



**FY2013
Specialty Crop Block Grant Program
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FY2013 Pennsylvania Department of Agriculture Specialty Crop Block Grant Summary

Background:

Affirmative steps were taken to conduct state outreach to socially disadvantaged farmers and beginning farmers of specialty crops by PDA. Potential applicants were targeted through the Penn State University county extension offices, state and local associations, and the various USDA offices, to include FSA, NASS, RMA, USDA-RD and PDA economic development programs.

The methods used to reach the targeted agricultural community included: press releases (300 PDA outlets, PR newswire service via the Governor’s office) being sent to all above outlets, as well as, eight trade journals targeting producers throughout Pennsylvania, the state Agricultural Newsletter and other community newspapers. Presentation of grant round was included in the PA Fruit & Vegetable newsletter, mailings, and quarterly meeting.

Recently, Pennsylvania Department of Agriculture received the summary results from the 2012 United States Department Agriculture’s National Ag Statistical Service (USDA-NASS) 2012 Census. The Ag census is conducted every five years. Results from the 2012 census indicated significant under-coverage of small farms. Methodological changes, extensive list building, and partnering with community based organizations enabled USDA-NASS to more accurately account for small farms in 2012. The USDA farm definition is all farms that produce or sell, or normally produce or sell, \$1,000 in agricultural products. USDA-NASS made extraordinary efforts to outreach to small and minority-operated farms and ranches. Census data was adjusted for non-response and for under-coverage using statistical methodology to provide the most accurate numbers possible. According to the 2012 Ag Census, Pennsylvania generated \$394.6 billion in Ag products sales vs. \$97 billion in 2007, a 33 percent increase in 5 years. The Preliminary 2014 Census data show the following key trends for Pennsylvania:

- The land in farms in Pennsylvania showed a reduction from 2007 census, declining from 7.8 million acres to 7.7 million acres.
- The number of farms was also down from 63,162 in 2007 to 59,302 in 2012.
- The average age of a Pennsylvania farmer was 56.12 years in 2012, and increase from 55.2 in 2007.
- The market value of agricultural products raised and sold from Pennsylvania was 7.4 billion dollars in 2012, a 27 percent increase from 2007.
- In 2012 there were 8,460 operations in Pennsylvania that reported having a woman as the principle operator, with 4,252 of them listing farming as their primary operation.

PDA considered the workshop findings along with input from various commodity boards and Bureau Directors to determine Pennsylvania Department of Agriculture’s prioritized list, which is as followings: 1) Market Development 2) Technology and Innovative 3) Food Safety 4) Nutrition knowledge and consumption 5) Research (pest and disease, prevention methods, IPM, Organic and Sustainable Production Practices).

PDA publicized a Request for Proposals (RFP) following the suggested ‘best practices’ protocol

	<p>provided by USDA-AMS. Two steps were involved in the state department’s solicitation for applications. (See appendix- #1 for RFP)</p> <p>PDA received a total of forty-one (41) specialty crop block grant concept papers; twenty-eight (28) were deemed eligible. The total amount of requested dollars from the twenty-eight (28) eligible grants was approximately \$2.1 million. Of the twenty-eight (28) eligible applicants twenty-seven (27) submitted a full proposal grant application.</p> <p>The grant applications were reviewed and prepared for presentation to the appointed specialty crop advisory board. The eleven (11) member board is composed of eight (8) men and three (3) women representing a variety of areas within the specialty crop industry. The board consists of individuals with expertise in a wide range of agricultural commodities. The creation of the Specialty Crop Block Grant Board serves to satisfy the USDA-AMS program requirements of transparency, impartial review and oversight. The board represents expertise in production agriculture, distribution, retail, marketing, research, nutrition, and education. Each member represents a level within the specialty crop industry necessary for impacting the availability, consumption and future policy of the industry. The board members were invited based on their professional resumes, and ability to provide impartiality.</p> <p>The board reviewed the all proposals and scored them based on eligibility and organized into five categories and five commodity groups. The Committee commented and scored proposal’s then provided recommendation for fundability. All projects receiving an average score of above 80 percent was considered worthy of funding.</p> <p>Upon completion of the Specialty Crop Advisory Board Meeting, eighteen (18) applications were chosen for funding. The requested amount from the eighteen (18) projects totaled \$1,683,604.61. Pennsylvania has been allocated \$956,374.05, due to the lowered allocation many projects were granted awards lower than the requested amount. Within allotted grant time frame one (1) grantee returned funds. We reallocated that funding leaving a final total of seventeen (17) grants. All projects were reviewed by the advisory committee; the results of the peer review were kept confidential. During the SCBG advisory board meeting members were invited to give feedback, all meeting notes were recorded and kept confidential.</p> <p>Letters and email notification is sent to notify all award recipients and non-recipients after the Secretary for the Pennsylvania Department of Agriculture has signed off on the award amounts. All notification letters were signed by the secretary.</p>
<p>Project Title:</p>	<p>Direct Farm Sales Grant Program</p>
<p>Project Summary:</p>	<p>The Direct Farm Sales Program was conducted by the Pennsylvania Department of Agriculture’s Bureau of Food Distribution. The Bureau was responsible for managing the application process, determination of grant qualifications, and the execution of monetary awards. The Bureau was also responsible for verification of individual project completion, collecting data pertaining to outreach and reporting information to the Pennsylvania Department of Agriculture Bureau of Markets. A copy of the announcement of the open application period can be found at:</p>

	<p>http://www.pabulletin.com/secure/data/vol43/43-7/index.html</p> <p>The grants were awarded to farm stands, farmers’ markets, government units, and non-profit organizations that manage and operate farmers’ markets located in Pennsylvania. All grantees completed and submitted an application by the established deadline. The program operated from March 1, 2014 through September 30, 2014.</p> <p>There were a total of 34 applications for the 2014 program with 19 projects being awarded grants. Because of the stringent rules regarding how grant funds could be used only 12 of the applicants awarded grants accepted them and completed their project. Each application was evaluated on the following criteria: The potential to increase consumption of Pennsylvania grown specialty crops, preservation of farmland and promotion of agriculture; the readiness for the applicant to complete the project; potential for the market to assist in revitalizing a community; location of market in an underserved area; potential to provide increased access to farmers’ markets by FMNP program participants; number of people served and the overall performance of the project.</p> <p>The project issue was to provide fresh, locally grown specialty crops to low income Pennsylvania citizens, while expanding the number of outlets, the awareness, use of and sales at farm markets and farm stand to build a positive behavior for eating more nutritious food to reduce the incidence of hunger and under nutrition in Pennsylvania.</p>
<p>Project Approach:</p>	<p>During the open application period as applications are received they are reviewed to ensure that the project has the ability to increase the consumption of specialty crops. Projects not increasing the consumption of specialty crops are immediately rejected and not reviewed by the board. The project board evaluates each application individually to determine how many people the project will benefit from the grant, and if the project will help meet the Direct Farm Sales programs goals and outcomes. Once projects have been selected for funding all budgeted line items are reviewed by the program administrator to ensure that each line item is allowable and will result in the increase consumption of specialty crops. Funds are only dispersed after projects have submitted receipts. Receipts are compared to the approved project budget to ensure only allowable costs are reimbursed. Receipts from mini grants are reviewed to ensure that non specialty crops expenses were not funded. Mini grants provide copies of advertisements placed, recipe cards, which are reviewed to determine if it solely enhanced the competitiveness of specialty crop items. In some cases, non specialty crop items have indirectly benefited from completion of some of the projects. Cooking classes, recipes and advertisements feature specialty crop items in them may benefit a specific market location because that is where the recipient received the information, but it doesn’t mean that they won’t take the information received and purchase specialty crop items at other markets and retail stores. For example, a cookbook created by Weaver’s Orchard says that it’s from the Weaver’s Orchard, but it doesn’t say you to use only used fruits and vegetables purchased from Weaver’s Orchard it simply says use 4 cups of raspberries.</p> <p>Allowable costs are determined using the specialty crops federal regulations and consulting with Pennsylvania’s Specialty Crops Block grant administrator. The mini project costs cover, advertising and other promotional costs for specialty cost special events at farmer’s markets, nutrition education materials, and staffing costs for cooking demonstrations.</p>

	<p>The focus of the majority of the projects this year was on recipes using a wide variety of Specialty Crops and Specialty Crop events held at farmer’s markets.</p>
<p>Goals and Outcomes:</p>	<p>While the goal of increasing FMNP checks redeemed from 75% to 80% throughout the state is not know at this time because the program year has not yet been completed. Many of the projects funded did increase the redemption at their market over the previous year. In some cases, the amount redeemed was double the previous year.</p> <p>We did not achieve our goal of having 100 applications for the mini grants for this grant period. There were only 34 applications this year with 19 mini projects being awarded funding this year.</p> <p>At the end of 2013, there were 629 specialty crops vendors enrolled in the PA Preferred program. Complete information of 2014 is not yet available.</p> <p>Total program goals</p> <p>Goal 1: To increase the number of outlets in underserved areas Target: Add 5 new markets in underserved areas</p> <p>Benchmark: In 2013 there were 1015 farmer’s markets and farm stands Performance Measure: Currently there are 1030 farmer’s markets and farm stands. *Note it is possible that there are additional market locations that have not been reported to us. Also Direct Farm Sales mini grant projects only added 1 new market this year.</p> <p>Goal 2: Creating awareness of Pennsylvania farm stand and farmers’ market outlets Target: We did not include a target for this in our proposal Benchmark: in 2011 market sales of specialty crops was 1,493.3 million pounds Performance measure: We have not been able to locate a source for this information. We will work on finding a new benchmark to measure this goal in the future.</p> <p>Goal 3: Increase child and adult nutrition knowledge and consumption of specialty crops Target: The Target for this year was 10 sites providing nutrition education Benchmark: Without the Direct Farm Sales there are only a couple of markets offering nutrition education to children and adults Performance Measure: The mini grants provided some form of nutrition education at 7 different markets. This included printed information and cooking demonstrations utilizing specialty crops. With the reduced number of projects this year meet this goal was not possible.</p> <p>Goal 4: Increase the FMNP redemption rate to 75% for Pennsylvania produce Target: Increase the FMNP checks redeemed to 75% Benchmark: The FMNP check redemption in 2013 was 70% Performance Measure: The FMNP check redemption in 2014 is currently not available since FMNP checks are still being redeemed at the time this report is being prepared. Final numbers won’t be available till January. To date redemption is currently slightly behind 2013 for the same time period.</p>

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	<p>Goal 5: Increase the number of PA Preferred specialty crops producers participating in the program Target: To increase the number of Pa Preferred producers participating in the program. Benchmark: PA Preferred specialty crop vendors in 2013 629. Performance Measure: Final numbers for 2014 are not yet available.</p>
Beneficences:	<p>Over 91,500 people benefited from this year’s Direct Farm mini grant projects. This number doesn’t include the number of farmers and other vendors that benefited directly and indirectly from the Direct Farm sales grant projects. This number is lower than past years due to the small number of projects completed.</p> <p>The number of PA Preferred producers that participated in Direct Farm sales grant projects in 2014 were 22. This number is small due to the small number of projects which accepted the grant funds.</p> <p>There were approximately 2,308 FMNP checks received by farmers benefiting from Direct Farm Sales Grant projects. Since this program ended September 30 and the FMNP doesn’t end until November 30th these numbers are not final yearly numbers. Note some of the projects were not able to compile this information since the individual farmers accept the checks and not the person completing the project evaluation report. Some of the projects benefitted specialty crops that are not permitted for purchase with FMNP funds.</p>
Lessons Learned:	<p>The following are lessons learned from the Direct Farm Sales mini Grants.</p> <ol style="list-style-type: none"> 1. Although we only had a few projects this year they showed their creativity in promoting specialty crops at farmer’s markets that brought new potential customers to the markets. 2. While the open grant period is advertised and posted on our website many possible applicants don’t learn of the grant until after the application period has past thus limiting the number of applicants being considered.
Contact Person:	<p>Sandy Hopple, Assistant Director Pennsylvania Department of Agriculture, Bureau of Food Distribution 2301 North Cameron Street, Harrisburg, PA 17110 Phone 717.787.2693</p>



Project Title:	2013-2014 Educational and Media Campaign
Project Summary:	<p>The purpose of this project was to launch a multi-media campaign to educate consumers all about Pennsylvania and Eastern apples, including: where to find/buy, health benefits, how to use, how to handle and store; and ultimately to increase consumption of local apples.</p> <p>Most of this worked occurred directly leading up to and/or during the 2013 harvest season. The timing of the launch/release was critical due to the fact that there was a large crop and because varietal mix is changing both at retail and in farm markets.</p> <p>Some components of this project leveraged activities completed as part of PAMP’s 2012 SCBG,</p>

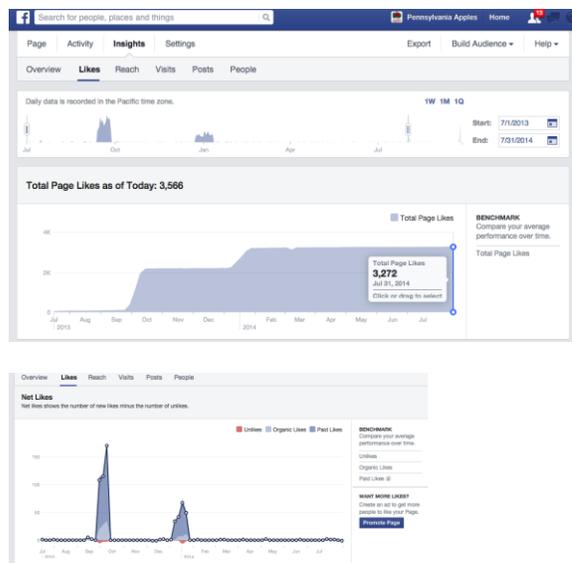
	<p>namely continued improvements to PennsylvaniaApples.org. Also, because the billboard campaign was a successful component of the 2012 SCBG, we continued the campaign but introduced new creative. Transitioning from “Find Fresh”, which focused only on farm markets, to “Pick PA Apples” which was intended to direct consumers to farm markets, retailers and orchards.</p>
<p>Project Approach:</p>	<p>Apple marketing created and grew a presence on social media as part of this campaign. PA apples can now be found on Facebook, Twitter and Pinterest. Though Facebook is the clear winner in terms of engagement, Pinterest leads in referral traffic to our website and Twitter has proved useful for engaging the media.</p> <p>We also purchased a video kiosk for events and for use by our grower members. The branded table-top kiosk allows us to stream original video content about PA’s apple industry, using apples and their health benefits. The kiosk was used all throughout farm show and was used as part of an educational presentation at a series of YMCA Kids Camps, which were also part of this educational campaign.</p> <p>Complementary to the video kiosk, we started a long-term video project that takes viewers on the journey of the PA apple. Because capturing an entire growing/marketing season is a multi-year project, we are completing individual segments that can be used now and will be seamlessly stitched together in to a full video story at a later date. The harvest and packing house video were part of this campaign. The harvest video in particular has performed well, especially on Facebook—it was the most engaged post of the whole year (see attached post metrics).</p> <p>Limitations of our website made it difficult to attract visitors and measure results of external activities and campaigns that directed the public to our site. As a result, we planned and implemented a series of website improvements, including a homepage redesign, social integration, recipe share feature and implementation of Google analytics (rather than site CMS analytics). While the improvements made it easier consumers and growers to locate information and made measuring site performance possible, in the end we learned that to accomplish our goals with our website we need to embark on a full site redesign, but more importantly move the framework to the industry standard CMS-Wordpress, which is in progress this fiscal as a result of lesson learned from the website activities included in the SCBG. Site analytics and screenshots are attached.</p> <p>As part of the consumer education campaign, we continued our fall billboard campaign, but introduced new creative to serve farm markets and retailers to benefit a larger membership base.</p> <p>As outlined in our project plan, we also included new collateral and promotional give aways in this grant campaign. We developed new, colorful recipe tear pads to help consumers think about and try new ways to use PA apples. These are used at events and made available to grower members and industry partners. Additionally, to help save money and time for growers, we used grant funds to laminate our variety cards for growers. This has reduced the number we need to ship to individual</p>

growers because they are now reusable. Due to their durability, they are also more suitable for farm marketers that have or participate in outdoor markets

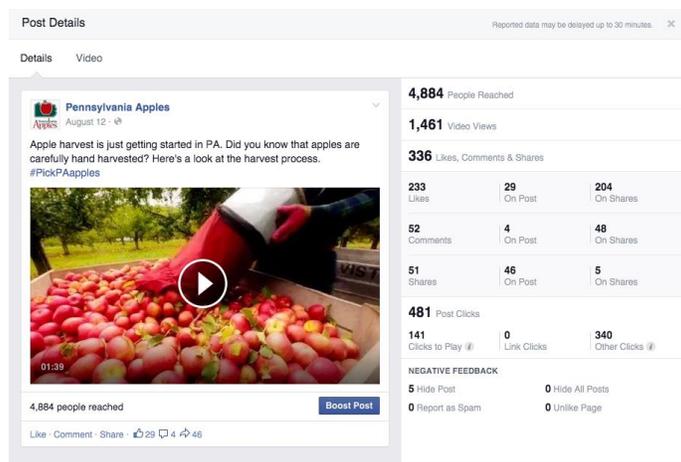
The other component of this campaign was to expand our retail program through a variety of promotional activities and incentive programs with our retail and packer-shipper partners. This included funding in-store demo programs and development of high-graphics Eastern Apples retail displays that were made available to retail partners.

Goals and Outcomes Achieved:

Our social media efforts were fruitful. To date, we have gone from zero to 3,500 through an approach of both organic and paid growth. Three boosted Facebook posts were part of this campaign. Paid boosts, which were part of this campaign did result in attracting the most followers versus gaining organically.



The harvest video we produced as part of this campaign resulted in in our single most engaged post on Facebook for the entire year.



The wholesalers we work with are not required to share their annual volume with us, but for retail programs that included a case rebate incentive wholesale apple sales to those retailers increased on average by 33%. Additionally, in 2013, incentive programs were put into place with three new retailers. For those retailers that we supported in ways other than case rebates, such as POS display bins and demo program support we do know that the wholesalers supporting those accounts had record movement in 2013.

Our completed videos can be viewed here:

Harvest - <https://www.youtube.com/watch?v=cQtbyAVGpXE>

Packing House - <https://www.youtube.com/watch?v=1bACqszQmMQ>

These images capture the before and after of the changes we made to PennsylvaniaApples.org

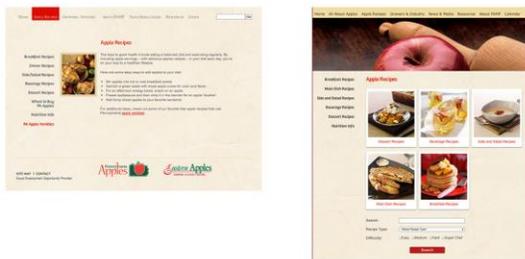
HOMEPAGE REDESIGN - OLD VS NEW



EVENTS PAGE REDESIGN - OLD VS NEW



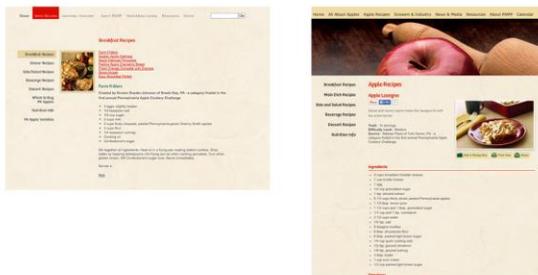
RECIPE SECTION REDESIGN - OLD VS NEW



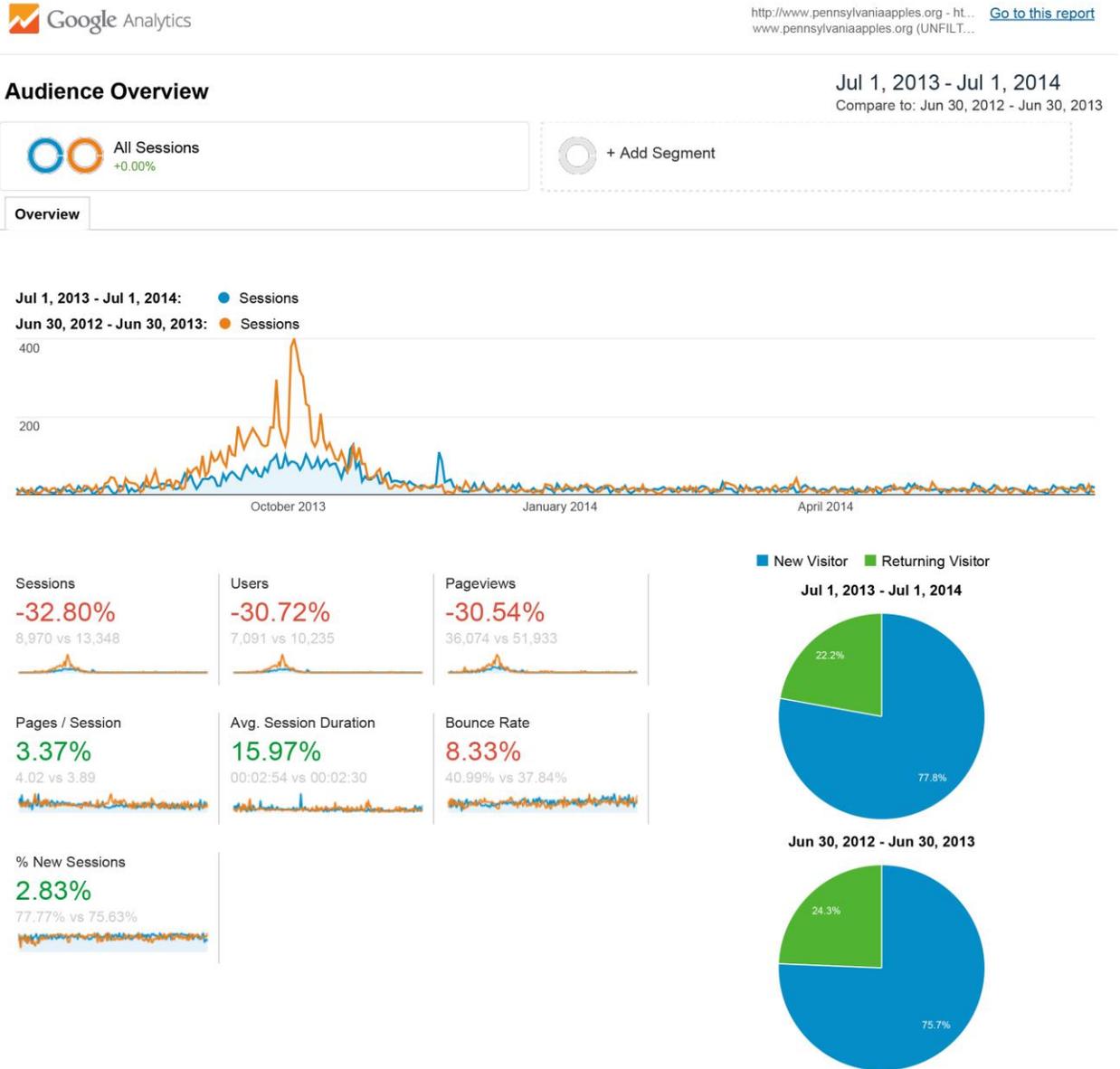
INTERNAL PAGE REDESIGN - OLD VS NEW



INDIVIDUAL RECIPE PAGE REDESIGN - OLD VS NEW



Below is a snapshot of year of over web analytics.



