. Plants that were housed totally outdoors did not show any significant changes in growth patterns or fruiting ratios when grown with mushroom substrate and mushroom mulch. Infestation of white flies in the indoor greenhouse environment was an unexpected result. It is not conclusive as to why this happened. Some possibilities include:

- Increase in levels of Carbon Dioxide
- Increase in mushroom flies that may be a deterrent to white flies
- Plants may be healthier being fed mushroom substrate for fertilizer thus may be able to resist white fly infestation

Goals and Outcomes Achieved: This project relied heavily on the indoor aspect of growing mushrooms and plants together. Data was collected mainly by observation. Measurements were taken of plant longevity and insect infestation for the following plants:

- 1.) hybrid and heirloom tomatoes
- 2.) jalapeno, habanera, and manzana peppers
- 3.) basil

Plants that were housed with mushrooms and were given mushroom substrate fared better overall than plants housed by themselves. Survival rate was close to 5 times

more for plants housed with mushrooms than plants housed alone. Insect infestation in plants housed alone consisted of mainly white flies. Plants and mushrooms together did have mushroom flies but white flies were non-existent.

Beneficiaries: The number of operations benefitting so far from the project is three. These operations are using the mushroom/mulch procedure in outdoor row crops. Other beneficiaries include home gardeners that are growing crops in an urban setting. Since this project is not yet completed, beneficiaries that assisted with the completion of this project can only be projected.

Projections are:

- Increased production for organically grown produce using mushroom substrate as a fertilizer
- Increased profits from the sale of mushrooms
- Increased amount of farmers including mushrooms in their sales for crops

A monetary report will not be available until the end of the growing season in fall 2010.

Lessons Learned: The result of the project does appear to lean towards increased plant production and decreased insect infestations when crops are grown along with mushrooms. Final conclusions will be better defined after the 2010 growing season.

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Additional Information:

Videos and pictures are available under Grant 2008 at:
<http://www.shroomheads.com>

Project : New Crop for a New Age: Innovation & Marketing of Elderberry Plantations & Value-Added Products

Brief Project Description: 1)To educate potential producers about elderberry production and marketing using innovative methods of communication that reach rural communities using low-cost paperless technology; 2)To create a statewide network using the River Hills Harvest Elderberry Producers label to promote elderberry production and value-added product creation and execute the formation of an Elderberry Cooperative.

Project Summary: This project responded to the potential for elderberry production in Missouri, particularly with regard to the extensive research undertaken by Missouri Extension Researchers, Andrew Thomas and Patrick Byers, which can elevate farm production of elderberries through superior strain selection with an emphasis on cropping methods, serving to fulfill a need for this super-fruit, which is currently imported at the rate of 95%.

Project Approach: A three-prong approach was implemented to reach potential growers and provide a more efficient, low-cost, and virtually paperless method of sharing information about elderberry production and its value in the marketplace.

- 1) **Technology:** computer equipment, initial internet service, domain acquisition and website creation and maintenance provided an internet presence. A database of interested parties was created and email notification established;
- 2) **Training:** on-site, hands-on workshops were provided in several locations spread across the state, offering an opportunity for potential growers to learn more and ask questions. These were conducted by Terry Durham, President of River Hills Elderberry Producers, with the assistance of Andrew Thomas, Patrick Byers, Extension Researchers, and Joe Wilson and John Avery, River Hills Elderberry Producer steering committee members;
- 3) **Communication:** assistance with website development, providing webmaster with graphic elements and articles, logo development. Create and print point-of-contact materials for meetings. Develop display board.

Goals & Outcomes Achieved:

1) **Technology Module** - Using a website as an information resource provided a count for the number of guests, offering them an opportunity to join an email newsletter and encouraging further contact at on-site educational seminars.

The graph created by the statistics counter is attached and indicates traffic on the website by date. The first visits were recorded in August 2009 on the Elderberry Life website, which was used as a feeder for the River Hills Harvest site, established in March 2010. The numbers indicate steady progress over the period, with exceptional rise in viewings and responses during periods directly following on-site meetings at farm shows, the regional training sessions and during the period when advertising was published as a result of the 2010 Specialty Crop Grant funding.

An email list of those seeking information from the website has been incorporated into outreach efforts, with notifications of special events and elderberry production or marketing news targeted to growers who have confirmed interest in the crop or value-added opportunities.

2) **Training Module** The number of persons in attendance and the number of positive responses from each regional meeting were recorded.

Three regional meetings and one farm tour provided an increasing number of participants with access to production and marketing information. In April 2009, meetings took place in Mountain Grove, Mount Vernon and Jefferson City, attracting over 50 people.

In June 2009, the Elderflower Farm Tour hosted by Eridu Farms in Hartsburg, Missouri, was attended by 65 people. Farm tour participants not only toured the fields, but also

taste-tested five different varieties of elderberry juice, and three different elderberry wines. Lemonade was provided made with elderflower cordial. Presentations were delivered discussing the formation of an elderberry grower cooperative and the release of new varieties, which will make growing and harvesting elderberry as a crop easier.

In addition, Terry Durham, spoke at the International Agroforestry Conference and at an Agroforestry meeting in Columbia Missouri to over 100 people, and staffed information tables at three conferences, Missouri Organic Association, Small Farm Conference and Fruit & Vegetable Conference. The mailing list and email list swelled to over 500 during this time frame.

3) Communication ModuleThe project distributed 500 information postcards, 500 brochures with River Hills Harvest logo magnets, and 300 copies each of several informational pages. A display board was created. Photographs and information was provided to the website for publication.

Beneficiaries: The goal of increasing the number of acres in production in Missouri was initiated with less than 30 acres. From the 2009 growing season to 2010, another 20 acres was added, with commitments from additional growers that will see over 80 acres in production by 2011.

Each of these growers will benefit from second-year harvests, which is highly unusual for a perennial crop, at an estimated 350 pounds per acre, which, depending on the degree of value added, will result in returns from \$1.00 to \$5.00 per pound. Third year yields are anticipated to be in the range of 2000 pounds per acre.

In addition to the return on investment accumulated by growers, planting an orchard results in land value increase at a rate of about \$5,000. Also, the act of orchard planting engages the local multiplier effect through the purchase of supplies and labor.

Lessons Learned: Farmers are looking for innovative crop opportunities that will sustain their farms. They are anxious to learn about elderberry, from cropping methods to marketing. Their enthusiasm is evident in the communication received at on-site meetings, through phone calls and the internet. More and more rural areas have provided internet opportunity, and many more farmers can be reached through this medium. Sunday is the most likely day for farmers to use the internet.

The number of acres in production and the interest in an elderberry cooperative is growing faster than imagined.

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Additional information: Please see attachments and links.
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<http://elderberrylife.com/umcletter.html>
<http://urbanhomestead.org/journal/?s=elderberry&submit=go>
the last one is just a great blog -