These reports show that traffic was down during the campaign period, but that pages, sessions and average session time. This data leads us to draw the conclusion that the site changes improved engagement, but because paid SEO was no longer in place, that site traffic suffered.

Our billboards ran statewide. We believe these billboards create general awareness among consumers and likely direct traffic to our website, though we cannot specifically track that because we focused on publishing creative with simple, memorable messaging and graphics—Pick PA Apples. Our growers also tell us that their customers see the billboards, and all though they do not mention a specific orchard or farm market, that the customers associate it with their business due to the

location of the board. Billboard proof of performance reports are attached. We printed new recipe tear pads with new recipes to make available to growers and farm marketers. There were a total of 4 (one example shown below), each pad includes 50 sheets. We’ve sent a total of 731 tear pads to grower members to date.



Improving our retail strategy helped us to engage a total of 10 retailers including 2 with which we had previously had relationships. We met our goal of adding 4 new retailers. Additionally, we produced and introduced new graphic display bins. A quantity of 1,000 was used by retail partners during the campaign period.



Beneficiaries: Because the purpose of this project was to increase overall awareness and consumption through

	<p>education, our activities were aimed promoting PA and Eastern Apples awareness generically so that both farm markets and retail outlets would benefit. This approach ensured that all 273 grower members were equally represented and benefited from the activities (fresh and processing) as well as wholesale partners (PA packer-shippers/brokers) that directly support grower members.</p>
<p>Lessons Learned</p>	<p>From our mix of activities, we learned that events are critical to our marketing mix. Getting in front of consumers and potential consumers is the best opportunity for engaging and educating. Our work plan and tactics included a number of projects that helped us facilitate consumer events, which lend themselves more to qualitative results than quantitative.</p> <p>Our activities also helped us realize that social media is a big win for our business. Prior to this SCBG campaign, the program did not have a presence on social media. Social media has performed very well for us and has also helped us refine our positioning with the industry and public. Within the industry it makes sense for us to present ourselves as the PA Apple Marketing Program, but to consumers it's best to market ourselves simply as our commodity—Pennsylvania Apples which is how we can be found on social media.</p> <p>We also learned that while nearly all the activities included in the work plan yield positive results, our project was too broad-based. We could demonstrate better metrics and continuity by using our SCBG funds for a specific project of larger scale rather than a host of activities to try to educate and influence a variety of audiences for most return and benefit to our grower members and partners.</p>
<p>Contact Person:</p>	<p>Julie Bancroft Executive Director PA Apple Marketing Program julie@pennsylvaniaapples.org o 717.783.5418 m 717.580.9965 PennsylvaniaApples.org</p>
<p>Project Title:</p>	<p>Identify Potato Varieties for Par-Frying for the Pennsylvania Potato Industry</p>
<p>Project Summary:</p>	<p><i>Par-fried potato products provide a new opportunity for Pennsylvania Potato Growers. Keystone Potato Products, LLC. (KPP), has the capacity to produce par-fried potato products to meet market demand. However, the current potato varieties grown in Pennsylvania are not well suited for par-frying. The reason for this is the lack of high quality processing potato varieties under Pennsylvania conditions. Some popular processing potato varieties in the U. S. are not grown well and not suitable for processing in Pennsylvania. In order for Pennsylvania growers to produce more potatoes for processing, it is necessary for the potato industry to come up with varieties that make good processing (particularly par-frying) quality products both at harvest and after storage for various periods of time. The objectives of this project were: 1) Evaluate potato germplasm for par-frying processing; 2) Evaluate cultural field practices to determine how Pennsylvania potato quality could be improved; 3) Determine the most suitable varieties for par-frying in Pennsylvania; and 4) Recommend potato varieties and cultural practices with high yield and good processing quality to</i></p>

	<p>Pennsylvania potato growers. In 2014, we evaluated 196 potato varieties/breeding clones in Center County, 40 potato varieties/breeding clones in Northampton County and 47 potato varieties/breeding clones in Erie County. We had commercial and demonstration field potato trials in three counties in Pennsylvania. Varieties and breeding lines suitable for par-frying under Pennsylvania field conditions were selected and are being re-evaluated in 2015 trials. These selected varieties and breeding lines are being recommended to Pennsylvania potato growers and industry via meetings, printed reports and personal contacts.</p>
<p>Project Approach:</p>	<p>Objective 1: Evaluate potato germplasm for par-frying processing. (Robert Leiby, Roger Springer, David Slagle, PA Co-Op; Mike Peck, Xinshun Qu, Chad Moore, Penn State)</p> <p>Activities: Potential potato varieties and advanced breeding clones for par-frying were obtained from other potato breeding programs in the US such as University of Maine, Cornell University, USDA Beltsville, Colorado State University, University of Wisconsin, Michigan State University and Canada. These varieties were planted in two major potato growing regions of Pennsylvania and at the Russell E. Larson Agricultural Research Center at Rock Springs, PA in May in 2014. At the Rock Springs location we planted a total of 196 varieties/breeding clones. At the Northampton Co. location we planted a trial with 40 v varieties/breeding clones. At the Erie Co. location we planted a trial with 47 varieties/breeding clones. All trials at three locations were harvested in September and October 2014. Tubers were evaluated for all tuber characteristics. 46 varieties from Rock Spring trial, 7 varieties from Northampton County trial and 10 varieties from Erie Co. trial were selected for fry test at Penn State chip lab. The test results were shown in Table 1, 2, 3.</p> <p>Four potato varieties were selected for commercial trials in three locations (Erie co. Schuylkill Co. and Rock Springs). 200 lbs. of each variety were planted in each location. After harvest, the tubers of each variety were tested for frying at Penn State chip lab and results were shown in Table 4. These varieties were also sent to KPP for par-fry test and the results were shown in Table 5 and Photo 3.</p> <p>Significant results, accomplishments, conclusions and recommendations: Several potential par-fry potato varieties were selected based on the data of 2014 evaluation trials. These varieties are being re-evaluated in 2015 trials. For example, as a result of the 2014 germplasm trials we noticed that Dakota Trailblazer grew well and had par fry processing quality under Pennsylvania growing conditions. Because of this we obtained additional Dakota Trailblazer seed to plant in several 2015 trials.</p> <p>Objective 2: Evaluate cultural field practices to determine how Pennsylvania potato quality could be improved. (Robert Leiby, Roger Springer, David Slagle, PA Co-Op; Mike Peck, Xinshun Qu, Chad Moore, Penn State)</p> <p>Activities: We are in process of selecting potential par-fry potato varieties during 2014 and 2015 growing seasons. After the most suitable varieties for par-frying in Pennsylvania are selected from 2014 and 2015 trials, cultural field practices of par-fry varieties will be performed in 2016 through field testing</p>

of potato seed spacing, planting timing, fertilizer rate and disease resistance. The results will be available in 2016

Objective 3: Determine the most suitable varieties for par-frying in Pennsylvania. (Robert Leiby, Roger Springer, PA Co-Op; Mike Peck, Xinshun Qu, Penn State)

Activities:

After harvest and during storage, samples were evaluated for all appropriate characteristics and processing quality. Some samples were evaluated for fry processing at both Penn State and KPP. Statistical analyses were performed on the data and the best varieties of potatoes for par-frying under Pennsylvania field conditions were selected.

Significant results, accomplishments, conclusions and recommendations:

We selected 8 most suitable varieties for par-frying in Pennsylvania from 2014 trials. These 8 varieties are being placed in commercial trials in 2015. For example, based on par-frying tests at KPP we learned that Easton, a newly released variety from Maine seemed to have the best par-frying qualities. Easton is a long white processing type potato. We also learned as a result of this trial that Easton is better suited for growing in Pennsylvania's cooler climates such as Erie. It did not perform as well in Southeast Pennsylvania..

Objective 4: Recommend potato varieties and cultural practices with high yield and good processing quality to Pennsylvania potato growers. (Robert Leiby, Roger Springer, David Slagle, PA Co-Op; Mike Peck, Xinshun Qu, Penn State)

We performed following activities to provide our trial results to Pennsylvania potato growers and industry.

Activities:

Met with Keystone Potato Products, Inc. (KPP) management and staff to identify traits needed for par-fry potatoes.

Worked with KPP to screen potato varieties in a small scale par-fry test line to determine which potato varieties might have potential as par fry varieties.

Worked with PSU personnel to evaluate and grade potatoes from multiple potato trials from the 2013 growing season.

Met with private and public potato seed companies and breeders at Potato Expo, January 2014 to identify potential par-fry varieties for PA trials.

Followed-up with orders, purchases, and delivery of potato seed for trials.

Mid Atlantic Vegetable Conference, Hershey, PA, January 29, 2014. Presentation to approximately 65 potato growers included information on the Par-fry Specialty Crop Grant program.

	<p>Conducted Potato Day Educational program in Schnecksville, PA on March 6, 2014. Sixty people learned about par-fry potatoes along with other potato topics.</p> <p>Cooperated and provided input to select potato varieties for PSU demonstration trial and other PA potato variety trials.</p> <p>Identified and planned with cooperating farmers for PA potato variety trials for 2014.</p> <p>Visited potato trial sites during the growing season to check on plant growth progress and work with grower/cooperators to manage any pest or cultural problems. Worked with PSU staff to harvest samples from three commercial field trials for further evaluation for internal quality, external quality and par-fry characteristics.</p> <p>Field meeting with Lehigh Valley Potato Growers Board of Directors July 3, 2014 to review progress on varieties at Northampton County potato variety trial.</p> <p>Potato variety presentation included discussion on par-fry trials at Landisville, PA Research Farm. Field Day, July 1, 2014, 40 attended. Purpose was to show Lancaster area vegetable growers new market opportunities for growing potatoes.</p> <p>Ag Progress Days; Potato Tent exhibit featuring 28 potato varieties with three varieties showing some par-fry potential. We shared information about potato production and discussed par-fry project with several growers. Over 800 attended on August 12, 13, 14, 2014.</p> <p>Harvest and displayed tubers from Erie potato variety demonstration plot at Erie field meeting. September 3, 2014 Attendance 6.</p> <p>Twilight Potato Grower Field Meeting in Northampton County, September 8, 2014 Discussed the par-fry project as part of a presentation to growers”. 38 people attended.</p> <p>Significant results, accomplishments, conclusions and recommendations:</p> <p>Pennsylvania Potato Growers are aware of the Par Fry work we are doing. We continue to evaluate data from the 2015 growing season and will present this information at 2016 winter potato educational meetings in Hershey and Lehigh Valley area. The variety Easton grown in northwest Pennsylvania looks very promising at this time.</p>
<p>Goals and Outcomes Achieved:</p>	<p>In 2014, we identified several potato varieties that have qualities for par fry under Pennsylvania field conditions. Varieties suitable for par fry were recommended respectively for Pennsylvania potato growers and industry. These varieties are being re-evaluated in 2015 trials.</p>
<p>Beneficiaries:</p>	<p>All Pennsylvania potato growers and industry are benefiting from this project. The results of our field trials and commercial trials provide growers information on yield, internal and external defects, specific gravity, overall appearance, disease resistance, processing quality of different potato varieties. We provided educational presentations on par fry processing to Pennsylvania potato growers and industry. We expect Pennsylvania growers begin to grow par fry varieties and supply</p>

	them to industry such as KPP to produce par fry products to meet demand for this yet untapped market.
Lessons Learned:	Environmental conditions varied greatly from year to year and from location to location. In this project we conducted field trials for one year and three locations in 2014. Several years are needed for field potato variety evaluation and selection. Also new potato varieties and breeding lines come out each year from several US potato breeding programs. We will continue to evaluate potato varieties for par-frying in different locations in Pennsylvania in 2015 and 2016.
Contact:	Roger Springer PA Co-operative Potato Growers, Inc. 3107 North Front Street, Suite 100 Harrisburg, PA 17110 Telephone Number: 717-232-5300 Email Address: rspringer@pacooppotatoes.com



Project Title:	Promotion of PA Preferred Specialty Crops									
Project Summary:	<p>The purpose of the PA Preferred Specialty Crops Project in 2013 was to increase consumer awareness of Pennsylvania’s specialty crops. While consumers have reported that they prefer to purchase local products, it’s not always easy to find such products. PA Preferred marketing efforts make that possible. The program educates consumers about the importance of local agriculture and its connection to economic development. The program continues to add value through branding Pennsylvania agricultural products.</p> <p>In October 2011, House Bill 1424 was signed into law, making PA Preferred the official state branding program for the Commonwealth of Pennsylvania. The permanence of the program gives it longevity but this bill does not secure the program’s success. Dedicated staff and a comprehensive and sustainable statewide strategy are needed to make this program effective for the long run.</p> <p>The purpose of the project is to expand on the existing PA Preferred promotional efforts by including an additional focus on specialty crops. The goal was to aid current specialty crop PA preferred members by increasing PA Preferred brand recognition, specifically for specialty crop growers. The project aimed to do this by increasing attendance at trade shows. While attending tradeshow information is disseminated to consumers and business owners.</p>									
Project Approach:	<p>The PA Preferred Coordinator sent a “Consumer Guide to Pennsylvania Farm Markets” Application to all current PA Preferred members and PA Vegetable Growers Members via email and mail. To view the application click here. Over 4,000 applications were distributed. The paper and electronic applications returned were used to update the PA Meals website which contains the complete listing of PA Farm Markets https://www.pameals.state.pa.us/Login.aspx . From the PA Meals site the PA Preferred Team working with the PA Bureau of Food Distribution compiled a list of PA Farm Markets carrying one or more of the items listed below;</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Baked Goods</td> <td><input type="checkbox"/> Fruit</td> <td><input type="checkbox"/> Nursery Stock/Garden</td> </tr> <tr> <td><input type="checkbox"/> Canned Goods</td> <td><input type="checkbox"/> Gifts/Crafts</td> <td><input type="checkbox"/> Plants</td> </tr> <tr> <td><input type="checkbox"/> Cheese</td> <td><input type="checkbox"/> Herbs</td> <td><input type="checkbox"/> Potatoes</td> </tr> </table>	<input type="checkbox"/> Baked Goods	<input type="checkbox"/> Fruit	<input type="checkbox"/> Nursery Stock/Garden	<input type="checkbox"/> Canned Goods	<input type="checkbox"/> Gifts/Crafts	<input type="checkbox"/> Plants	<input type="checkbox"/> Cheese	<input type="checkbox"/> Herbs	<input type="checkbox"/> Potatoes
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<input type="checkbox"/> Cheese	<input type="checkbox"/> Herbs	<input type="checkbox"/> Potatoes								

- | | | |
|--|---------------------------------------|---|
| <input type="checkbox"/> Christmas Trees | <input type="checkbox"/> Honey | <input type="checkbox"/> Prepared Foods |
| <input type="checkbox"/> Cider | <input type="checkbox"/> Jams/Jellies | <input type="checkbox"/> Pumpkins |
| <input type="checkbox"/> Flowers | <input type="checkbox"/> Mushrooms | <input type="checkbox"/> Wine |

A copy of the PA Consumer Guide to PA Farm Markets can be found [here](#). 12,000 Guides were printed and of the 12,000 guides 5,000 were distributed all over the state at the rest areas and turnpike plazas. Over 5,000 Farm market Guides were sent to the locations listed below.

Rest Areas

Pennsylvania Brochures Only

▼ Indicate Number of Display Pockets or "HV" for High-Volume Bin

1	#1	Dauphin		#13	Columbia	1	#25	Allegheny
1	#2	Dauphin		#14	Columbia		#26	Lawrence
sub	#3	Cumberland	1	#15	Montour		#27	Lawrence
sub	#4	Cumberland		#16	Clinton	1	#28	Venango
	#5	Luzerne		#17	Centre	1	#29	Venango
	#6	Monroe		#18	Jefferson		#30	Mercer
	#7	Susquehanna		#19	Jefferson	1	#31	Crawford
	#8	Luzerne		#20	Centre		#33	Erie
	#9	Pike		#21	Clinton		#34	Mercer
	#10	Pike	1	#22	Montour	1	#35	Bucks
	#11	Lackawanna		#23	Fulton	1	#36	Crawford
	#12	Luzerne	1	#24	Allegheny			

Turnpike Plazas (County)

Brochures from Anywhere

▼ Indicate Number of Display Pockets or "HV" for High-Volume Bin

1	A	Allentown (Lehigh)	1	K	Sideling Hill (Fulton)
1	B	Hickory Run (Carbon)		L	North Midway (Bedford)
1	C	Bowmansville (Lancaster)		M	South Midway (Bedford)
	D	Valley Forge (Chester)		N	Cumberland Val. (Cumberland)
1	F	King of Prussia (Montgomery)		O	North Somerset (Somerset)
	G	P.J. Camiel (Chester)		P	New Stanton (Westmoreland)
1	H	Lawn (Dauphin)		Q	Oakmont (Allegheny)
	I	Highspire (Dauphin)		S	South Somerset (Somerset)
	J	Blue Mtn. (Cumberland)			

The PA Consumer Guide to Farm Markets was also distributed at events and trade shows throughout the Commonwealth. Those events are listed below;

<u>Activity</u>	<u>Person Responsible</u>	<u>Timeline</u>	<u>Exposure</u>
PMA (Fresh Summit Convention)	PA Preferred Coordinator/Specialty Crop Block Grant Coordinator	Oct-15	18,000 Attendees

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	<p>(PANTS) Penn Atlantic Nursery Trade Show Bureau of Market Development Jul-15 3,000 Attendees</p> <p>Ag Progress Days Bureau of Market Development Aug-15 45,000 Attendees</p> <p>Mid-Atlantic Fruit and Vegetable Conference Bureau of Market Development Jan-15 1,800 Attendees</p> <p>PA Flavor Show PA Preferred Coordinator Apr-15 1,500 Attendees</p> <p>PA Farm Show Bureau of Market Development Jan-15 550,000+ Attendees</p> <p>Food & Wine Show PA Preferred Coordinator Nov-14 3,000+ Attendees</p> <p>Culinary Connection PA Preferred Coordinator Jan-15 500,000+ Attendees</p> <p>Multi Retailer Buyer/Vendor Show PA Preferred Coordinator Aug-14 200+ Attendees</p> <p>Partners in the project included the PA Vegetable Growers Association and the PA Department of Food Distribution.</p>
<p>Goals and Outcomes Achieved:</p>	<p>PA Preferred™ assisted in organizing and planning eight (8) trade shows to promote specialty crops grown in PA. The PA Preferred™ Program created a Farm Market Guide to highlight specialty crop producers and farm markets in the state. (GOAL) The trade shows assist in promoting PA Preferred™ Specialty Crop Membership. (PERFORMANCE MEASURE) Long term these events encourage networking opportunities for buyers and sellers that may lead to increase sales, increased gross revenue and ultimately increase production of specialty crops. Pennsylvania distributors and growers expressed interest in wanting to source locally grown products, but unsure of procurement logistics. (BENCHMARK) In previous years, PA Preferred was able to assist in promoting a few hundred members. A participation rate of 20% is targeted by PA Preferred members. (TARGET) We have measured participation by quantifying the attendance at each event, the participants and media coverage; qualifying show evaluations, and vendor consultations.</p> <p>The second GOAL of this project is to increase consumer purchases of Pennsylvania grown fruits and vegetables by expanding PA Preferred to include specialty crops in its advertising endeavors. We succeeded by increasing the presence of fruits and vegetables in the PA Preferred campaign. The beneficiaries of the this project were over 100 farm markets in the state and over 2,500 growers/producers in the state who were listed in the PA Guide to Farm Markets.</p>
<p>Lessons Learned:</p>	<p>One of our goals was to maintain a database specifically for specialty crop members and to use that database to reach out solely to the specialty crop industry. We did not develop such a database because we were able to organize our current information organizational system to sort members by type.</p>
<p>Contact Person:</p>	<p>Ashlee O. Dugan PA Preferred Coordinator Bureau of Market Development PA Department of Agriculture 2301 N. Cameron Street Harrisburg, PA 17110 Phone: 717.705-9511 Fax: 717.787-5643 asdugan@pa.gov www.agriculture.state.pa.us</p>
<p>Additional Information:</p>	<p>http://www.papreferred.com/ http://www.papreferred.com/img/PAFarmMarketGuide2015.pdf</p>



Project Title:	Culinary Connection with focus on promoting Pennsylvania Specialty Crops
Project Summary:	<p>The PA Preferred Culinary Connection ranks among the most visited attractions of the Pennsylvania Farm Show. Over the course of eight days, the PA Preferred Culinary Connection hosts nearly 50 cooking demonstrations, with a focus on providing nutrition knowledge and showcasing the importance in consumption of Pennsylvania-sourced products and particularly specialty crops. Chefs from throughout Pennsylvania, TV Celebrity Chefs, and Culinary Schools educate the audience on the advantages of consuming specialty crops by incorporating such products into their recipes. Representatives from organizations such as the Pennsylvania Vegetable Growers, PA Apple Growers, PA Mushroom Institute, PA Co-Operative Potato Growers, PA Winery Association, PA Beekeepers Organization and PA Maple Syrup Producers directly participate in the stage demonstrations and hand out product samples and literature on local producers and the advantages of buying from Pennsylvania sources. Certain days are designated by a specific specialty crop, which becomes the main ingredient to be incorporated in all dishes prepared on our stage that day (For example,</p>

	<p>Mushroom Day, Vegetable Day, Apple Day, Potato Day etc.) Samples of each dish are prepared for audience members to taste in the conclusion of each demonstration. In addition, the PA Preferred Culinary Connection focuses on educating children and adults on healthy eating habits and food safety by demonstrating step-by-step food preparation while utilizing locally grown specialty crops.</p> <p>The importance of this project constitutes in the idea that it allows local farmers and food suppliers to showcase their specialty crops to local consumers; to educate the patrons on the health benefit to their families as well as the impact on their community’s local economy by highlighting the quality and accessibility of those products; to reach out to the restaurant community and encourage Chefs to use Pennsylvania-sourced fruits, vegetables and herbs in their establishments; and to increase the overall demand for locally grown, sustainably produced specialty crops. By creating spectacular dishes on stage using local specialty crops, our demonstrating Chefs have educated consumers that they can prepare delicious meals at home by utilizing solely Pennsylvania fruits, vegetables and herbs.</p> <p>Specialty Crops commodity groups face the need to constantly find new ways to market their products and increase sales of those specialty crops products. The project fulfills those needs by allowing Specialty Crops commodity representatives from the Pennsylvania Vegetable Growers, PA Apple Growers, PA Mushroom Institute, PA Winery Association, PA Beekeepers Organization and PA Maple Syrup Producers to directly participate in the stage demonstrations and hand out product samples and literature to the patrons. Their products are offered for purchase in close proximity to the PA Preferred Culinary Connection stage in the Main Expo Hall. Those specialty crop stakeholders directly benefit from this project as the PA Preferred Culinary Connection delivers immediate benefits to the specialty crops organizations and the local economy in the form of increased sales and marketability of PA commercially-grown specialty crops as it allows local farmers and food suppliers to showcase their specialty crops to local consumers.</p>
<p>Project Approach:</p>	<p>The organization and management of the PA Preferred Culinary Connection with focus on promoting Pennsylvania Specialty Crops have largely followed the proven model while incorporating some additional elements, which we believe have further benefited the Pennsylvania Department of Agriculture in its effort to enhance the competitiveness of Pennsylvania’s specialty crops. Our efforts have focused on fulfilling the purpose of the PA Preferred Culinary Connection with focus on promoting Pennsylvania Specialty Crops – to showcase and promote the use of Pennsylvania-sourced products and particularly specialty crops in preparing original dishes, increase consumer awareness of those locally grown products and highlight the quality and accessibility of specialty crops - while incorporating entertainment, flair and star talent in delivering this message.</p> <p>We at Strategic Contracting rely on years of experience, established relationships with local Chefs, Culinary Schools, Specialty Crops groups, Media personalities and TV Star Chefs, as well as a thorough understanding of the program and all the necessary elements to achieve the greatest</p>

impact in the execution of this project. We invited Chefs from high end and well known restaurants in Pennsylvania to conduct cooking demonstrations, educate and spread awareness aimed at increasing local consumption of Pennsylvania’s specialty crops in the community. Once again, we included the Chef Instructors and Students from the top Culinary Schools in Pennsylvania, who supported the stage presentations for our demonstrators, showcased their talent and shared information on food safety and preparation.

The 4th Annual PA Preferred Chefs & Media Cook Off attracted a huge audience on opening Saturday as media personalities from WHP CBS 21 and abc 27 WHTM teamed up with some of the most well known restaurant Chefs from the area and competed to create the most appealing PA Preferred dish and were tasked to pair it with PA wines. PA Mushrooms were the main blind bin ingredients and had to be featured in both team’s final dishes. Both dishes were paired with a local Pinot Grigio. While judges from the Pennsylvania Winery Association, Thermador, Weis Markets, and PennLive evaluated the dishes, the Phillie Phanatic had everyone in attendance dancing and cheering for their favorite team.

Culinary It-Girl Nadia G of Cooking Channel’s “Bite This with Nadia G” brought her savvy chef know-how and rock star attitude to this year’s PA Preferred Culinary Connection. Known for her sass and cooking in three-inch stilettos, Nadia G tossed T-shirts and got the crowd on their feet during her appearance on Sunday. Hundreds of spectators lined up to get a taste as Chef Instructors and Students from the culinary program at the Pennsylvania College of Technology served samples of Nadia’s Grandmother’s Penne al Forno and Mushroom Puff Pastry Tarts.

We had the honor to once again welcome The First Lady of Pennsylvania, Mrs. Susan Corbett to the PA Preferred Culinary Connection Stage on Monday, Weis Day, as she prepared a residence favorite in collaboration with Governor’s Residence Executive Chef Barry Crumlich. The First Lady of Agriculture, Mrs. Christine Greig, also returned to the PA Preferred Culinary Connection stage and appeared on Apple Day along with Chef John Reis from the Harrisburg Hilton. They demonstrated how to make a dish featuring Granny Smith Apples and Sauerkraut. Also on Monday, visitors gathered to watch as Walter Staib, owner of Philly’s City Tavern and host of the Emmy Award winning “A Taste of History,” created a Quinoa Ratatouille Salad, which was perfectly complemented with Moondancer’s Winery Riesling.

Goals and Outcome Achieved:

The goal of this project is to encourage Pennsylvania citizens to select fresh, locally grown specialty crops when they shop and dine, by involving specialty crops organizations to directly market their products to the consumer, as well as utilize Chefs and TV Personalities in expanding the awareness and use of specialty crops by which building a positive behavior for eating more nutritious food. The purpose of this project is to increase the sales of locally grown specialty crops through improving consumer awareness of specialty crop preparation. This increase in sales is documented through the daily sales records of the Pennsylvania specialty crop organizations that sell products in the Main

Expo Hall. In 2014, according to the Pennsylvania Department of Agriculture: •Pennsylvania Maple Syrup Producers sold more than 450 gallons of maple syrup; •Pennsylvania Beekeepers Association sold more than 2 tons of honey;• Pennsylvania Mushroom Grower's Co-Operative sold more than 6,500 pounds of mushrooms; •Pennsylvania Vegetable Growers sold 4,150 blooming onions and 1,700 pickles; • Pennsylvania State Horticulture Association sold more than 90 bushels of apples and more than 8,200 apple dumplings; • Pennsylvania Co-operative Potato Growers sold more than 275,000 potato doughnuts. Our goal is to continue helping those organizations by increasing the sales of those locally grown specialty crops through improving consumer awareness of specialty crop preparation.

The project's importance consists in the fact that the PA Preferred Culinary Connection delivers immediate benefits to the specialty crops organizations in the form of increased sales and marketability of PA commercially-grown specialty crops; allows for increased access, availability, and consumption of PA-grown specialty crops; results in increased child and adult knowledge of the nutritional benefits of specialty crops as well as access to and consumption of specialty crops. The purpose of this project is to allow local farmers and food suppliers to showcase their specialty crops to local consumers; to educate the patrons on the health benefit to their families as well as the impact on their community's local economy by highlighting the quality and accessibility of those products; to reach out to the restaurant community and encourage Chefs to use Pennsylvania-sourced fruits, vegetables and herbs in their establishments; and to increase the overall demand for locally grown, sustainably produced specialty crops. Our plan for the 2015 recipe book is to once again put the spot light on specialty crops, by having our Chefs make those ingredients the focal point of the dishes to be demonstrated on the PA Preferred Culinary Connection stage. Such initiative directs our audience's attention to the variety and flavor of local fruits and vegetables and encourages them to select those products when they shop and dine. That in turn directly benefits Pennsylvania farmers and local specialty crops organizations by increasing the demand for their products. Our efforts will once again focus on fulfilling the purpose of the PA Preferred Culinary Connection – to showcase and promote the use of Pennsylvania-sourced products and particularly specialty crops in preparing original dishes, increase consumer awareness of those locally grown products and highlight the quality and accessibility of specialty crops - while incorporating entertainment, flair and celebrity talent in delivering this message. According to the PA Department of Agriculture, 93% of Pennsylvanians want to purchase locally produced items.

The 2014 PA Preferred Culinary Connection received ample media coverage, including almost daily write-ups as part of The Patriot-News, central Pennsylvania's award-winning top daily local news source, which, along with PennLive reaches nearly 500,000 readers weekly. WHP CBS 21 and abc27 WHTM aired footage directly from the stage, conducted interviews and put the PA Preferred Culinary Connection in the spotlight, spreading the word of the importance of buying local to thousands of viewers and listeners. The Pennsylvania Cable Network, a statewide network with

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	bureaus in Philadelphia and Pittsburgh, delivered close to six hours of live coverage directly from the PA Preferred Culinary Connection Stage.
Beneficiaries:	The Pennsylvania Vegetable Growers, PA Apple Growers, PA Mushroom Institute, PA Co-Operative Potato Growers, PA Winery Association, PA Beekeepers Organization and PA Maple Syrup Producers are some Commodity Groups that benefited directly from the successful execution of this project. They were able to not only showcase and sell their products to a wide range of consumers but also educate them on the benefits of using specialty crops as part of their daily menu.
Lessons Learned:	We derive new ideas and targets at the conclusion of each successfully executed event, which we aim to implement in the years to come. In 2015, we plan on involving as many “farm-to-table” restaurants from the area as possible and invite the Chefs to communicate their passion for using local specialty crops on their menus to our audience. We believe that we can take this grassroots movement back to local farming a step further and make it all about utilizing fresh, local specialty crops. We are determined to build on our success and reach many new consumers, bring in additional partners and commodity organizations. Utilizing the social media more effectively will allow us to spread our message of the importance of specialty crops even better and to a wider demographic.
Contact Person:	Maria Hulitt Strategic Contracting, Inc. maria@strategiccontracting.com 267.269.8894
Additional Information:	For event photos, Chefs’ bios and recipes, visit http://www.papreferred.com/culinary_connection

Project Title:	Pennsylvania Department of Agriculture-Bureau of Food Safety's outreach to partner with specialty crop buyers on USD's GAP/GHP auditing program and sharing the information with their specialty crop producers.
Project Summary:	The purpose of this project was to provide outreach on GAP (Good Agricultural Practices)/GHP (Good Handling practices) to Specialty crop volume food buyers and the farmers who grow these crops. The volume food buyers have been increasing their demand for producers to have third party audits of the produce they provide to them. There was also confusion between the volume food buyers and the specialty crop producers over what type of audits they wanted them to obtain. With targeting the volume food buyers and the specialty crop producers we could educate them on what the different types of audits (regular GAP/GHP or Harmonized) entailed. A secondary purpose was to start familiarizing the specialty crop farmers with FDA’s Food Safety Modernization Act proposed Produce Rule. The timely of this project is was essential with the increase in buyers requiring third party audits, this will give the specialty crop producers the knowledge on what is involved in the audits, estimate of cost, and introduction to the audit personnel that would be conducting the audit. Penn State

	<p>Cooperative extension provides guidance on writing food safety plans. With FDA’s Food Safety Modernization Act (FSMA) Produce Rule and Preventive Control Rule being finalized in 2015, these outreaches will introduce them to Food safety practices and the concepts FSMA is modeled after. Having a third party audit performed may open up broader markets for the producer to sell his commodities. The project helps the Pennsylvania Department of Agriculture promote awareness of food safety issues and how farmers can improve on their food safety practices on farms. In turn this will make strides to a safer food supply for everyone.</p>
<p>Project Approach:</p>	<p>Seven on-farm mock audits were held at seven different specialty crop produce farms in the State. Penn State Cooperative extension was very involved with finding farmers willing to host the events and advertising. The different geographic areas were targeted to reach as many of the producers as possible and to bring the information directly to the farmer. At several of the events there was a large Amish presents and traveling distance can be a large issue for them. Events were held in 7 different counties representing the North West, North East, South East, and South Central areas of the State. An average of 2 3 farmers attended each of the events. Weather (snow) was a factor in the low turnout at one event and there was another farm meeting (unrelated to GAP/GHP) the same night as a second event. We had two PDA personal at each of these events as presenters. The events were very well received by the farmers. They liked the fact that we came to their areas which meant they did not have to travel great distances and that we were on farms they were familiar with and could relate to the issues that faced them. The farmers were all very interested in the information provided. They were all given packets with guidelines for USDA GAP/GHP and Harmonized audits along with information provided by Penn State. Penn State Cooperative extension helped organize the sites and spread the word about the events to the local farmers in their areas. Many of the outreach events resulted in farmers who attended contacting our auditing section to ask further questions and set up plans for an audit to be completed on their farm. With the farmers meeting the auditors at the events and learning firsthand the cost associated with the audits, eased many of the concerns the farmers had about requesting an audit. These events did provide the results we wanted by making the auditors familiar to the farmers since many are hesitant about any “government” official coming onto their farm. The other result was the direct feedback from the farmers that once GAP/GHP was explained they really were following a lot of the principals GAP/GHP is based on and felt confident they could improve their efforts and would be asking for an audit to expand their market possibilities.</p> <p>Another part of the outreach targeted the volume Food buyers. Two events were held at the annual meetings Giant Eagle and Giant (Ahold) holds for their fruit and vegetable buyers, their quality control personnel and their specialty crop producers. These were classroom style setting where USDA GAP/GHP and the Harmonized Audit were explained. Costs of audits were discussed and contact information provided on how to request an audit. Hand out materials on audit check list and other materials provided. Penn State Cooperative extension provided a presentation on water quality and safety at the Giant Eagle event in addition to our presentation. A total of 128 people attended these events. Both Giant and Giant Eagle are requiring all their specialty crop producers to have third party audits in order to continue to sell their produce to them. These events were designed to enlighten the volume food buyer as well as the farmer on what GAP/GHP principals are and also introduce them to the upcoming FSMA’s Produce Rules. These events cleared up a lot of confusion between what types of audit the volume food buyers wanted the specialty crop producers to have.</p>

	<p>The third type of outreach were in the form of auditors manning informational booths at the Pennsylvania Farm Bureau’s health and Safety Fair which was attended by over 100 people in the farming industry and at the Mid-Atlantic Fruit and Vegetable Convention held in Hershey PA which is attended by over 400 fruit and vegetable producers and related industry personnel in addition to Agricultural educators. These events were very well received. Our auditors were swamped with questions about the different audits and a lot of informational materials were distributed. In addition, many farmers expressed interest in requesting audits.</p>
<p>Goals and Outcomes Achieved:</p>	<p>The on-farm mock audits along with the meeting style programs and informational booths were all designed to bring information on USDA GAP/GHP auditing program and overview of the upcoming FDA’s FSMA rules directly to the specialty crop farmers in Pennsylvania and the volume food buyers who have been increasingly requiring produce growers to have third part audits performed on their commodities. This project was designed to provide detailed information about the different types of audits so volume food buyers and the produce farms had a clear understanding of what they were wanting from the audits. Many farmers had expressed concerns to our Department prior to the project that they knew they needed a third party audit to continue to sell their produce in their current markets and wanted to be able to expand sales into new markets, but didn’t have a clear understanding of the different types of audits and what they covered in order for them to make a decision on what to request. They also voiced concerns over what steps to obtain audits and what was the cost involved. The project would not only expand food safety practices in the specialty crop industry but also build up partnerships between specialty crop producers, buyers and the Pennsylvania Department of Agriculture. The project also would support additional training for our lead auditor to become a trainer to be able to train new auditors as the need arises. Cover the cost of required additional training for our auditors to maintain their certification through USDA. The goals were to increase the number of USDA GAP/GHP audits requested during and after the completion of the project. There were also figures kept on the number of individuals attending the outreach events. The goal of increasing the number of USDA GAP/GHP audits completed has been met. After the end of the first project year this goal appeared to be reached even though it only took in account a 7-month period there was an increase in the number of audits. For the 19-month period prior to the first project event (August 1, 2012 through February 28, 2014) there were 299 audits performed at specialty crop producer’s farms. For the 19-month period since the project (March 1, 2015 through September 30, 2015) 329 audits have been completed in the State. This is a 10 % increase in the number of audits. The increase number of audits being performed has exceeded our expectations.</p> <p>Since the start of the project the Department has continued to see an increase in the number of specialty crop farmers who have called the Department to obtain additional information on USDA GAP/GHP audits. We have also been contacted by additional volume food buyers interested in obtaining information for their crop producers. The Department has also been able to steer more specialty crop producers to educational resources through Penn State Cooperative extension. This project has also strengthened the interaction between the Pennsylvania Department of Agriculture and the Penn State Cooperative extension educators on the common goal to insure farmers have the guidance to provide a safer food supply and expand their markets while doing it.</p>
<p>Beneficiaries:</p>	<p>There are numerous beneficiary of this project. The specialty crop producers who attended any of the outreach events and their friends and neighbors who talked to them about the information they were provided. They benefited by being given information on what the principals of the USDA</p>

GAP/GHP program are, how to request audits and the cost associated with them thus providing them avenues to maintain their current market for their produce and open new ones for them. In addition, the additional knowledge on food safety practices will help insure a safer food supply. These outreach events cleared up some confusion and misconceptions that existed in the fruit and vegetable farming industry. This project put a face behind the audit. The specialty crop farmers were also introduced or expanded their knowledge on the educational resources from Penn State Count Extension, are available to help them develop their food safety plans and address water quality issues. They also were introduced to concepts of FDA’s FSMA Produce Rule and how it may affect them.

The volume Food buyers who attended the outreach events were given a clearer picture of what all is covered under the different types of audits and the costs incurred by their farmers. This armed them with the knowledge they need to make decisions on what type(s) of audits they want their farmers to have to best meet the needs of their companies.

The Pennsylvania Department of Agriculture received many benefits from this project. For one it introduced our auditors to a larger segment of the specialty crop producers in the State. This has opened up more communications between the farmers and the Department. It has given us a platform to encourage Food safety practices in their daily activities at their farms and introduce the concepts of FDA’s FSMA. The public is a beneficiary of this project by the strides that are being made in food safety practices at the farm level.

Lessons learned from this project is that the majority of specialty crop farmers having been following many of the food safety practices outlines in USDA GAP/GHP but that they are eager to expand their knowledge and learn more on record keeping and learn more about the upcoming FSMA Produce Rule and how it will impact them. The other lesson learned is that taking the outreach events into the areas where the farmers live is one of the most effective ways of keeping the farmers connected with the Pennsylvania Department of Agriculture and the Penn State Cooperative extension. The challenges that are faced when having events is the timing of the events to accommodate produce farmers long hours during the growing and harvesting times and then continuing with the weather conditions when scheduling during the farmer’s slow months.

Contact Person:	Judy Martin, Assistant Director Bureau of Food Safety and Laboratory Services, Pennsylvania Department of Agriculture 717-787-4315 judmartin@pa.gov
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Project Title:	Peach Nutrition & Promotion Campaign
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Project Summary:	The grant provided funding to increase consumer awareness and consumption of local and regionally produced peaches and the nutrient and dietary value through promotion/display materials targeted to direct marketers but applicable to retail sales organizations. The Pennsylvania peach industry begins their harvest and marketing of peaches at least two months following the start of the season in other regions of the country and typically the market is reaching its saturation level. The availability of promotional materials to create greater awareness of locally/regionally produced
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	<p>peaches assists in the sales and marketing efforts.</p> <p>OBJECTIVES: Provide innovative marketing and promotional activities for peaches to create increased consumption and awareness. Provide the consumers with a connection to the growers of peaches and understanding of a grower’s contribution to the local and state economies.</p>
<p>Project Approach:</p>	<p>An on-line nutrition research search and telephone interviews with researchers was conducted to identify existing peach nutrition research and findings. Limited nutrition research was found and because there was limited validation of the findings, it was determined that the only nutrition references would be those that 2</p> <p>USDA has published. USDA nutrition facts used were published on the PEACH Storage & Handling Tips Flyer. News stories on peach nutrition were not generated due to limited peach nutrition research being available.</p> <p>Promotional materials were created and produced for the industry to use that would promote the 2014 peach crop. Five different vinyl banners were designed and produced for industry use at direct and/or retail markets. Additionally, nearly 13,000 Storage & Handling Tips flyers were produced for marketer distribution to consumers. Some marketers used the provided Storage & Handling Tips template and produced their own flyers on their letterhead. It is estimated that at least 6,000 additional flyers were distributed to consumers, for a total of 19,000 – 20,000 total flyers.</p> <p>To promote the availability of the promotional materials to industry members, a notice appeared in the May 2014 issue of the State Horticultural Association of Pennsylvania’s (SHAP) FRUIT NEWS. This publication is received by SHAP members and most of Pennsylvania’s 3</p> <p>Commercial fruit producers are members of the organization. Additionally, Pennsylvania members of the National Peach Council received a direct mail piece notifying them that peach promotional materials were available.</p> <p>A mail survey was sent to all companies that used the promotional materials. The survey revealed that the promotional components provided through the Specialty Crop Block Grant Program to promote Pennsylvania Peaches in 2014 was a tremendous success and filled a void within the industry. Respondents evaluated the materials and provided insight for future marketing needs.</p>
<p>Goals and Outcomes Achieved:</p>	<p>The 2014 Pennsylvania peach marketing season provided the industry with numerous challenges; however, the ability to provide marketing materials to increase awareness and consumption of Pennsylvania’s local peaches proved to be a positive endeavor for the marketers.</p> <p>Pennsylvania Shipping Point 3-Year Weekly Average Peach Pricing*</p> <p>Final year volume and price reporting data will be available from USDA AMS in the spring of 2015. Two of the goals were to increase the season average price per pound of peaches sold and to increase returns to the grower/producer. Both were accomplished however, the average weekly pricing was lower than 2012. The industry’s crop was later this year than in the previous two years</p>

	<p>which was attributed to the growing conditions throughout the season. (Note: this was true of the east coast peach industry and not just Pennsylvania.) While the final production and utilization figures are not yet available from USDA, it is the consensus of the industry that this year’s crop was smaller in size but excellent quality.</p> <p>Here’s what the industry members who completed the survey had to say about the materials provided:</p> <ol style="list-style-type: none"> 1. Thank you for the display materials, I think they are made very well. 2. Pricing Paddles could be a positive addition. 3. It was nice to receive the peach banners. Customers really like them, especially the ones with pies & ice cream. Thanks. 4. Flags would be a great market tool. Peach description cards like the apple marketing board's apple description cards. 5. Charts - comparing peach varieties and what they are good for. 6. For a change, we received promotional materials for peaches, usually get just apples. 7. So nice to have signs to promote peaches, Thanks. 8. Used in my market but also at local fair to promote peach pie contest. 9. Overall, this year's materials were excellent, thanks! 10. Loved the peach banners - keep them eye catching! Thanks for your work! 11. It is ideal to have an area on recipes and other promo materials for our logo to be inserted, or available electronically to insert farm logo and print ourselves. 12. Would be interested in die-cut pictures of peaches or PDF/JPEG files we could feature in our e-newsletter. 13. Peach description cards like the apple marketing board's apple description cards. 14. Markets I provided the posters to loved them. <p>Promotional materials were created and produced for the industry to use that would promote the 2014 peach crop. Five different vinyl banners were designed and produced for industry use at direct and/or retail markets. Additionally, nearly 13,000 Storage & Handling Tips flyers were produced for marketer distribution to consumers. Some marketers used the provided Storage & Handling Tips template and produced their own flyers on their letterhead. It is estimated that at least 6,000 additional flyers were distributed to consumers, for a total of 19,000 – 20,000 total flyers.</p>
<p>Beneficiaries:</p>	<p>Peach producers and marketers in Pennsylvania benefitted from this project as it provided valuable marketing tools that previously were not available to the industry, at an affordable price. Nearly 50 producers received the available materials to assist with the marketing of the 2014 season. In 2014, USDA Agricultural Marketing Service reported that peaches shipped from PA averaged \$15.91 for all peaches sold between May 3 and October 25, 2014. This price was nearly 22 percent higher than the average selling price for the same time frame in 2013, but down 9 percent from the 2012 marketing season. The 2014 price is slightly higher than the three-year Pennsylvania average from 2012 through 2014.</p>
<p>Lessons Learned:</p>	<p>Reaching the industry members about the availability of the materials for their use was more challenging than anticipated. While it was published in the State Horticultural Association’s <i>Fruit News</i> and direct mail notices sent, both occurred at a time when the industry members were very busy in their orchards and not necessarily focused on the marketing of peaches. Possible solutions:</p>

	<p>additional lead time and out-reach, improved database of producers and marketers. Nutrition research on peaches is limited. Consideration should be given to identifying researchers who may be interested in focusing on nutrition research to determine if there are specific dietary benefits such as antioxidants, etc.</p> <p>As noted by the industry members in the survey, there are additional marketing tools that if provided would be of value to their marketing of peaches. These include but are not limited to:</p> <ul style="list-style-type: none"> • Peach Variety Chart • Totes for marketing peaches • Price Paddles • Recipe Cards • Peach die-cuts • Flags • Video on PA’s peach industry. <p>Peach producers in other regions of the country are intrigued by the resources that PA producers have had to promote peaches. Opportunities may exist for promotion expansion in the future.</p>
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<p>Contact Person:</p>	<p>National Peach Council 22 Triplett Court Dillsburg, PA 17019 717-329-8421</p>
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<p>Project Title:</p>	<p>Certified Entering Farmer Program</p>
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<p>Project Summary:</p>	<p>Specialty crops offer a high dollar return/acre and are a profitable option for farmers starting a farm business. Therefore many are seeking opportunities to grow specialty crops. Many lack land to produce specialty crops Entering and beginning farmers contact PA Farm Link seeking available land as well as land that is appropriate for specialty crop growth.</p> <p>Because land is the most insurmountable issue in specialty crops, it’s the largest stumbling block. Specialty crop growth normally requires less equipment and capital inputs to begin. In 2011 Greenmarket Farm Retention Project reported 56% of farmers sited finding farmland to rent the first 0-5 years of farming as the top barrier they faced. A majority of specialty crop producers cannot produce crops without farmland to grow them.</p> <p>Acquiring farmland is competitive and producers need to be well prepared both for long term production success and simply to find land to farm. Many lack farm knowledge and experience. The certified entering farmer program was set up to overcome the challenge and allow specialty crop farmers to portray a positive image and preparedness in order to acquire land to farm. Farmland owners most often are farmers who can no longer farm the land themselves or were raised on the farm and want to maintain the farms productivity. This group of landowners normally have a lot of experience and know what it takes to have a successful farm business. They want an entering farmer who has farm knowledge and understanding and is confident in presenting their business plans and marketing specialty crops.</p>
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	<p>The certified entering farmer program was developed to meet that need. It established requirements entering farmers are required to meet in order to participate in the program and be classified as a certified entering specialty crop farmer. The program ensures they have production experience, education, a well thought out business plan including financials to round out their agriculture proficiency.</p>
<p>Project Approach:</p>	<p>Agriculture professionals and both beginning and experienced farmers provided input to determine the requirements for the program. Those interviewed included the following people:</p> <ul style="list-style-type: none"> Penn State Extension Agriculture Entrepreneur Educator Ag Financial Educator Ag Economic Development professional Virginia Farm Link program professional Seven established specialty crop farmers with 15+ years of experience Eight beginning/entering specialty crop farmers with 0-5 years of experience <p>All professionals and farmers were asked to share their insight on what items are most necessary for a farmer acquire land for their farming operation and grow specialty crops on the farm. Professionals asked what they felt was missing when they interacted with potential beginning/entering farmers that would be of benefit to the farmers’ success. Farmers were asked what they needed most in order to succeed.</p> <p>Program requirements included, a business plan, resume and cover letter, market plan and/or financial requirements of operation, ag education, as well as farm experience. A follow up interview ensures the person understands the program and is well qualified. It addresses any challenges they may have and acquires more information for features to be developed on newly accepted Certified Entering Specialty Crop Farmers.</p> <p>Many programs offer assistance for entering farmers to develop a business plan one easy to use model suggested to anyone who needed to compile a business plan was University of Minnesota’s Ag Plan https://agplan.umn.edu/ . Farmers were asked to include details on personal goals, experience, education, and a list of references in their resumes and provide extra details in the cover letter. The resume and cover letter is a great place to focus on the ag experience providing details of its’ breathe and depth.</p> <p>Several educational opportunities which will be accepted include completing The Seed Farm Apprentice program, AgBiz Masters, PSU Online Study Course, Master Gardner, Quality Assurance Program, Small Farm Dream, The Horn Farm Center Program, and/or post-secondary degree program This is not an all-inclusive list and other educational courses/programs will be reviewed and accepted on an individual basis.</p> <p>While this program could be expanded to include other farmers in the future, it has been and will continue to be utilized for specialty crop producers within the foreseeable future. There are no plans to expand it beyond this point. It will be utilized for specialty crop producers in order to meet their needs first and foremost.</p>
<p>Goals and Outcomes Achieved:</p>	<p>The Certified Entering Farmer hard copy application was developed and the program was promoted at various trade shows and on social media via facebook and other media outlets. The program was well received with a large number of people picking up hard copy information regarding it. However,</p>

	<p>their follow through was extremely disappointing.</p> <p>Program information was supplied to all specialty crop farmers who were already in the database, however the response was not overwhelming. After further promotion etc. PA Farm Link representatives determined there was a need to further assist farmers in completing the application and show them how they either met the requirements and would be required to accomplish very little to be a part of the program. We found some accepted the opportunity with eagerness via this method.</p> <p>Farmers are already an overworked group of people, thus it seems that completing another application or looking into another program is not top priority. They also may lack confidence in what the program “will do for them” at this point. However, feature stories are being developed on Certified Entering Specialty Crop Farmers who have given permission to do so. The features will be utilized in local papers, as well as ag related newspapers and social media outlets. The features will promote both the program and it’s well qualified Certified Entering Specialty Crop Farmers.</p> <p>Four Certified Entering Specialty Crop Farmers have been accepted into the program and 15 others are currently being assisted through the process. This is much lower than anticipated as we expected to have at least 20 Certified Entering Specialty Crop Farmers, however the process has been slower than anticipated but continues to move forward and will do so in future years.</p> <p>All new specialty crop farmers are highly encouraged to apply for the Certified Entering Specialty Crop Farmer program in order to showcase their accomplishments and provide further land access opportunities and to promote them and their attributes to the public who may well have land available that is not presently being utilized for agriculture purposes but is well suited for growing specialty crops.</p>
<p>Beneficiaries:</p>	<p>Young beginning specialty crop farmers who have gained the necessary knowledge, education, business skills, farm and agriculture related experience and to be successful specialty crop farmers but who are seeking land to establish their farm operation.</p> <p>They include first generation farmers who have gained experience through valuable learning programs across Pennsylvania and beyond its’ borders. They are enthusiastic, savvy and well prepared to begin their own farm operation. This group does not have family farms to return too and are looking to others for land access opportunities.</p> <p>Many are seeking land in high value land areas where it’s unfeasible to own the land early in their business and they rely fully on acquiring land through a lease opportunity.</p> <p>Two people have well established business and are seeking room to grow their farm to a larger scale operation. They currently have a 140 member CSA and partner with other farms to supply other crops to their CSA members. They truly are a first generation success story, but they require a larger farm to continue to grow their business.</p> <p>Land owners can be assured the Certified Entering Specialty Crop Farmers are well prepared to operate a farm business on their property; they have the required skills, experience and knowledge</p>

	to be successful and thus take some of the risk factors out of leasing.
Lessons Learned:	<p>Positive feedback is absolutely necessary for young first generation farmers to realize the skills, knowledge and business savvy they've acquired matters and makes a huge difference in their success.</p> <p>Many farmers face a roadblock with people advertising land to lease but it but have extremely narrow parameters of how the land may be utilized or the type of farming enterprises they would like to see on the land. Specialty crops shouldn't raise as many challenges yet young farmers have found issues with such important factors as water access, tool and equipment storage, inability to establish a high tunnel or other beneficial structures on the land. Another huge issue maybe what crops were previously grown on the land and any herbicides utilized with those crops that may remain in the soil and have adverse effects or even kill the current years' specialty crops. Examples of leasing agriculture leasing agreements were unavailable and thus another program developed that allowed an ag lease consideration document to be developed and provided to the Certified Entering Specialty Crop Farmers. Other funds were utilized for the document but this program assisted in establishing the need for the document.</p> <p>The largest lesson learned was the young farmers as all farmers are focused on the urgent which in most cases are the current crops, growing season and customer needs. They do not have time to focus on other opportunities and how they can enroll, assistance is required in order for them to participate in programs that provide greater land access opportunities.</p> <p>Further facilitation of opportunities in some cases require a third party facilitator to guide the Certified Entering Specialty Crop Farmers and landowners through negotiation process and setting up a lease agreement. Facilitators are available for that purpose, funded through another project.</p>
Contact Person:	<p>Darlene Livingston 717-705-2121 daliving@pafarmlink.org</p>
Project Title:	Enhancing preparedness against Phytophthora pathogens that threaten specialty crop markets
Project Summary:	<p>For protecting the production and marketability of specialty crops from pathogens and pests, “an ounce of prevention is worth a pound of cure.” Few pathogen groups can claim the notoriety of <i>Phytophthora</i>, which includes old nemeses like <i>P. infestans</i> and <i>P. capsici</i>, and recently emerged novel pathogens of global concern, such as <i>P. ramorum</i> and <i>P. kernoviae</i>. If history is a guide, novel and reemerging <i>Phytophthora</i> species will continuously threaten specialty crops and natural resources in Pennsylvania. The goal of this project is to enhance preparedness against <i>Phytophthora</i> so that they can be effectively managed before they cause a major disease outbreak. Two specific objectives are to: a) catalog the type of <i>Phytophthora</i> and affected plants in the state during the last three decades; and b) develop and disseminate comprehensive identification keys and diagnostic tools for major pathogens. Resulting resources will help protect the production and marketability of specialty crops in the following ways: a) historical data will support the recognition of unusual patterns of pathogen change or movement; and b) early detection and accurate identification of pathogens via enhanced pathogen diagnosis expertise and resources will facilitate rapid deployment</p>

	of regulatory and/or management actions. This is a one-year project (Jan. 1-Dec. 31, 1024).
Project Approach:	<p>PROPOSED WORK PLAN AND ACTIVITIES PERFORMED</p> <p>1. Identification of <i>Phytophthora</i> isolates</p> <p>We have focused on performing the following two tasks in 2014. Major findings from these tasks are summarized below.</p> <p>1.1. Identification of <i>Phytophthora</i> species associated with Christmas tree root rot in Pennsylvania: Christmas tree industry in PA has been ranked within the top four in the United States with >1,000 Christmas tree farms generating more than \$22 million in annual sales in recent years. Christmas tree root rot caused by <i>Phytophthora</i> species is accountable for heavy losses in seedling beds and plantations for many years in PA. Plant inspectors of the PA Department of Agriculture (PDA) have frequently encountered root rot symptoms on Christmas tree seedlings and intermediate-size trees during their inspection and certification services over the last 28 years (1986-2013). Genomic DNA was extracted from all <i>Phytophthora</i> isolates cultured from Abies root rot so that we could determine species identity by sequencing 1-2 marker genes. We completed the analysis of the species identity of <i>Phytophthora</i> isolated from <i>Abies</i> plants during 1988-2004 surveys. We are currently analyzing the remaining isolates (2005-2013).</p> <p>1.2. Identification of <i>Phytophthora</i> recovered from trace-forward samples. Pennsylvania has been combating the threat of the sudden oak death pathogen <i>P. ramorum</i> moving into PA via nursery stocks since 2004. PA is still receiving <i>P. ramorum</i> positive shipments from the west coast. We have analyzed <i>P. ramorum</i> trace-forward samples from Oregon. None of the cultures from the affected sites turned out to be <i>P. ramorum</i>. The species identity of cultures derived from these samples is currently being analyzed by sequencing 1-2 marker genes. Isolates corresponding to potential novel species will be characterized further by sequencing an additional set of loci.</p> <p>2. Analysis of historical data associated with <i>Phytophthora</i> disease</p> <p>Upon detection of Christmas trees displaying <i>Phytophthora</i> root rot symptoms, PDA plant inspectors submitted the symptomatic plants with the field information to the PDA Plant Disease Diagnostic Laboratory. <i>Phytophthora</i> isolates cultured from these samples have been deposited in the PDA culture collection, and their cultural characteristics and the sample information have been archived since 1988 to present. Using the species identity of <i>Phytophthora</i> isolated from <i>Abies</i> plants (see above) and the spatial, temporal and host information associated with these samples, impact of <i>Phytophthora</i> root rot to affected PA counties and the most effective seasonal timing for <i>Abies</i> <i>Phytophthora</i> root rot inspection were determined. Key findings from this analysis include:</p> <ul style="list-style-type: none"> • Among 300 <i>Abies</i> samples displaying <i>Phytophthora</i> root rot symptoms, collected from 47 Counties, 229 (from 43 Counties) turned out to be <i>Phytophthora</i> positives. <i>Phytophthora</i> root rot was newly detected in nine more counties from 2005 through 2013. • Fraser fir, <i>A. fraseri</i>, seems to be the most vulnerable host with 74.7 % of the positives (37 Counties) corresponding to this host (Table 1). White fir (<i>A. concolor</i>) was the next most common host submitted (8.7 % from 12 Counties). The remaining samples corresponded to Balsam (<i>A. balsamea</i>), Canaan (<i>A. intermedii</i>), Noble (<i>A. proera</i>), Grand (<i>A. grandis</i>), and Korean (<i>A. koreana</i>) firs. <i>Phytophthora</i> isolates cultured from the 229 samples belong to eight species. <i>P. cryptogea</i>, <i>P. cactorum</i>, <i>P. drechsleri</i> and <i>P. citricola</i> were associated with 83.5 % of the samples, and the rest was associated with <i>P. cinnamomi</i>, <i>P. medicaginis</i> x <i>cryptogea</i>, <i>P. citrophthora</i>, and <i>P. cambivora</i>.

- A significant portion of Fraser fir samples displaying *Phytophthora* root rot symptoms (40.5%) came from three counties, in which *P. cryptogea*, *P. drechsleri*, *P. cactorum* and *P. citricola* were associated with 93.3 % of the samples. Although *P. cinnamomi* is a major pathogen in the U.S., its occurrence (8.2 %) was mostly one plant/county over 11 counties, 1988-2004, suggesting that *P. cinnamomi* is not well established in *Abies* plantation in PA.
- *Phytophthora* recovery from *Abies* root rot, 1988-2004 revealed that sampling in late season allowed higher recovery than early seasons. *Abies* samples collected during September and October led to isolation of all *Phytophthora* species known to be associated with *Abies*, and the recovery rate during these two months accounted for 52.8 % of the total recovery.

Table 1. *Phytophthora* root rot occurrence among *Abies* species on market, 1988-2013.

<i>Abies</i> species	<i>Phytophthora</i>	
	N	%
FIR, FRASER (<i>A. fraseri</i>)	171	74.7
FIR, WHITE (<i>A. concolor</i>)	20	8.7
FIR (<i>A. spp</i>)	13	5.7
FIR, BALSAM (<i>A. balsamea</i>)	12	5.2
FIR, CANAAN (<i>A. intermedii</i>)	7	3.1
FIR, NOBLE (<i>A. procera</i>)	2	0.9
FIR, KOREAN (<i>A. koreana</i>)	2	0.9
FIR, GRAND (<i>A. grandis</i>)	2	0.9
Total	229	100

3. Development of comprehensive diagnostic resources

Our focus has been on improving *Phytophthora* Database (www.Phytophthoradb.org). This online database mainly functions to support accurate and rapid identification of *Phytophthora*. Its sequence database currently houses sequence data from 1-12 loci for 2,623 isolates (representing 123 formally described species and 23 provisionally described species). This database has been utilized ~2,000 times per month in 2014. In collaboration with Dr. Frank Martin at USDA-ARS, we have added the description of recently described species to the database. We are also updating a review of molecular diagnostics tools, relevant references, and sequence alignments used to develop PCR-based diagnostics tools to support new diagnostic tool development and validation. We have not yet linked a morphology-based identification resource that Dr. Gloria Abad at USDA-APHIS has been developing, to *Phytophthora* Database, because this resource has not yet been publically released.

	<p>4. Dissemination of resulting knowledge and resources Our results from the analysis of <i>Phytophthora</i> species associated with Christmas tree root rot in Pennsylvania were presented during the 2014 American Phytophthological Society meeting (Kim et al., 2014) and local extension meetings. Some of our data are also available through Phytophthora Database.</p>
<p>Goals and Outcome Achieved:</p>	<p>1. Characterization of <i>Phytophthora</i> species associated with Christmas tree root rot in Pennsylvania: Christmas tree industry in PA has been ranked within the top four in various categories in the United States. PA culture has embraced Christmas trees since the 1800s with >1,000 Christmas tree farms generating more than \$22 million in annual sales in recent years. Christmas tree root rot associated with <i>Phytophthora</i> species is accountable for heavy losses in seedling beds and plantations for many years in PA. Plant inspectors of PA Department of Agriculture (PDA) have frequently encountered root rot symptoms on Christmas tree seedlings and intermediate size trees during their inspection and certification services over the last 28 years (1986-2013). Upon detection of plants associated with <i>Phytophthora</i> species, plant inspectors submitted symptomatic plants with the field information to the PDA Plant Disease Diagnostic Laboratory. <i>Abies</i> species have been the most frequently submitted Christmas tree samples over the years. <i>Phytophthora</i> isolates cultured from the samples have been deposited in the PDA culture collection, and their cultural characteristics and the sample information have been archived in a searchable database since 1986 to present. We analyzed the species' identity of <i>Phytophthora</i> isolated from <i>Abies</i> plants, their distribution and impact on PA counties, and effective seasonal timing for <i>Abies</i> <i>Phytophthora</i> root rot inspection services. Key findings from this analysis include:</p> <ul style="list-style-type: none"> • Plant inspectors have collected <i>Abies</i> spp. showing root rot symptoms, mostly from nurseries, while providing inspection and certification services over the last 28 years (1986-2013) (Table 1). Among 300 <i>Abies</i> samples displaying <i>Phytophthora</i> root rot symptoms, collected from 47 Counties, 229 (from 43 Counties) turned out to be <i>Phytophthora</i> positives. <i>Phytophthora</i> root rot was newly detected in nine more counties from 2005 through 2013. • Fraser fir, <i>A. fraseri</i>, seems to be the most vulnerable host with 74.7 % of the positives (37 Counties) corresponding to this host (Table 1). White fir (<i>A. concolor</i>) was the next most common host submitted (8.7 % from 12 Counties). The remaining samples corresponded to Balsam (<i>A. balsamea</i>), Canaan (<i>A. intermedii</i>), Noble (<i>A. proera</i>), Grand (<i>A. grandis</i>), and Korean (<i>A. koreana</i>) firs. <i>Phytophthora</i> isolates cultured from the 229 samples using PARP medium belong to eight species. <i>P. cryptogea</i>, <i>P. cactorum</i>, <i>P. drechsleri</i> and <i>P. citricola</i> were associated with 83.5 % of the samples, and the rest was associated with <i>P. cinnamomi</i>, <i>P. medicaginis</i> x <i>cryptogea</i>, <i>P. citrophthora</i>, and <i>P. cambivora</i>, 1988-2004. • A significant portion of Fraser fir samples displaying <i>Phytophthora</i> root rot symptoms (40.5%) came from three counties, in which <i>P. cryptogea</i>, <i>P. drechsleri</i>, <i>P. cactorum</i> and <i>P. citricola</i> were associated with 93.3 % of the samples. Although <i>P. cinnamomi</i> is a notable species for the disease in the U.S., its occurrence (8.2 %) was mostly one plant/county over 11 counties, 1988-2004, suggesting that <i>P. cinnamomi</i> is not well established in <i>Abies</i> plantation in PA. • <i>Phytophthora</i> recovery from <i>Abies</i> root rot, 1988-2004 revealed that the sampling in late season allowed higher <i>Phytophthora</i> recovery than early seasons. <i>Abies</i> samples collected during September and October led to isolation of all <i>Phytophthora</i> species known to be associated with <i>Abies</i>, and the recovery rate during these two months accounted for 52.8 % of the annual recovery.

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FIR, GRAND (<i>A. grandis</i>)	2	0.9
Total	229	100

2. Detection of *Phytophthora ramorum* from trace-forward samples. Pennsylvania has been combating the threat of the sudden oak death pathogen *P. ramorum* moving into PA via nursery stocks since 2004. PA is still receiving *P. ramorum* positive shipments from the west coast. We have analyzed *P. ramorum* trace-forward samples from Oregon. All the plants in positive sites were destroyed by PDA and the affected areas were treated with Clorox under the supervision of plant inspectors.

3. Improvement of *Phytophthora* Database: The data from the analysis describe above will be archived in Phytophthora Database (www.Phytophthoradb.org). In collaboration with Dr. Frank Martin at USDA-ARS, we have added species description of several recently described species to the database.

Beneficiaries:

Results from this project will exert a far-reaching and long-term impact on the production and marketability of specialty crops by making the following contributions: a) historical data on Phytophthora pathogens associated with various specialty crops will support the recognition of unusual patterns of pathogen change or movement; and b) early detection and accurate identification of pathogens via enhanced pathogen diagnosis expertise and resources will facilitate rapid deployment of regulatory and/or management actions, which will help prevent the introduction and spread of pathogens. The project’s primary beneficiaries are Pennsylvania’s vegetable and ornamental industries and individual growers. Given that certain *Phytophthora* can infect both horticultural crops and forest tree species, forest product-related industries also are

	beneficiaries. Since <i>Phytophthora</i> diseases are global problems, this project will benefit many other states as well as those outside of the state. Resulting resources will place PDA at the forefront of global effects to enhance the preparedness against <i>Phytophthora</i> .
Lesson Learned:	The dynamic nature of pathogen movement underscores the importance of continuously monitoring the nature and profiles of pathogens introduced to the state. It is also critical to archive the genotypes and phenotypes of previously characterized pathogen isolates in an easily accessible format so that these reference data can provide a critical insight into how pathogen communities are structured and change in the state. We will focus on the following objectives: a) identify the <i>Phytophthora</i> isolates archived at PDA by sequencing marker genes; b) organize historical data, such as disease occurrence by year, month, and region and <i>Phytophthora</i> species identified from individual plants, to archive them in the in-house database at PDA as well as Phytophthora Database; and c) develop diagnostic resources, including versatile identification keys based on a combination of morphologies, genetic markers, and hosts and molecular diagnostic tools, in collaboration with two USDA scientists.
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Project Summary

Project Title:	Pennsylvania Wines Mobile Web Experience
Project Summary:	The Pennsylvania Winery Association (PWA) created a user-friendly mobile site to be a more effective way to reach customers and visitors using smart-phones. The increased use of mobile devices such as smart-phones and tablets as a primary tool for research and information created the need to effectively and efficiently increase access to locally produced wines through a mobile site. Additionally, there was a need to promote the mobile site to potential visitors. With the addition of more wine grape growers and the numbers of Pennsylvania wineries reaching nearly 200 in numbers, a mobile website would be able to identify the availability of their wines and products.
Project Approach:	The Pennsylvania Winery Association (PWA) sought to create a Pennsylvania Wine Mobile Web Experience that would provide information on visiting PA wineries in a user- friendly platform for visitors using smart-phones. SWELL, the PWA staff and the PA Wines Marketing Committee discussed the mobile site contents and the status updates on a monthly basis prior to and following the creation on the site. Working with SWELL, a marketing consulting firm, and NewQuest a digital agency, the PWA worked to design a mobile website. Beginning in April 2013, The PA Wine Marketing Committee, SWELL, NewQuest and the PWA staff determined the information that would appear on the mobile site. NewQuest and

	<p>SWELL were in regular communication to get the design and content requirements on a timely basis.</p> <p>Staff from both SWELL and the PWA helped to collect the information from the wineries to ensure relevant content would be represented on the site, beginning in May 2013 and up until the site went live in October of 2013. After the site was in place the winery information was integrated into the site database in September 2013.</p> <p>Prior to the launch of the site review of the beta-site from September 2013 to the launch in October 2013. As the team reviewed the functioning of the site, refinements were made up until the October 2013 launch.</p> <p>Before the launch of the site in October 2013, SWELL, the PA Wine Marketing Committee and the staff of the PWA worked closely with MVPR to craft a PR strategy to promote the newly crafted mobile site. Additionally, SWELL and the PWA designed and printed 10,000 rack cards to promote the mobile site experience. The rack cards were used to promote the site at events such as the 2014 PA Farm Show and were provided to the PA Fine Wines and Good Spirits stores for distribution during October 2014 “PA Wine Month.”</p> <p>In October 2013 the sight went live, ahead of schedule. A press release announcing the new mobile site was distributed to the newswire in mid-October 2013. The release received significant coverage statewide, nationally and internationally through more than 370 placements in the media.</p> <p>Public relations efforts continued, with further attention provided on the mobile site in press releases related to the Pennsylvania Farm Show in January 2014. Additionally, press releases in Spring 2013 (March and April) highlighted the mobile website as a way to plan your spring wine trail and event travels. The mobile site was also featured in the PA Wine Land spring release detailing visiting a winery instead of the many other distractions in “Weekends are for PA Wine Land.” The Weekends in Wine Land release was further promoted though a media event held at Davios in Philadelphia in April 2014. The event attracted more than 70 travel and food writers, media and stakeholders. As a result of the press releases and media event the mobile site received coverage on radio, print and via social media.</p>
<p>Goals and Outcomes Achieved:</p>	<p>The activity on the mobile website far exceeded initial goals of 32,000 visitors. The accessibility and nimble nature of the website coupled with the promotional efforts. The mobile site has enabled m.pennsylvaniawine to reach more than 60% of the previous year’s traffic.</p> <p>On average, PA Wines' primary site - pennsylvaniawine.com - generates 120,000 visitors on an annual basis. With the addition of the mobile website - m.pennsylvaniawine.com- PA Wines has generated a 60% increase in virtual visitors. Since the October 2013 launch of the mobile site, PA Wines has welcomed over 71,000 new visitors to explore and find PA wineries throughout every region of the commonwealth.</p> <p>Most important, PA Wines has capitalized on the trend towards mobile discovery, delivering a fully responsive experience to more than 80% of visitors that browse the site on a mobile phone or tablet. Our spring/summer 2014 integrated marketing campaign for Pennsylvania Wines, "Weekends are for Wine Land," also generated over 100,000 mobile website page views and a 65% increase of out-of-</p>

	<p>state visits to our websites.</p> <p>The public relations activities (press release, media outreach and promotional event) led to press coverage has resulted in awareness of the mobile site with ancillary promotional opportunities that showcase Pennsylvania wines, wineries and winegrape growers. For example, wineries have been used as locations for photo shoots and area restaurants were exposed to PA wines that they will now look to serve.</p> <p>Pennsylvania wines and the mobile site were promoted in publications such as Edible Philly, the Patriot News and on various radio stations and podcasts</p>
<p>Beneficiaries:</p>	<p>There were multiple beneficiaries for the Pennsylvania Wine Mobile Web Experience. Pennsylvania wineries, winegrape growers and consumers are the primary beneficiaries. Both PA wineries and winegrape growers will benefitted from the project because it raised the profile of Pennsylvania produced wines and created further awareness to the locally grown grapes. Greater recognition of the availability and accessibility was provided for Pennsylvania wines. Visits to the mobile site translated to consumers that benefited from having an increased awareness and perceived accessibility to the local wines produced in Pennsylvania.</p> <p>Ancillary beneficiaries were communities where the wineries are located, along with major tourist attractions and lodging properties will also appear on the map. In turn, the Commonwealth benefited from increased sales of the product and the taxes derived from the sales. Pennsylvania wines and wineries have an economic impact of more than \$2 billion dollars annually. The industry employs more than 10,500 full- time jobs with additional part-time positions supporting the success of the wineries. Pennsylvania wineries contribute more than \$252.5 million in State and Local taxes paid.</p>
<p>Lessons Learned:</p>	<p>The team was able to re-envision the mobile site and the promotional materials with other concurrent projects to promote Pennsylvania wine and wine grapes.</p> <p>The timing revision, allowed for the PWA to be as inclusive as possible for new wineries and cross check information in a more economical fashion. Additionally, the PWA was able to utilize graphics that were created for the guide for the promotional rack card.</p> <p>Promotional efforts began earlier than initially noted on the work plan. This was to the benefit of the project, because it led to coverage of the mobile site in conjunction with key events, such as harvest, the holidays and the PA Farm Show. Since we began promoting the mobile site earlier than anticipated and planned in the work plan, we determined to gain the most traction in promoting the site, we would continue the public relations efforts into the summer- the busiest time to visit wineries.</p>
<p>Contact Person:</p>	<p>Jennifer Eckinger 717-234-1844 jeckinger@pennsylvaniawine.com</p>

<p>Project Title:</p>	<p>Exploring an alternative model for nursery certification</p>
<p>Project Summary:</p>	<p>The role of nurseries as producers of specialty crops and specialty crop planting stock is tremendously important. Regulatory agencies have long recognized nurseries as critical to American agriculture and horticulture, as well as potential pathways for movement of plant pests. The current certification process of nursery stock revolves around end-point inspection at the time of shipping. The focus of the work outlined in this grant is to move both regulatory agencies and nurseries away from a single end-point inspection, when many pests can go undetected, toward an entire system designed to mitigate pest pressure before it becomes a problem - <i>to stop pests from moving in, instead of having to stop a product from moving out</i>. This project contributed to the development of the concept for a systems approach to plant pest management and nursery certification in two key programs, the Pennsylvania Fruit Tree Improvement Program (FTIP) and the National Plant Board’s Systems Approach to Nursery Certification (SANC) Program. Through active participation in and development of both programs, this project paved a path to sustained and healthy plant production, and added potential to open markets for PA nurseries.</p> <p>Major Accomplishments:</p> <ul style="list-style-type: none"> • Two years of improved FTIP certification for participating nurseries, including audit, inspection, sampling, and testing of registered plantings. • Introduction of a new nursery applicant to the FTIP. • Significant development of SANC program training and outreach materials, many available at http://sanc.nationalplantboard.org
<p>Project Approach:</p>	<p>This project was designed to develop alternative models for nursery certification via two discrete programs: the continued evolution and refinement of the PA Fruit Tree Improvement Program (FTIP), and the development and implementation of a national initiative, a Systems Approach to Nursery Certification (SANC). In the course of this project, Pennsylvania’s two participating FTIP nurseries would be certified as having virus-tested fruit tree nursery stock, and at the same time, would be transitioning with the PDA into a more robust systems-based program. During the 2014 and 2015 growing seasons, the nurseries would have their stock tested for viruses of economic significance. In each growing season an estimated 4,000+ ELISA (Enzyme-linked Immunosorbent Assay) tests would be run on leaf samples taken from FTIP-related source and nursery blocks, in addition to regular inspection and testing of soil and weed samples to insure no virus is entering the trees via a weed/nematode conduit. The results of these tests would be provided to the nurseries, to inform their pest management decisions. This would also fulfill the testing requirements necessary for the PDA to certify the nurseries’ stock as “Penn Standard” or “Penn Premium” under Pennsylvania’s current Fruit Tree Improvement Program regulation, as well as the testing requirements of the nationally-harmonized model regulation for virus-tested fruit tree nursery stock. In addition to this regular testing, the PDA would continue to collaborate with the nurseries to develop meaningful and attainable production systems and best management practices to help safeguard their final products. The PDA (with additional funding through the Farm Bill Section 10007) would also be inspecting blocks for potential new threats to the PA fruit tree industry such as Apple Proliferation Phytoplasma, which can be easily transferred and magnified in nursery settings.</p>

	<p>The SANC prong of this proposal centers on verifying the merits of the systems approach and risk management measures currently in the SANC development process. The International Plant Protection Convention has defined the “systems approach” as the integration of different risk management measures, at least two of which act independently, and which cumulatively achieve the appropriate level of protection against regulated pests. In 2013, the SANC committee began compiling a framework of nursery risk management practices focusing on issues such as nursery staff training, planting media sanitation, pest scouting schedules, and choice of proper propagative material sources. We proposed investigating and testing feasibility of these best management practices in at least three nurseries in Pennsylvania in 2014.</p> <p>With the experience and information gleaned from this 2014 nursery pilot, a group training of PA Plant Inspectors would be given by the PDA to enable a larger scale test of SANC feasibility. At the end of the 2014 and 2015 pilot tests, a set of documents would be compiled that could be used by inspectors and nurseries to implement the SANC recommended systems; these documents would include checklists and companion guidance references.</p> <p>The National Plant Board SANC website already existed when this grant cycle began, but had not yet been well populated. At least three substantial additions to content would be made by Sarah Gettys and Ruth Welliver in this granting cycle. This website is an appropriate home for updates in progress of the test situations in nursery settings, guidance documents and supporting background and outreach information. The SANC initiative keeps in mind that dissemination of the outcomes and products of this project is of utmost importance, and is one of the keys to getting as much participation from facilities and state departments of agriculture as possible.</p>
<p>Goals and Outcomes Achieved:</p>	<p>A. Fruit Tree Improvement Program (FTIP)</p> <p>Pennsylvania’s two FTIP participating nurseries (Adams County Nursery and Boyer Nurseries and Orchards) worked closely with the PDA in 2014, continuing the evolution and refinement of the program. As the nurseries were certified to have virus-tested fruit tree nursery stock through testing and inspection, they also advanced the transition into a more systems-based program. The nursery’s ability to develop and maintain clean production systems is one of the main goals of the project, replacing the over-reliance on end-point inspections which can often turn up problems when they are too late to remedy.</p> <p>The FTIP-related activities listed in the full grant proposal span two growing seasons (2014 and 2015). At the time of this report, the 2015 growing season is drawing to a close. Both field sampling seasons began in May and continued through October, and were largely centered in Adams County, the main location for both FTIP nurseries. Trips to inspect and sample nursery stock in Sussex County DE, grown by one of the FTIP nurseries, occurred in August of each year. A 2014 FTIP annual report was posted on the PDA website. The 2015 report will be posted by February 2016. In 2014 and 2015, both FTIP nurseries had their stock tested for the following four viruses: plum pox, <i>Prunus</i> necrotic ringspot, prune dwarf, and tomato ringspot with 4,779 ELISA (Enzyme-linked Immunosorbent Assay) tests completed using leaf samples taken from budwood source and nursery blocks in 2014 and similar numbers in 2015 (data analysis and summarization not yet complete).</p>

During regular inspections of the FTIP blocks in 2014, 144 broadleaf weeds were collected and tested for tomato ringspot virus using ELISA; and 15 soil samples were collected for testing for *Xiphinema sp* nematodes (tomato ringspot vectors). All test results were provided to the nurseries, and informed numerous decisions such as: which trees to remove from registered source blocks, which trees to avoid when harvesting budwood, and improvements that should be made to the nursery's best management practices. This testing also fulfilled the requirements necessary for the PDA to certify the nurseries' stock as "Penn Standard" or "Penn Premium" under Pennsylvania's current [Fruit Tree Improvement Program regulation](#).

In addition to the standard testing regime, PDA continued to collaborate with the nurseries to develop meaningful and attainable production systems and best management practices that helped safeguard their final products. One nursery is planning to establish several new registered source blocks, and has approached PDA with several proactive questions. In a related program for the 2014 growing season, the PDA also inspected nursery and commercial orchard blocks for potential new threats to the PA fruit tree industry, such as apple proliferation and European stone fruit yellows phytoplasmas, both diseases that can be easily spread through nursery production.

In January 2015, the annual Pennsylvania Fruit Tree Improvement Program Advisory Committee meeting was held in Biglerville at the Penn State Fruit Research and Extension Center. Results from the field sampling season were disseminated to the two participating nurseries, and new developments in fruit tree diseases and management systems were discussed.

In 2015, Sarah Gettys was contacted by a third nursery, White Oak Nursery in Lancaster County, about participating in the FTIP. PDA had an initial meeting with the nursery owner in March, and set up a work plan for 2015 to gather preliminary information for an assessment of the nursery's ability to meet the requirements of the program. Testing similar to that done in the other nurseries was completed in 2015; preliminary indications are that the nursery will be able to enter the FTIP. ***This represents the first addition to FTIP nursery roles since the program began in the 1970's, and is a direct result of the outreach done under this Specialty Crop Block Grant.***

Up until June 2015, Sarah Gettys had been the primary PDA contact for this grant, working with oversight from Ruth Welliver. In June, Sarah moved to a new job, and Ruth Welliver assumed primary responsibility for this grant. Thanks to Sarah's strong organizational skill and training of a field team before her departure, PDA was able to make the transition seamlessly, and FTIP work was completed as planned.

A systems audit of the nursery production systems of ACN Inc. was conducted in September 2015 by Ruth Welliver, Sarah Gettys, and Scott Rebert (PDA Plant Inspector for Adams County). The meeting focused on paperwork components of the system, and began the process for updating documents. Integrating the Plant Inspection staff into the FTIP team is part of a plan to improve the certification system on the PDA side, making it more well-rounded and robust.

B. Systems Approach to Nursery Certification (SANC)

The SANC portion of the full SCBG proposal centered on verifying the merits of the systems approach

and risk management measures currently in the development process. Exciting progress has been made toward this end and in the pilot programs that will test and further inform the framework of risk assessments, standard operating procedures and best management practices that have so far been constructed. The pilot portion of SANC has expanded to a national level, involving eight nurseries/greenhouses in eight states:

- Conard-Pyle: West Grove, PA - www.starrosesandplants.com
- Forrest Keeling Nursery: Elsberry, MO - www.forrestkeeling.com
- Greenleaf Nursery Company: Park Hill, OK - www.greenleafnursery.com
- Lucas Greenhouses: Monroeville, NJ - www.lucasgreenhouses.com
- McKay Nursery Company: Waterloo, WI - www.mckaynursery.com
- Oregon Pride Nurseries: McMinnville, OR - www.oregonpridenurseries.com
- Southeastern Growers, Inc.: Watkinsville, GA - www.southeasterngrowers.com
- Walla Walla Nursery: Walla Walla, WA - www.wallawallanursery.com

In the original proposal for this grant, PDA planned to test the feasibility of SANC principles in nursery settings in three nurseries in Pennsylvania in 2014, and then expand to ten additional nurseries in 2015. In the intervening year between writing the original grant and commencement of the work plan activities, the National Plant Board and SANC committee determined that the developed pilot framework was strong enough to be taken to the national level without the preparatory testing in Pennsylvania. The national scope of the pilot also slowed the progress, so the second phase (ten PA nurseries in 2015, as originally proposed) was not feasible.

Conard-Pyle in West Grove, PA became the first of the eight pilot nurseries to begin the SANC process. Sarah Gettys was one of a three-member PDA team to work through the pilot requirements with Conard-Pyle. Sarah was then tasked with analyzing the experience and further developing training manuals, documents, forms and templates to be used in other SANC nurseries, including audit checklists and companion guidance documents. In 2015, Sarah was appointed to a new SANC sub-committee, created to evaluate all aspects of the national SANC program.

In this granting cycle, PDA participated in a variety of training and development meetings for SANC, in addition to conducting FTIP and SANC Outreach at various meetings. A summary of training sessions and meetings related to the FTIP and to SANC follows:

- August 2014 - ***Training Subcommittee and Training Presenters Workshop*** in Saint Louis, MO
 - Discussion and development of each topic to be covered at the SANC Pilot Training Workshop in Kennett Square (see below) to make certain pertinent information would be presented to the state regulatory staff involved in each of the eight pilots. This

meeting provided critical background and context for the progress that SANC has made.

- September 2014 – ***Understanding Audit Training Course*** in Frederick, MD
 - USDA-APHIS-PPQ Professional Development Center standard course specially arranged to be given to all state regulatory staff involved in the eight SANC pilot programs. In addition to valuable training for the audit process, this was an excellent opportunity to meet and network with more than a dozen of the regulators that will make up the core of the pilot program.
- September 29-October 1, 2014 – ***SANC Pilot Training Workshop*** in Kennett Square, PA
 - Training on the components of the SANC program to bring pilot state regulatory staff to a level where they feel comfortable in their roles and can conduct the SANC processes. This training session was attended by over 30 people, including John Rausch of Conard-Pyle, the first of the pilot nurseries to start the SANC process. Sarah was one of the two main organizers of this meeting, and in addition to planning logistics and agenda, produced a comprehensive training manual with the working drafts of documents necessary for the initiation of the pilot programs in each state.



Attendees of the SANC Pilot Training Workshop gathered in Conard-Pyle's demonstration garden



SANC Outreach products are displayed and distributed at a regional nursery industry trade show

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- January 2015 – ***SANC Pilot Inspector Training and Sub-Committee Workshop***
 - SANC training for pilot state inspectors to review results from the first three pilot nursery risk assessments and begin to tackle their role in the process. In the SANC workshop, the Outreach Sub-committee reviewed the SANC website content and design, and developed concepts for a suite of outreach materials that could be used for a wide range of audiences, including SANC's first outreach to the nursery industry.
- February 2015 - ***Pennsylvania Association for Sustainable Agriculture "Farming for the***

Future” conference

- Outreach information promoting the use of specialty crop nursery stock produced with a systems-approach has been developed and distributed at this event.



- April 2015 - **Annual Horticultural Inspection Society – Eastern Chapter meeting**

- Participate in and present SANC information to the inspection staff attending the annual Horticultural Inspection Society (HIS) Eastern Chapter meeting in Portsmouth, New Hampshire. Sarah Gettys is a member of HIS. In addition to her presentation, Sarah led a SANC Q&A and a discussion about the future of SANC work.

- May 2015 - **SANC Leadership Workshop** in Nashville TN.



- PDA provided input into the future direction of the SANC Program, reported on work completed, and was given direction for continued work.

July 2015 - **WERA-20, a Multistate Research Activity on Virus and Virus-like Diseases of Fruit Trees, Small Fruits, and Grapevines.**

Inspection staff training in SANC moves from classroom concepts to practical field situations using developing

private sector gather for an annual meeting to exchange information, discuss research, and plan collaborations. This meeting also included a workshop on incorporation of next generation sequencing technologies into quarantine, certification, and clean stock programs. Participation in this meeting improved the scientific base of FTIP programming as well as promoting the FTIP certification work to a national audience.

- Participating scientists from the public and

- August 2015 - **American Phytopathological Society (APS) annual meeting**, Pasadena CA.

- PDA was invited to give a presentation on SANC during a meeting symposium. It also provided an opportunity to engage national plant pathology leaders to gauge their knowledge of SANC and their interest in contributing to the body of knowledge

underlying SANC best management practices.

- October 2015 – **Multi-State Inspection Event**, Coatesville PA.
 - Sponsored by the H.I.S. Eastern Chapter, PDA helped to plan and then presented information on both the FTIP and SANC at this meeting, in addition to also receiving additional training in SANC concepts and practice.
- Throughout 2014 and 2015 - PDA has attended and participated in meetings and/or teleconferences of the SANC working group, the National Clean Plant Network, and the National Clean Plant Network-Fruit Trees group. PDA continues to be a point of contact for the network established for a fruit tree certification harmonization working group and the new links forming with the SANC initiative stakeholders. Connections such as these, in addition to the documents and research that have been completed for the national fruit tree certification harmonization project and the continuing refinement of the PA FTIP program, has placed the PDA in a unique situation to help propel the systems-approach method forward. Experience, methodology and resources will be shared between the stakeholders of both projects.

The National Plant Board supports a SANC website (<http://sanc.nationalplantboard.org>). Substantial additions to content were made by PDA in these two years. In addition to general news, links, and outreach items presented on the website, PDA has made major contributions to two sets of documents for SANC:

- **Operational Documents for Participating Facilities and Certifying Agencies:** this set of documents are in use in the SANC pilot, but have not been released by the SANC leadership for publication on the SANC website.
 - Facility Risk Assessment Tool
 - SANC Manual Framework
 - Facility SANC Manual Review and Approval Checklist
 - SANC Facility Audit Checklists
- **Outreach Documents promoting the SANC Program initiative and systems approach concepts:** while the cost of the professional graphic designer and the cost of printing were not covered by this grant, PDA was primary in developing concepts and doing the proofing on the following suite of promotional products:
 - Vertical Collapsible Banner, Floor Model (36" wide x 91" tall)
 - Collapsible Banner, Table Model (36" wide x 32" tall)
 - One Page Handout
 - SANC Business cards
 - SANC Table Runner
 - Trifold Brochure

	<p>Most SANC outreach efforts prior to 2015 were directed at state departments of agriculture and their staff. This series of outreach documents were the first to be distributed to the nursery industry as well. In 2015, we are aware of SANC Outreach materials reaching:</p> <ul style="list-style-type: none"> • All state plant regulatory officials of all U.S. states and territories. • Plant Inspection staff, across multiple events, from each of the four regional Horticultural Inspection Society chapters (Central, Eastern, Southern, and Western) covering the United States. SANC information and training provided to an average of 30 regulatory inspectors per event. • Nursery Industry representatives, in at least five national or regional events with combined attendance of more than 15,000. SANC averaged 10-25 people/day who engaged with those staffing the booth for a meaningful conversation, 40-50/day who stopped for a short time, and many who passed by our display. • University Extension and Research collaborators, via the American Phytopathological Society Meeting (Roughly 100 in audience, 80 brochures distributed).
<p>Beneficiaries:</p>	<p>Beneficiaries of the work of this grant include:</p> <ul style="list-style-type: none"> • Two FTIP participating nurseries in Pennsylvania, and one FTIP candidate nursery. • The many commercial orchards across the United States and Canada that purchase FTIP-certified stock, and the consumers that purchase fruit at a price that is more reasonable because it need not cover losses in yield or quality due to viruses in the trees. • The national Systems Approach to Nursery Certification initiative, that is being given a kick start because of the additional work done through this grant. • The eight pilot SANC nurseries, including one PA ornamentals nursery. • The Plant Inspection staff of Pennsylvania and of the United States, who have been trained in systems approach work. • The national nursery production system and its customers, who will benefit from the SANC program.
<p>Lessons Learned:</p>	<ul style="list-style-type: none"> • We have learned to be more cautious when basing our work plan on unfinished work from others. The timetable for PDA’s original SCBG work plan had to be modified to reflect the speed of development of the national SANC project. Our original work plan included a timetable over which we simply did not have control, and we were overly optimistic in our estimation of how quickly the national program would be developed. When it became clear that certain goals we had set would not fit the overarching goals of the national program in the 2014-2015 timeframe, we were able to modify our goals to make worthwhile use of resources in areas that were open to us.

	<ul style="list-style-type: none"> You can move much faster when traveling alone! But a project built with active participation from federal, state, university, and industry cooperators, while not moving forward quickly or without some difficulty, will always end up with the best outcome and be worth the effort.
<p>Contact:</p>	<p>Ruth Welliver / Sarah Gettys 717-772-5222 rwelliver@pa.gov</p>
<p>Additional Information:</p>	<p>Fruit Tree Improvement Program: http://www.agriculture.pa.gov/Protect/PlantIndustry/FTIP/Pages/default.aspx#.Vi5p9krD-M8 Systems Approach to Nursery Certification: http://sanc.nationalplantboard.org</p>
<p>Project Title:</p>	<p>Incorporating Integrated pest management techniques and sustainable soil management techniques into Christmas tree farms of PA</p>
<p>Project Summary:</p>	<p>In any farm setting, integrated pest management is an important part of producing a successful crop and maintaining a well-balanced, healthy farm environment. Integrated pest management refers to a management strategy that combines several facets of control so that pests are managed with the lowest cost to the environment, human health and grower expenses. Educational efforts are well known for greenhouse crops, vegetable crops and conventional agricultural crops, but for Christmas trees, an important branch of the nursery industry and a major specialty crop in Pennsylvania, the IPM educational efforts are limited. According to a 2009 USDA National Agricultural Statistic Service survey of the nursery and floriculture industry, only 3 percent of nursery growers are conducting deliberate scouting in production areas, only 38 percent are trapping insects for monitoring, only 12 percent are releasing biocontrols and only 22 percent are using biorational controls. These are all basic tenants of an IPM program that are not being well utilized in the nursery industry.</p> <p>These techniques are not being under-used because there is no need for IPM in this industry. There are a great number of potential pests of Christmas trees. These include armored scales, such as Cryptomeria scales and Elongate Hemlock Scales, mites, such as spruce spider mites and Eriophyid mites, bagworm, white pine weevils, Cooley spruce gall adelgid and balsam twig aphid, just to name a few. The PDA project team has worked with growers for several years to introduce IPM strategies for Cryptomeria scale on several farms in Central PA. One of those key strategies was to promote biological control. The goals for this project were to expand the scope of the educational effort to include management of other pests, as well as to incorporate training on other sustainable agricultural techniques that would improve the overall health of the farm.</p> <p>This project is a continuation of several previously funded Specialty Crop projects. As part of the 2014 growing season, work continued with three Central Pennsylvania growers who had begun to incorporate integrated pest management strategies on their Christmas tree farms. Two other growers were introduced to the project and began learning IPM techniques in varying degrees.</p>

	<p>Project team members Sarah Pickel, Brian Schildt and Cathy Thomas worked with participating growers to scout for pest issues on the farms, to make observations on parasitism in scale populations which had been followed in past seasons, to offer advice on management strategies which will be safest yet most effective for the farms and to discuss options to improve soil and farm health. The activities of the project are described below.</p>
<p>Project Approach:</p>	<p>In order to expand the IPM educational effort to Christmas tree growers in Central Pennsylvania the project team selected the following objectives to work toward:</p> <ol style="list-style-type: none"> 1. Educate growers through one-on-one, weekly training sessions with an IPM specialist regarding insect pest life cycles and IPM techniques such as scouting, GDD accumulation and record keeping. 2. Advise growers on the selection of reduced-risk chemical options and on the selection and proper release of biological controls. 3. Promote the incorporation of sustainable agricultural techniques such as cover cropping and the use of organic soil amendments. <p>These objectives were intended to help the participating farms make IPM a permanent part of their farm operations and also to explore other sustainable techniques that would enhance their pest management program and also improve the functionality of the whole farm. The advice and mentorship of the IPM consultants would help the growers to do this.</p> <p><i>EDUCATING GROWERS IN IPM TECHNIQUES:</i> This year in addition to scouting for the two main pests which previous projects focused on, Cryptomeria scale and spruce spider mites, pest identification training continued on other pest species found on participating farms. Additionally, new tree blocks were scouted this season. Finally, other farm participants were included in the projects. The first farm that was added to the project was Wagner’s Christmas Tree Farm in Lebanon. This grower reached out to the project team because he had observed a problem with his trees which had increased in severity since the previous season. During an initial visit by Brian and Sarah, it was determined that the farm had a problem with Cryptomeria Scale. A plan was then developed to have Brian make visits to the farm during which he would meet with Mr. Wagner to train him in the scouting and techniques of IPM. Over the course of 14 visits, Brian shared life cycle information, timing of vulnerable stages and discussed control options,</p> <p>The second new farm the team worked with this season was 3 G’s Tree Farm in Dover. This farm is a small hobbyist tree farm (under 10 acres) where the both owners have full time jobs in addition to running the tree farm. The farm owners, Mr. & Mrs. Geyer have done very little in the way of management activity on their farm. While this farm would be limited in the amount of interaction they could have with the project team due to work schedules, Sarah was able to offer advice on pest life cycles, control timing and safer products available through 3 visits and email conversations. As for the previously worked with growers, there were 10 scouting visits made to Strickler’s Evergreens farm, 10 visits made to Springfield Tree Farm and 6 visits to Strathmeyer farms. Two of these farms, Strickler’s and Springfield, had previously released biological control agents on their farm. All three farms had previously used a reduced-risk, beneficial insect-friendly pesticide products. Much of the scouting at these farms was to observe how the beneficial insect population was faring and to help growers determine the best course of control for the 2014 season.</p> <p><i>OBSERVATION OF NATIVE BENEFICIALS:</i> If an IPM program is functioning properly, the native insect</p>

complex in the area of focus should be balancing out to the point that beneficial insects native to the area are present and working to keep the pest population in check. Since the start of this project, project leaders have seen the presence of beneficial insects on the original two farms. The difference this year is that there seem to be an increase in variety of beneficial insects seen. On Springfield farm, where lady beetles have been prevalent throughout the project, two species of lady beetles which had not been observed on the farm before were observed this season. They are the eye-spotted lady beetle and the pink spotted lady beetle. This increased diversity is a very positive sign for the health of the farm.



Figure 1: Left - Eye-spotted Lady Beetle [Donna Bortner]; Right - Pink-spotted Lady Beetle [Sarah Pickel]

Another farm where more beneficials were observed this season is Strathmeyer forests. After one season of using the reduced-risk insecticide product Movento, Strathmeyer is seeing evidence of beneficial insects on nearly every tree. This is a very positive re-enforcement of the benefits of using reduced-risk products.

TEMPERATURE MONITORING: Any IPM program should include a system for monitoring temperatures and relating it to insect life cycles. This practice has been continued to show the growers how temperature monitoring ties into the timing of insect activity. Since we began working with growers in the 2011 season, project members have tracked the growing degree day totals at the time of scale crawler emergence. The goal was to confirm that the accepted growing degree day range for *Cryptomeria* scale emergence is accurate for the scale populations in our area. Literature lists the growing degree range for emergence of *Cryptomeria* scale crawlers (the life stage susceptible to pesticide sprays or parasitoid attack) at 600 – 800 GDD for the first generation and 1,750 – 2,130 GDD for the second generation. The following chart shows the results of the 2014 season along with the previous seasons' results. Beginning on February 1st, Project team members recorded daily average temperatures in Lancaster and York Counties.

TABLE 1: Growing Degree Day values for Scale Emergence in 2011 - 2014

Year	Scale Generation	Accepted Range	Lancaster GDD Total	York GDD Total	Date of Emergence
2014	1	600 – 800	748.5	792	6/11-6/17/14
2014	2	1,750 – 2,130	2337.5	2138	8/13/14
2013	1	600 – 800	812.0	781.0	6/13/13
2013	2	1,750 – 2,130	2612.5	2380.5	8/13/13
2012	1	600 – 800	790.0	846.0	5/29/12
2012	2	1,750 – 2,130	2595.5	2641.5	8/8/12
2011	1	600 – 800	852.5	830.5	6/8/11
2011	2	1,750 – 2,130	2572.5	2519.5	8/12/11

PARASITISM OBSERVATIONS: For the 2014 season, Springfield Tree Farm and Strickler’s Evergreens, the two farms who had in previous seasons released parasitoid wasps in their scale infested trees, were faced with the decision whether or not to release these biological control insects again. The challenge was that this season, due to a change in funding, they would be paying for their own biocontrol. After weighing various factors, both farms decided to rely on insecticide applications and native beneficial. Although there was no release this season, project leaders decided to continue with the scale counting for the Springfield tree farm. The hope was to see that the parasitoid population would persist and not affected by the insecticide application. The following table includes figures from the 2014 season at Springfield tree farm. Despite the fact that the releases did not continue this year, the percentage parasitism continued to increase this season. See the chart below.

TABLE 2: Scale count figures for 2011 - 2014

FARM A						FARM B					
Year	Collection Date	Scale Counts			% Parasitized	Year	Collection Date	Scale Counts			% Parasitized
		Dead	Live	Parasitized				Dead	Live	Parasitized	
2014	8/13/2014	36	220	510	66.6						
2014	8/19/2014	28	49	323	80.8						
2014	9/4/2014	28	229	489	65.5						
2014	Average % of Parasitism				70.97						
2013	7/16/2013	131	136	428	61.58	2013	7/7/2013	50	67	151	56.34

Pennsylvania Department of Agriculture – FY2013 Specialty Crop Block Grant Annual Report

2013	7/30/2013	114	79	315	62.01	2013	9/4/2013	97	10	21	16.41
2013	8/6/2013	119	207	460	58.52	2013	9/10/2013	49	3	42	44.68
2013	9/5/2013	64	85	345	69.84	2013	9/19/2013	95	8	13	11.21
2013	9/17/2013	101	35	258	65.48	2013	Average % of Parasitism				32.16
2013	9/24/2013	44	189	484	67.5	2012	7/12/2012	16	191	129	38.39
2013	Average % of Parasitism				64.16	2012	7/27/2012	2	63	124	65.61
2012	7/10/2012	267	92	541	60.11	2012	8/23/2012	39	10	21	30
2012	7/24/2012	163	70	147	38.68	2012	9/14/2012	0	31	18	36.73
2012	8/7/2012	58	196	91	26.38	2012	Average % of Parasitism				42.68
2012	9/11/2012	139	181	42	11.6						
2012	9/24/2012	113	298	76	15.61						
2012	10/9/2012	70	333	84	17.25						
2012	Average % of Parasitism				28.27						
2011	6/21/2011	445	128	896	60.99						
2011	6/28/2011	405	73	414	46.41						
2011	7/5/2011	570	654	375	23.45						
2011	7/15/2011	795	70	1222	58.55						
2011	7/21/2011	375	63	1039	70.35						
2011	8/16/2011	165	97	97	27.02						
2011	8/23/2011	245	293	170	24.01						
2011	8/30/2011	63	76	235	62.83						
2011	Average % of Parasitism				46.7						

1

The following chart shows the summary of parasitism percentages in the Cryptomeria scale populations that have been monitored for the last 4 seasons.

TABLE 3: Summary of the parasitism percentages at the two farms for 2011 - 2014

Year	Farm	% Parasitism
2014	A	70.97
2013	A	64.16
2013	B	32.16
2012	A	28.27
2012	B	42.6
2011	A	46.7
2011	B	N/A

SOIL HEALTH

Another objective of this growers to consider the that affects the health of their

better able to stand up to pest attack. Prior to the start of this project, project member Sarah recommended to Donna Bortner of Springfield tree farm to take a soil test to determine the nutritional needs of their soil before applying the same fertilizer combination that they typically use, which is a 10-10-10 mixture. After reviewing the results of the soil test, the Bortners adjusted their fertilizer mixture to increase nitrogen as the test suggested and within months this season, an improved color and vigor was noticed. One suggestion to improve soil health to both Springfield and Strickler’s farms was to apply a microbotic supplement known as EM1, which has been known to improve nutrient flow and increase vigor of greenhouse and field crops. Both growers were somewhat hesitant to use the product however, so next season the hope is to have some more evidence of success stories for them to base their decisions on.

RECOMMENDATIONS:

project was to work with condition of their soil and how trees. Healthy trees are

Goals and Outcomes Achieved:

One goal of the project was to see an increase in the amount of reduced risk products used on participating farms. In 2014, Springfield, Strickler’s and Strathmeyer tree farms all continued to use Movento or Kontos (both spirotetramat) in connection with controlling their Cryptomeria scale population. In the case of Springfield Farm, they actually eliminated one spray from their management program. Strathmeyer tree farm used only one application in all their scale populations for a second year in a row. Only Strickler was obligated to increase their applications from 2 in a season to 3.

Another goal of this project is that there would be an increased amount of trees managed by IPM. On Strickler’s tree farm one additional block of their farm was added to the IPM scouting program, which amounts to approximately 2 hundred trees added. On Springfield tree farm, two additional blocks were added to the IPM Scouting program, which accounts for approximately 1000 trees added. On both Wagner Christmas trees and 3 G’s tree farm, 2 blocks of trees were being monitored on each farm. This shows that we’ve been able to meet this goal.

Lastly, the project had a goal of being able to disseminate the IPM knowledge gained through this project to other growers in the state through grower meetings and through production of a

	<p>pamphlet that growers could access through the Penn State Christmas Tree Website. Sarah Pickel was a presenter at the PA Christmas Tree Growers Association’s 2014 Summer meeting, where she included the observations gained from this project in her talk. Sarah has also been invited to speak to the NJ Christmas Tree Growers Association in January 2015 where this information will again be shared with a new group of growers. An IPM Handout has also been produced and is now available on the Penn State Christmas Tree website at the following address: http://ento.psu.edu/extension/christmas-trees/information/ipm-guide-for-select-insect-pests-on-pa-christmas-tree-farms/view.</p>
<p>Beneficiaries:</p>	<p>The beneficiaries directly affected by this project are 3Gs Tree Farm, Springfield Tree Farm, Stricklers Evergreens, Strathmeyer Forests, Inc. and Wagner’s Tree Farm, as well as their customers. These growers have expressed their satisfaction with the results of the project as well as the opportunity to learn the scouting techniques.</p> <p>The results that have been gathered over the course of this project on both the incorporation of biocontrol organisms and of the use of the reduced risk insecticide Movento have been shared with larger groups of Christmas tree growers. In the summer of 2014, team member Sarah Pickel spoke to at the PA Christmas Tree Growers Association (PCTGA) annual meeting about scouting and control methods for Cryptomeria and elongate hemlock scale, where both the use of <i>Aphytis melinus</i> and Movento biorational insecticide were explained and recommended. There were approximately 150 growers and farm employees in attendance at this meeting, and all attendees were able to attend one of the two sessions during which Sarah’s IPM talk was offered. Sarah also spoke at the PCTGA annual winter meeting in January 2015 on the topic of Christmas tree pest management. This provided an opportunity to promote the use of the techniques used in this project. In fact, at least one grower attending the meeting has already asked the project team for assistance in incorporating biocontrols into his Cryptomeria scale control program this summer. Attendance at this meeting was approximately 100 growers and farm employees.</p> <p>Temperature information gathered through this project as well as biorational and biocontrol options have been shared through the 2014 PA Christmas Tree Scouting Report. This report, which is authored by project team member Sarah Pickel, has a direct distribution list of 270 farmers, industry professionals and educators, and is also available to numerous growers online at the Penn State University Christmas Tree Website (http://ento.psu.edu/extension/christmas-trees/scouting-reports).</p>
<p>Lessons Learned:</p>	<p>Over the course of this Specialty Crop project, project leaders have found that the participating growers have embraced the concepts of IPM and have made a permanent change in how they handle pest control. They have learned to value the information that can be gained through scouting and they have showed that they care about the types of products that are used on their farms. They also exhibit a sense of pride about being innovators in the area of biocontrol for conifer plantations. Although they chose not to release the beneficial insects this season, possibly because of financial circumstances, they still expressed interest in doing so again in the future.</p> <p>While the success level of parasitism is still not what the project team ultimately hoped for, it was encouraging to see that even through a season without wasp release, an increase in parasitism was still observed at the end of this 4th season at Springfield farm. The results from the scale counts are beginning to show that by incorporating the soft pesticide Movento, beneficial levels were not</p>

	<p>hindered, but in fact were able to increase naturally. Our hope is that when the growers continue to use conservative applications of soft pesticides, the control levels by beneficials will continue to increase because of the population that has been promoted throughout the project.</p> <p>One issue with the project that we saw this year is the hesitancy of the growers to incorporate the sustainable soil techniques into their management program. They seem to be accepting that fertilizer applications should be based on soil tests and will adjust them accordingly. The team believes that perhaps because the use of a microbial supplement has not been used on other tree farms in the state, there is a reluctance to try it. The benefits of the soil testing and proper fertilization, however, was imparted and accepted by the participants, especially Springfield tree farm where an improvement in the growth of trees was noted.</p>
<p>Contact Person:</p>	<p>PDA, Bureau of Plant Industry Cathy Thomas</p>
<p>Additional Information:</p>	<p>Factsheet produced through the project which can be found on the PSU Christmas tree website. (First 3 pages of the 7 page</p>

IPM GUIDE FOR SELECT INSECT PESTS ON PA CHRISTMAS TREE FARMS

Bagworm

Description:

- * Caterpillar pest that forms a protective casing out of foliage
- * Brown casings hang down from branches and may be mistaken for cones. May be 1.5-2 inches when larvae are mature.
- * Hosts:
 - o All conifer species
- * Damage:
 - o Young larvae will cause brown, chewed areas of foliage.
 - o Older larvae will eat all the needles from a twig.

Life Cycle:

- * The adult male leaves his casing to mate with the females in late August - September.
- * The females will lay eggs and die in the casings. Eggs overwinter in mother's casings.
- * Eggs then hatch early – mid June.

Monitoring:

- * In early June, look for silk strands coming from ends of casings. Young larvae exit on these strands.
- * Look for brown, chewed tips of the season's new needles and the young larvae hanging down from these needles.

Management:

- * Physical – Remove bags from trees by hand before late spring to prevent new bagworms from emerging.
- * Bio-Rational – Apply a *Bacillus thuringiensis* (Bt) spray in early summer to infest newly emerged bagworms.
 - o *Javelin, DiPel* (Bt) *[Less harmful to beneficial insects]
- * Traditional – Apply a registered insecticide at the time of bagworm emergence. Wait until majority have emerged to spray; one application should be enough. Some insecticide options:
 - o *Pyreth-it* (Pyrethrin)
 - o *Conserve & Entrust* (Spinosad)
 - o *Orthene* (Acephate)

Balsam Twig Aphid

Description:

- * Pale green aphids feed on the season's new needles.
- * Hosts:
 - o True Firs (Fraser & Canaan may show most damage.)
- * Damage:
 - o New season's needles are twisted and stunted
- * For cut trees, light damage may be tolerable until year before sale.

Life Cycle:

- * Overwinters on the underside of the twig, at the base of a needle, as a silvery, football shaped egg.
- * Stem Mothers hatch from eggs in early spring, usually early-mid April.
- * Stem mother give birth to live nymphs which will move into opening buds to feed on the new needles.

Monitoring:

- * Check for populations by beating end of branches over paper or black cloth.

Management:

- * Treat if majority of trees have more than 2 aphids.

document.)

- * Two Possible Treatment Times:
 - o After egg hatch, but no later than bud swell. Only one spray should be necessary.
 - o In the fall, when eggs are present. (North Carolina)
- * Some insecticide options:
 - o *SuffOil-X* (Petroleum Oil – emulsified)
 - o *Movento* (Spirotetramat) *[Less harmful to beneficial insects]
 - o *OnyxPro* (Bifenthrin)

Cooley Spruce Gall Adelgid

Description:

- * Small, sucking pests
- * Feeds on needles and twigs
- * Form protective waxy, wool-like coverings outside of gall
- * Hosts:
 - o Douglas-fir
 - o Colorado Blue Spruce
- * Damage:
 - o Kinked Needles (Douglas-fir)
 - o Thumb-sized galls (Blue spruce)

Life Cycle:

- * Overwinter as uncovered, immature nymphs on needles or bark crevices near the buds.
- * Begin to form protective, wooly, wax covering in the early spring as it matures.
- * Lays eggs.
- * Nymphs hatch and either settle on the surface of newly expanding needles (Douglas-fir) or begin to form a protective gall inside the developing buds (Colorado spruce).
- * On Douglas, the nymphs continue to cycle through several generations on the needles.
- * On Colorado spruce, the nymphs will mature inside the gall and will exit the gall as it dries and opens in late summer. These will move to new twigs and will molt into winged adults and can either move to Douglas-fir or remain on spruce. The winged adults will produce the overwintering nymphs usually by early-mid October.

Monitoring:

- * Scout in summer for trees that have galls or kinked needles with white waxy tufts.

Management:

- * Clip off galls on Blue Spruce in early summer before they dry up and open.
- * Treat with dormant oil in late fall or early spring when trees are dormant.
- * Apply registered insecticide in early October or before bud break in spring to target overwintering nymphs.
- * Some Insecticide options:
 - o *Movento* (Spirotetramat) *[Less harmful to beneficial insects]
 - o *Lorsban* (Chlorpyrifos)
 - o *Acephate* (Orthene)
- * Remember not to use oil products on glaucous trees!

Cryptomeria Scale

Description:

- * Armored scale
- * Two generations during the growing season

- * Found at the base of a tree, close to trunk
- * Hosts:
 - o True Firs preferred, potentially Douglas-fir and spruces
- * Damage:
 - o Yellow speckling on needles
 - o Loss of needles in heavy cases

Life Cycle:

- * Overwinters as immature scales
- * LATE SPRING – Scales mature into adult females and males
- * LATE MAY / EARLY JUNE – Females lay eggs which stay under scale covering.
- * EARLY TO MID JUNE – Scale nymphs or crawlers hatch out of eggs and move out from under the mother's scale cover
- * JUNE / JULY – Crawlers settle and begin to form scale covering and feed.
- * EARLY AUGUST – 2ND generation of eggs develop.

Monitoring:

- * Monitor undersides of lower branches near the trunk for yellow speckled needles.
- * Use a hand lens to see if crawlers are present on underside of the needles.

Management:

- * Some level of control can come from natural predators.
- * Purchase and release of parasitoid wasps, *Aphytis melinus*, from biological control companies can help to keep small populations of Cryptomeria scale in check.
- * When crawlers emerge, make 2-3 applications 7-10 days apart with a registered insecticide or super-fine horticultural oil.
- * Some insecticide options:
 - o *Movento* (Spirotetramat) *[Less harmful to beneficial insects]
 - o *Lorsban* (Chlorpyrifos)
 - o *Dimethoate* (Dimethoate)
 - o *Warrior* (Lambda cyhalothrin)

Douglas-fir Needle Midge

Description:

- * Light orange, fly-like midge
- * Long, delicate legs
- * Tiny – adults are 3 mm in size
- * Carries out life cycle by forming galls in needles
- * Damage:
 - o Swollen, yellowed galls in needles of new growth, causing needles to kink

Life Cycle:

- * Adults emerge at end of April – early May.
- * Eggs are laid about 5 days after adult emergence and hatch about 3 days later.
- * Newly hatched larvae burrow inside the needles to begin feeding.
- * Gall becomes evident about 3 weeks after larvae enter needles. About the 4th week in May.
- * Infested area swells on bottom side of needle.
- * Larvae begin exiting needles in mid-November.
- * Midge pupate and overwinter in the soil.

Monitoring: Emergence Traps

- * Scout Douglas-fir in fall to detect infestation. Monitor adult emergence with emergence traps if infestation is high.

Project Title: Development and Delivery of GAP Training & Materials for Pennsylvania Fruit and Vegetable Farmers											
Project Summary:	<p>Food borne illness outbreaks and recalls from contaminated fresh fruits and vegetables continue to occur in the United States. To limit potential liability issues associated with these events, wholesale buyers are increasingly demanding, as a condition of purchase, that Pennsylvania fruit and vegetable growers provide evidence they are following Good Agricultural Practices (GAP). GAPs are procedures to prevent product contamination from poor hygiene, irrigation water, domestic animals and wildlife, raw and composted animal manure, and the post-harvest packing environment. Evidence of safety farming practices typically is obtained by a third party inspection through the USDA AMS GAP verification program. Adding to this level of scrutiny are new farm food safety standards written in the Produce Safety Regulation under the Food Safety Modernization Act (FSMA). Pennsylvania growers are thus faced with an often confusing array of standards and documentation requirements. This project was therefore aimed at specialty crop growers of Pennsylvania who currently use wholesale distribution channels to market their products and those that are subject to new government food safety standards. There is a pressing need to develop new materials and training approaches that provide clear, consistent and concise information so that Pennsylvania fruit and vegetable farmers have the knowledge and skills necessary to prepare for government and commercial mandates. We have been successful in our efforts to date, however, farmers continually need training and support from Cooperative Extension, a trusted source for science based agricultural production and food safety information.</p>										
Project Approach:	<p>Activities and tasks performed during the entire grant period are described within the framework of the work plan submitted with the original proposal.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Work plan dates</th> <th style="width: 65%;">Objective and Accomplishments</th> <th style="width: 20%;">Accomplishment dates</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;">October 1 2013 – June 30 2014</td> <td> <p>Objective: Review new FDA produce safety standards and Harmonized GAP standards and make any necessary content changes to Harmonized Template Plan.</p> <p>Accomplishment: The final version of "Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption" was published in the Federal Register on November 12, 2015. We reviewed the document and came to the conclusion that no actual changes are needed until FSMA regulation compliance dates for smaller growers are reached in the next 3 to 4 years and our original USDA AMS Harmonized Audit Template Plan remains available on the Penn State Farm Food Safety web site at http://extension.psu.edu/food/safety/farm/how-do-i-write-a-food-safety-plan .</p> </td> <td style="vertical-align: top;">11/2015 – 3/2016</td> </tr> <tr> <td></td> <td> <p>Objective: Develop first series of GAP fact sheets. Distribute finished Fact Sheets at Winter Meetings and post them on the PSU Farm Food Safety web site.</p> </td> <td style="vertical-align: top;">6/15/2015</td> </tr> </tbody> </table>		Work plan dates	Objective and Accomplishments	Accomplishment dates	October 1 2013 – June 30 2014	<p>Objective: Review new FDA produce safety standards and Harmonized GAP standards and make any necessary content changes to Harmonized Template Plan.</p> <p>Accomplishment: The final version of "Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption" was published in the Federal Register on November 12, 2015. We reviewed the document and came to the conclusion that no actual changes are needed until FSMA regulation compliance dates for smaller growers are reached in the next 3 to 4 years and our original USDA AMS Harmonized Audit Template Plan remains available on the Penn State Farm Food Safety web site at http://extension.psu.edu/food/safety/farm/how-do-i-write-a-food-safety-plan .</p>	11/2015 – 3/2016		<p>Objective: Develop first series of GAP fact sheets. Distribute finished Fact Sheets at Winter Meetings and post them on the PSU Farm Food Safety web site.</p>	6/15/2015
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		<p>Accomplishment: Five GAP fact sheets were developed and published for distribution as formatted PDF documents and the text was posted to the Penn State Farm Food Safety web site at http://extension.psu.edu/food/safety/farm/gaps. Titles and brief description follow.</p> <p>Reducing Food Safety Risks During Harvest. Methods to keep produce as clean as possible and prevent contamination during harvest.</p> <p>Reducing Food Safety Risks in the Packhouse. Basic sanitation recommendations for keeping packing areas clean and appropriately sanitary.</p> <p>Reducing Risks from Animals and Manure. Recognize the risks associated with animals and animal manure and learn tips on how to reduce farm food safety risks.</p> <p>Safe Uses of Agricultural Water. Risk factors associated with the water we use to grow, harvest, and handle fresh produce and how to reduce the risk of contamination.</p> <p>Worker Health and Hygiene. A summary of the responsibilities that harvesters and handlers need to take seriously to prevent human contamination of produce, and what farm supervisors and owners need to do to support a health and hygiene program.</p>	
	<p>July 1, 2014 – June 30th 2015</p>	<p>Objective: Select host farm sites and conduct six GAP Mock Audit field days throughout Pennsylvania.</p> <p>Accomplishment: Two project assistants supported by SCBG funds coordinated with Ms. Judy Martin of the Pennsylvania Department of Agriculture to hold mock audits at 7 different locations to approximately 95 produce growers. Dates and locations follow.</p> <p>Four Seasons Produce, Meshoppen, PA, October 28, 2014 The Seed Company, Emmaus, PA. November 5, 2014 Schwalm Farms, Hegins, PA. November 25, 2014 Sunrise Sunflowers, Harleysville, PA. December 4, 2014 Gray Wolf Plantation, New Oxford, PA. December 17, 2014 Lock Farm, Shippensburg, PA. April 23, 2015 Woerner orchards, Orrtanna, PA. May 7, 2015.</p>	<p>Completed 5/7/2015</p>
	<p>July 1, 2015 – June 30, 2016</p>	<p>Objective: Select host farm sites and conduct additional Farm Food GAP Mock Audit field days and other GAP trainings throughout Pennsylvania.</p> <p>Accomplishments: Funds were used to hire Mr. Jeff Stoltzfus on an hourly basis to present trainings at several locations in Pennsylvania (in April of 2016, Mr. Stoltzfus was later hired by Penn State Extension to serve as a full time statewide farm food safety Extension educator. Mock audits were temporarily suspended until Fall of 2016. However, approximately 700 growers were trained at 11 events in Pennsylvania.</p>	<p>Completed</p>

	<p>Type of training, locations, and dates follow.</p> <p>Food Safety Plan Writing and GAPS training, Pennsylvania Association of Sustainable Agriculture (PASA), December 8, 2015</p> <p>FSMA awareness, Lebanon Produce Auction, December 11, 2015</p> <p>FSMA awareness, Mid Atlantic Produce Auction Meeting, December 29, 2015</p> <p>FSMA awareness, Leola Produce Auction, December 31, 2015</p> <p>FSMA awareness, Weaverland Produce Auction, December 6, 2016</p> <p>FSMA awareness New Holland Vegetable Day, January 1 2016</p> <p>GAP Plan Writing Workshop, Mid-Atlantic Fruit and Vegetable Convention, Hershey Pennsylvania, February 1, 2016.</p> <p>FSMA awareness, Kutztown Produce Auction, February 12, 2016</p> <p>FSMA awareness, Daniel's Farm Store Vegetable Meeting, March 23, 2016</p> <p>Plan Writing Workshop, Tuscarora Organic Growers (TOG) Cooperative, April, 14, 2016</p> <p>FSMA awareness, Oasis Produce Growers, April, 14, 2016</p> <p>General GAP training, Bill Siapansky, April 28, 2016</p>	
<p>Goals and Outcomes Achieved:</p>	<p>The goals of this project were to 1) develop a series of science-based fact sheets on farm food safety, 2) create a template food safety plan that will guide growers through the process of creating a food safety plan that will meet the documentation requirements established in the Harmonized Standards and those in the FDA Produce Safety Standards, and 3) deliver a series of GAP Mock Audit field days to be held on cooperating working farms. Despite some setbacks along the way and unexpected delays from FDA in releasing the final version of the produce safety regulation and PSA in releasing the final version of the FDA certification curriculum we were able to forge ahead to develop informational materials that growers can use to help meet the standards in the USDA AMS GAP Harmonized Audit. These will also be distributed to growers at upcoming FSMA PSA produce safety training in 2017 and beyond.</p> <p>As a result of this project and other activities outside the scope of this grant, we have forged new relationships with Penn State Extension Horticulture educators with valuable farm experience that they can use to help growers adjust their cultivation processes in ways that will make compliance with standards an easier process. Increased recognition within Penn State Extension of farm food safety training needs was evidenced by attendance of 12 Penn State Horticulture educators in a Produce Safety Alliance train-the-trainer workshop held in Harrisburg in June of 2015. Upon completion of the course, each educator was certified as an approved PSA curriculum trainer and thus prepared for the upcoming release of the finalized PSA materials in September of that year. In 2016, 5 educators applied for Lead Trainer status which will allow them to independently organize and conduct their own PSA curriculum workshops in the coming years. Collaboration with the Pennsylvania Department of Agriculture (PDA) to offer mock farm food safety audits have helped to strengthen ties between Penn State and PDA which will be vitally needed as FSMA regulatory compliance dates approach in the next few years.</p>	

Workshop teaching collaborations with Mr. Jeff Stoltzfus provided an opportunity for him to demonstrate his expertise in farm food safety and his ability to connect with under-served growers on smaller sized farms. This paved the way Penn State Extension to obtain further funding to hire him as a full-time statewide GAP Extension educator in Lancaster County. This in turn, led to our writing and submission of a project proposal “Development of an Alternative FSMA Compliant Produce Safety Curriculum for Plain Sect and Other Smaller Fresh Produce Growers” which was funded by USDA NIFA Food Safety Outreach Competitive Grants Program.

-At least 75% of Specialty Crop Growers of Pennsylvania (SCG) will gain knowledge about the Food Safety Modernization Act requirements.

Issuance of the final Produce Safety Rule occurred in November 2015 and the release of the final version of the Produce Safety Alliance curriculum occurred in September of 2016. We therefore did not have a complete understanding of the specific requirements within the Rule until the final months of this granting period. Therefore, our efforts to increase awareness and educate Pennsylvania growers on the regulation have fallen behind our intended schedule. Nevertheless, we intend to achieve this goal in 2017. However, in 2017, **we reached approximately 1500 specialty crop growers** via the Pennsylvania Vegetable Growers News, the Fruit Times Newsletter, and Mushroom News magazine to announce the availability of FSMA information at the Penn State FSMA web site (extension.psu.edu/fsma). We also created a survey, in both paper and on-line format, to help growers explore and understand the complex criteria in place for grower coverage and exemption status. To date, we have surveyed 471 growers at FSMA Produce Safety certification workshops, winter grower meetings, and through Penn State FSMA web site. Although the number responding may not represent the desired 75% of Specialty Crops growers in Pennsylvania, we feel this is a good start for increasing awareness and knowledge. In furtherance of this goal, we intend to continue raising awareness in this manner as regulation compliance deadlines occur from 2018 to 2020.

-At least 35% of participants will have expressed intent to make one change in their (GAP) practices.

-100 of SCG will express intent to utilize Penn State’s Farm Food Safety Plan.

We conducted 10 “Farm Food Safety Plan Writing” Workshops attended by 153 growers between December 2014 and March 2017. The course curriculum centered on the USDA AMS Harmonized audit standards and the example plan we have posted on our Farm Food Safety web site at <http://extension.psu.edu/food/safety/farm/how-do-i-write-a-food-safety-plan>. We do not have precise data to show how many actually adapted our plan or used our template. However, post workshop evaluations showed that **72% (110 growers)** intended to begin writing a food safety plan or update their current one as a results of attending these workshops. Furthermore, the utility of our example plan is demonstrated by statistics obtained for web site viewership wherein 6,690 unique page views are estimated from 2015-2017.

-200 SCGs will pass their first third party GAP audit.

	<p>We were unable to obtain an actual count of those who passed a third party audit for the first time. We had anticipated that we could obtain this information from the USDA AMS web site. However, posting of audit results by AMS is only with the permission of the audited growers. Furthermore, the data from other commodity groups or private audit companies was not available for our inspection.</p>
Beneficiaries:	<p>Beneficiaries of our program during this funding period have been the nearly 800 Pennsylvania produce growers we have trained who market some or all of their crop through produce auctions, grocery stores and other indirect market structures. It is these growers who are increasingly required to write a food safety plan and submit to a third party audit and now face new regulatory requirements established in the FDA Produce Safety Regulation. The network of 12 Penn State Extension educator GAP experts we have built in the state and their continual support they provide to produce growers will serve the industry well past the end of this project as they wade through the regulatory requirements written in the FDA Produce Safety Regulation. Wholesale buyers (e.g. produce auctions, cooperatives, distributors) have also benefitted because they can have greater confidence in the quality and safety of the produce that they distribute, and thus more likely to not become involved in a costly recall or outbreak. Furthermore, consumers who purchase regionally grown produce because the ultimate goal of our program is to prevent contamination that could lead to foodborne illness.</p>
Lessons Learned:	<p>Following the resignation of our farm food safety coordinator, soon after funding for this project was approved, presented challenges to us as we sought to maintain our support for produce growers. However, we learned that enthusiasm for helping growers learn food safety concepts is abundant and our part-time project assistants did a great job of coordinating mock audits, handling questions on GAPS, and assisting with writing and editing GAP fact sheets. Ultimately, however, we came to the conclusion that full time field support would be essential in the future. The funds obtained from this grant were extremely helpful in acquiring new funding for state wide Extension GAP coordinator who can continue to teach growers while also managing many of the day to day task required for compiling evaluation results and writing annual Extension reports. This new level of coordination and Extension leadership will greatly increase our effectiveness in reaching out to small and medium sized produce growers as they face USDA GAP audit and FDA produce safety standards now and into the future.</p>
Contact Person:	<p>The Pennsylvania State University Luke F. LaBorde Associate Professor of Food Science 202 Food Science Building University Park, PA 16802</p>
Project Title:	Building Southern Alleghenies Local Food Network
Project Summary:	<p>Background of this project – The specific issue we addressed is the improvement of direct-market sales of Specialty Crops in the Southern Alleghenies region. Direct market farmers found opportuning to sell as “low” compared to other areas in Pennsylvania. Our purpose was to improve</p>

	<p>direct market sales <u>and</u> improve the sustainability of specialty crop farms. The process included customer education to inform consumers about the health, economical, and environmental benefits of eating locally grown specialty crops. Also, we held farmer training and encouraged farmer-to-farmer mentoring to ensure the best quality products are offered. The goal is to continually build a vibrant local food system that nourishes the health and well-being of our communities, conserve and enhance our natural resource, and provide an economic livelihood for small farmers who grow specialty crops.</p> <p>Timeliness and Building on Previous Projects - There was a good opportunity for farmer education. For two years prior to this grant, we used a USDA FMPP grant to reach out to the areas direct market farmers. Through this effort we developed an un-official network of farmers. There is a mix of veteran/experienced and new/ beginning farmers in the group. Some experienced farmers we developed a strong working relationships with who are willing to mentor new farmers to ensure good quality and quantity of products sold. Also, many farmers in the network have received a USDA-NRCS funded high tunnels. Connecting those who have experience growing in high tunnels to new high tunnel owners was a need. By increasing, the number of farmers who successfully grow in high tunnels we will generate larger quantity of specialty crops throughout the year and help improve and meet customer demand.</p>
<p>Project Approach</p>	<p>A summary of activities and tasks performed during the entire grant period. A comparison of actual accomplishments with the goals established in this grant are:</p> <p>Quantitative Outcome - The first task in our work plan was to educate up to 50 specialty crop growers and further develop a farmer network through 8 farmer workshops/meetings. We met this goal and more by holding 12 farmer workshops/meetings and educated over 50 frames. We average of 31 farmers/attendees per event. Through exit surveys, we found that specialty crop grower expanded their knowledge of growing and marketing specialty crops. They also asked for continued education and networking opportunities in the region. The Farmer Network has become official through to work of a few farmer/mentors. It is called - Southern Alleghenies Local Food Network (SALFN). Our farmer numbers grew in this network.</p> <p>Quantitative Outcome - The second task in our work plan was to do four public outreach and educational events to increase public awareness and the consumption of specialty crops in the region. This goal was accomplished and more through 17 various outreach methods The outreach venues included six live cooking demonstrations, six T.V. cooking performances, three workshops, one food convention, and one tasting event. Excluding the T.V outreach, we saw an average of 34 people/event. The number of people reached through the T.V. program “<i>We are PA Central Live</i>” is about 12,000 Households, and approximately 20,000 Adults watching per episode.</p> <p>An unmet goal stated in our work plan - We wanted to measure SNAP and WIC sales at two local farmers’ markets to determine if our consumer outreach was effective. Unfortunately, no vendor was able to install a SNAP card reader. Farmers found the process of applying for EBT card reader to be very cumbersome. However -we did start a new Market Buck program which successfully helps get healthy specialty crops on the tables of those who are financially struggling. We did attempt to measure increase in Farmers’ Market Nutrition Program (FMNP) vouchers customers. Only one specialty crop grower kept sales records. This farmer reported an increase in vouchers, but this</p>

market shows increase in customers across the board. Therefore, we determined there was an increase in customer flow but we could not define if our outreach methods to SNAP and WIC recipients was effective.

Additional Outcomes through this grant:

We determined through exit surveys that we hit our target – to improve specialty crop production by 10% by the end of the project. We held eleven farmer workshops during this project. On average, we had 24 farmers at each event and collected 192 exit surveys. Of all the farmer events, three workshops were specifically geared to help farmers improve their production: the Growing Brambles Workshop, the Sustainably Growing and Marketing Local Food, and the Extending the Season of Specialty Crops AND Wholesale to Wegman’s Grocery. Farmers were given exit surveys to determine the level of knowledge gained. From the three events, 29 farmers responded that they believe the workshop and farmer-mentor’s presentations had increase their knowledge about specialty crop production. Out of the 192 surveys collected, 29 surveys indicating an improvement in production - therefore we evaluated there was a 15% improvement in specialty crop production at the end of the project.

Break-out information on the three workshop:

March 12, 2014 we held a workshop titled Sustainably Growing and Marketing Local Food. Dawn Custer, farmer/mentor hosted the workshop. Dawn grows for many markets and restaurants in the Southern Alleghenies area. She grows a lot of specialty crop items in high tunnels in southern Bedford County – PA. At this event, we reached thirty-two farmers. Out of the 32 farmers who attended this workshop, thirteen completed an exit survey. We asked participants:

Did you gain knowledge on how to improve growing specialty crops in a high tunnel? 9 stated their knowledge improved, 4 did not answer this question.

May 6, 2014 we did an in-field workshop to improve horticultural techniques for specialty crop growers. The workshop was Growing Brambles and Post-harvest Handling. Educator Kathy Demchak with Penn State University/Extension and Tony Ricci, Farmer-Mentor taught species, site selection, trellising/pruning, and pest control for brambles. At this workshop, we reached eighteen farmers. Out of the 18 who attended this workshop, twelve completed a post-assessment.

For the assessment, we asked:

Did you gain knowledge and understanding about selecting varieties of small fruit?

10 responded yes and 2 did not answer

Did you gain knowledge and skills on trellising and pruning small fruit?

10 responded yes and 2 did not answer

Did you gain knowledge on post-harvest handling of produce?

9 responded yes and 3 did not answer

Did you increase your understanding about pest management?

10 responded yes and 2 did not answer

April 9, 2015 we held a Farmer Workshop - Extending the Season of Specialty Crops AND Wholesale

to Wegman's. Michael Kilpatrick with Kilpatrick Family Farm was the keynote speaker. This is a family-run vegetable farm located in Middle Granville, N.Y., near the Vermont border. It is a four-season farm that grows and sells specialty crops year-round through farmer's markets, a community-supported agriculture program (CSA), and fine area restaurants. Michael taught farmers in the Southern Alleghenies area how to grow year-round. Out of the 22 who attended this workshop, twelve completed a post-assessment. We asked:

- Did you gain knowledge and understanding about growing specialty crops throughout the winter?

10 responded yes and 2 did not answer

We believe we hit our target of increased specialty crop sales by 20% based on our connections to the farmer markets in the Southern Alleghenies region.

The vendors and sale rates at two farmers' markets in Blair County participated in this grant (Juniata and Hollidaysburg Markets). We tracked the vendors and their sales to estimate improve markets for the area's specialty crops. The Hollidaysburg Market became a "producer-only" market. This encourage more specialty crop growers to participate. The number of specialty crop growers increased from four to six. The additional two vendors appreciated the Market not allowing auction vendors to participate. The Juniata Market specialty crop growers increased from three growers in 2013 to seven growers in 2014 – then to nine growers in 2015.

- Fifteen specialty crop vendors at two markets up from seven is more than double the sales of specialty crops with these two markets alone!
- This market is "producer-only" and encourage/support specialty crop growers and promote increasing consumption of specialty crops to their customers.

The Juniata Farmers Market is now year-round due to specialty crop grower's increased use of high tunnels. For specialty crop growers attend the year-round market – two grow vegetables in high tunnels, one vendor brings apples, and one vendor grows hydroponic microgreens.

- Four vendors now have opportunity to sell specialty crops at this market for 12 months. Our typical seasonal markets run from May – October (6 months). We increased opportunity to sell specialty crops by 50%.
- This market is "producer-only" and encourage/support specialty crop growers and promote increasing consumption of specialty crops to their customers.

There are also two new markets in the Southern Alleghenies area started and was supported by the farmer network. The farmer network system helped recruit new specialty crop growers for each of these markets and provided support. The Everett Market in Bedford County has three specialty crop growers and McConnellsburg Market in Fulton County has one specialty crop grower.

- The Southern Alleghenies Regions gained two new farmers markets. Both markets are "producer-only" and encourage/support specialty crop growers and promote increasing consumption of specialty crops to their customers.

The other markets in the Southern Alleghenies region who are part of the farmer network reported that their markets remain productive and active, but have not reported an increase in specialty crop growers to their vendor list.

Quantitative Outcome – Three, new Producer Only farmer’s markets in the region started through our SALFN (network) support. Each market includes vendors who are NOT specialty crop growers. However, these markets host up to 12 specialty crop growers. Each market manager is committed to promoting health eating habits and encourage consumers to buy locally grow specialty crops. Qualitative Outcome - We through Penn State Extension’s Start Farming Advisory Committee that farmers’ markets are a good place for new/beginning farmers to start marketing specialty crops (see additional information in the “Lessons Learned” section of this report).

The new markets are:

A year-round market in Altoona (Blair Co) <https://www.facebook.com/Juniata-Farmers-Market-478571605491615/>

Seasonal market in Everett (Bedford Co)

<https://www.facebook.com/EverettPAFarmersMarket/timeline>

Seasonal market at the Fulton County Medical Center (Fulton Co) <http://www.fcmlcpa.org/farmers-market>

Other Additional Outcomes – The Farmer Network has become official – Southern Allegheny Local Food Network (SALFN). One of the farmer-mentors has taken the step to secure an EIN number and they are working on becoming a non-profit. Also, the Network has expanded by including up to 28 new specialty crop growers, but the unexpected outcome is many local chefs joined the Network too.

<https://www.facebook.com/Southern-Alleghenies-Local-Food-Network-182711865168443/>

Also, a Market Buck program was developed and implemented– this is a pilot project started with a local health clinic. Market Bucks are to purchase specialty crops and dairy at the Juniata Farmers’ Market.

Significate partnerships developed during this grant period:

- Amtran (Altoona’s public bus system) hung posters promoting the “Specialty Crop” cooking events and offered free rides to the Juniata farmers’ market each Thursday. The Juniata Market is a producer only market. Other items are sold besides specialty crops, but the goal of this new market is to get locally grown specialty crops into a food desert.

- Southern Allegheny Chef Association-American Culinary Federation. Chef Zach Lober, president of this local chapter, promoted our farmer and consumer workshops and projects. Chefs from this organization often attended the farmer workshops to meet local specialty crop growers.

<https://www.facebook.com/southernalleghenychefs>

- Penn State Extension’s Start Farming Team AND the Ag Entrepreneurship and Economic, Community Development Team. These partnerships will continue education to the region’s specialty crop growers beyond this grant’s timeline.

- Penn State Altoona –Sustainability Council held two workshops on campus to promote the local specialty crops that are available.

- Blair County Master Gardeners and Master Food Preservers held specialty crop tasting and food

preservation workshops

- Southern Allegheny Planning and Development Commission – collaborated with SALFN to explore starting a community-certified kitchen at the Greater Johnstown Career and Technology School (Cambria Co). The kitchen will be made available to Specialty Crop Growers only to process and package value-added products.

Qualitatively and Quantitatively Breakdown of Activities from 2013-2014

We held three farmer workshops, one farmer meeting, eight consumer outreach events, and presented five specialty crop “cooking demonstrations” on “*We are PA Central Live*” – a local news program.

Farmer Education –

Quantitatively - We reached our goal of educating 50 specialty crop growers from multiple counties within the Southern Allegheny area through the 3 workshop and one meeting held in 2013 -2014.

Workshops/meetings held:

November 13, 2013 we held a Customer Survey and Marketing workshop for direct market producers. Profession Speaker with St. Francis Small Business and Development Center (SBDC)

December 1 2014 - Farmer-Mentor Meeting to prepare for the upcoming season and improve network building. The Penn State Extension’s Start Farming team member, Tianna Dupont.

March 12, 2014 was the workshop titled Sustainably Growing and Marketing Local Food Educators Professional speaker from Penn State Extension.

May 6, 2014 we did an in-field workshop to improve horticultural techniques for specialty crop growers. The workshop was Growing Brambles and Post-harvest Handling. Professional Educator- Kathy Demchak with Penn State University/Extension

Qualitatively - We surveyed the farmers to determine if the programing we offered was beneficial. The majority of attendees stated that they were interested in gaining knowledge on ways to improve their specialty crop sells and marketing techniques. They also were interested in adding their contact information to our SALFN email distribution list to stay informed about upcoming workshops and events. The farmer network grew slightly, we added five new specialty crop growers to the list.

Qualitatively - A significate result from our first year of farmer workshops is we developed a strong partnership with Penn State Extension. We contacted Extension’s Ag Entrepreneurship and Economic, Community Development Team to be presenters at our workshops. The agents recognized there was a need for more farmer outreach in the area.

We held a farmer meeting with Penn State Extension’s Start Farming team member, Tianna Dupont. She met with us to help better develop our Southern Alleghenies Local Food Network and form an advisory committee to develop and hold more Extension education for Southern Alleghenies specialty crop growers. This type of partnership will continue education to the regions specialty crop growers beyond this grant’s timeline.

Consumer outreach in 2014:

We reached many community members in the region through cooking demonstrations and through

our many new partnerships we developed during this grant period. This opened us up to new ways to promote specialty crop consumption in the area

Four Cooking Demonstrations:

Qualitatively – We learned from many Specialty Crop growers and chefs that in the age of boxed and ready-to-eat meals, many people in region are losing the ability to cook real, whole foods

Quantitatively- Chef Michael Roddey held three cooking demonstrations in some of the poorest communities around Altoona (Blair County) Chef Roddey is a Certified Culinary Administrator and Certified Executive Chef and a member of the Southern Allegheny Chef Association-American Culinary Federation. He supports local farms and food and has joined the efforts of this grant project. He cooked locally- grown specialty crops in three locations in Blair County. The goal is to promote the specialty crops grown in the region, highlight where to buy and why to use locally grown fruit and vegetables, and to encourage and increase the consumption of specialty crops in the Altoona/Blair County area. We reached approximately 60 people during these events.

Ms. Julie Fether with Penn State Altoona works with Penn State’s Community Outreach program and a member of the Southern Allegheny Chef Association-American Culinary Federation. She did a cooking demonstration using locally sourced specialty crops at the “Let’s Move Blair County” summer event. Let’s Move is an initiative started by Mrs. Obama to address the sedentary lifestyle of America’s children. Part of the campaign is to encourage children and adults to eat more vegetables and fruits. This was a good opportunity for local growers to promote the specialty crops grown in the area.

Three consumer workshops:

Quantitatively- Penn State Altoona hosted a workshop to teach consumers about where and how to buy local foods. Beth Futrick, project manager for this grant, spoke to over fifty Penn State staff and faculty about the specialty crop growers at the local farmers’ markets.

Preserving Specialty Crops- Blair County’s Master Gardener/Master Food Preserver, Jackie Forsht, set up a display/drop-in session at the Juniata Farmers’ Market. She offered information on how to preserve specialty crops, provided tastings of sundried tomatoes, dehydrated fruit rolls, and various jams and salsas. She also offered to test pressure canner lids for anyone interested. Jackie counted 84 people who visited her tent and engaged by discussion and asking for handouts or other information. She estimated another 80 people visited her tent without engaging but to look at the handouts and taste the preserved foods.

Penn State hosted a nutritional workshop to help people learn about the specific nutrients available found in specialty crops. Register Dietitian and Nutritionist Carrie Lyons talked to the attendees about eating a rainbow of fruits and vegetables. She shows the new dietary guidelines and MY Plate. There were 22 participants.

One tomato tasting:

Blair County’s Master Gardener/Master Food Preserver, Jackie Forsht organized a tomato tasting.

Each Master Gardener and Specialty Crop grower from the Juniata Farmers’ Market donated tomatoes for the tasting. Andy Hoover, vendor and baker with BakeShopBakes, made tomato upside-down cake for sampling at his booth. Chef Julie Feathers cooked and prepared various dishes using a wide variety of tomatoes. All the upside-down cake and all Julie’s prepared food was consumed during this event. The Master Gardeners, Julie, and Andy lost count of how many people visited their tents. We estimated the number of people interested in the tomato event was over 150.

Six TV promotions:

We Are Central PA Live –Part of our public outreach to increase the consumption of specialty crops is the We Are Central PA news program. Cathie Dibert is a farmer-mentor who does this outreach to promote the local “specialty crop” growers and the farmers’ markets when the growers vend. From 2014-2015, we held eight farmer workshops, did three consumer outreach events, and presented five specialty crop “cooking demonstrations” on “We are PA Central Live” – a local news program.

Qualitatively and Quantitatively Breakdown of Activities from 2015:

Breakdown of activities and measurable outcomes in 2015, we held seven farmer workshops/meetings and did four consumer outreach events.

Farmer Education

Quantitatively - We reached our goal of educating 50 specialty crop growers from multiple counties within the Southern Allegheny area through the seven workshops held in 2015.

Workshop/Meetings held:

January 8, 2015 – Farmer-Mentor Meeting was held with Jim Crawford, New Morning Farm and Tuscarora Organic Growers, as the keynote speaker.

February 9, 2015 – Farmer-Chef meeting- Farmers in the Southern Alleghenies area meet with members of the Southern Alleghenies Chef Association at BOLD restaurant in Altoona PA. Speaker, Chef Julie Feather.

March 21, 2015 – Farmer Workshop - How to Market Specialty Crops - The Penn State Extension.

April 9, 2015 – Farmer Workshop - Extending the Season of Specialty Crops AND Wholesale to Wegman’s Grocery.

April 30, 2015 – Farmer Workshop – How to Improve Specialty Crop Retail Sells. Jennifer Brodsky of Kitchen Table Consultants.

July 27, 2015 –Hard Apple Cider production workshop with the Penn State Extension’s Start Farming team.

October 15, 2015 – Farmer Workshop - Market outlets and opportunities for specialty crop growers with professional speaker from “Friends and Farmer” food cooperative

Qualitatively - We surveyed the farmers to determine if the programing we offered was beneficial. The majority of attendees stated that they approved in the knowledge they gained on ways to improve their specialty crop marketing and retail techniques, how to establish wholesale

connections, and how to increase specialty crop season – through high tunnel production. We reached more farmers in 2015 thus we increased our farmer network contacts. The SALFN (network) grew, we added twenty-three new specialty crop growers to the list.

Consumer Outreach in 2015:
We reached many community members in the region through two cooking demonstrations and one food convention.

Food Convention - Taste of the Alleghenies with the Altoona Mirror - The specialty crop growers at the Juniata Farmers’ Market participated at the Taste of the Southern Alleghenies. This event promoted the specialty crops available in the winter, where all specialty crop growers are throughout the year, and promoted the consumption of fruits and vegetables. 380 handouts were distributed and over 400 attends approach our display.

August 27 and September 24 – Two cooking demonstrations were held that the Juniata Farmers’ Market. August’s event – Cooking with fresh herbs, and September’s event – cooking with veggies in season. Chef Heather McCloskey and Chef Zach Lober (both with the Southern Alleghenies Chef Association) donated their time and talents to the Juniata and Huntingdon Farmers Markets this summer by doing cooking demos. They estimated visiting with approximately 40-50 people at each event.

Beneficiaries:

1. Improve production, quantity and quality of specialty crops grown in the southern Allegheny area through farmer training and mentoring.
The workshops completed have been successful. Positive feedback from attendee’s show that we helped meet the needs of specialty crop growers. The unexpected development is the increased participation from Penn State Extension - Start Farming team. Specialty Crop grower’s educational opportunities will continue after this grant is completed. We are confident our target of 10% improvement in specialty crop production has been achieved. Farmer-mentoring and training will continue after this grant is completed through the outreach efforts of Penn State Extension. In October 2015, a farmer-advisory committee was created to help Extension develop Southern Allegheny Hub as part of Extensions “Start Farming” program and develop “Study Circle” events for Establishing Farmers (those who have been farming for 2-10 years).
2. Improve direct market sales of specialty crops in Southern Allegheny’s through farmer training
The mentoring program has developed and will increase with Penn State’s on-going efforts. We have seen a 20% increase of specialty crop sales over the past two years.
3. Increase sales of specialty crops – our target is to double the number of farmers who directly market specialty crops.
The vendors and sale rates at two farmers’ markets in Blair County are participating in this grant. We are tracking the vendors and their sales to estimate improve markets for the area’s specialty crops. The Hollidaysburg Market has become a “producer-only” market to encourage more specialty crop growers to participate. The number of growers increased from four to six. The Juniata Market specialty crop growers increased from three growers in 2013 to seven growers in 2014 to nine growers in 2015. We met our target.

	<p>The Juniata Farmers’ Market is now in two locations with an increase in specialty crop growers, the Hollidaysburg Market is now producer-only to encourage more specialty crop growers to attend, and two new markets in the Southern Alleghenies area started (Everett – Bedford County and McConnellsburg – Fulton County).</p> <p>To further stretch this goal, we have members of the Southern Alleghenies Chef Association as part of our Farmer network. Farmers in the network are meeting with chefs to develop a growing relationship. Also, Southern Alleghenies Planning and Development Commission has joined the network. They are in the process of developing a community commercial kitchen in Johnstown – Cambria County for the farmers of Southern Allegheny’s area to develop value-added items from their specialty crops.</p> <p>A significant contribution of project partners is our new partnership with Partnership for Health. This is a free medical clinic run by Dr. Zane Gates. With funding from the clinic, we developed a market buck pilot program. In the Work Plan for this grant, we stated we would hold a farmer workshop to explore the “Double-up Food Bucks” program. The goal is to increase the access of specialty crops to low-income families in Blair County. Dr. Gates and the Partnership for Health helped take our exploratory goal and make it an actual accomplishment. Market bucks are available to Dr. Gates’ patients. Four (\$5 bucks) are given to patients who visit the dietician. The Bucks can only be used to buy specialty crops and dairy from the Juniata Farmers’ Market. This program will continue throughout the winter of 2015 into next spring. Market Bucks can be used at the Juniata Winter Market.</p>
<p>Lessons Learned:</p>	<ol style="list-style-type: none"> 1. New and Beginning Specialty Crop grower typically starts marketing their products at Farmers’ Markets. If successful, they progress to developing their own CSA, selling to a cooperative, or finding wholesale markets. But! Starting small at a farmers’ market help new farmers develop their horticultural skills and marketing techniques. They get immediate and direct customer feed-back and have access to other growers at the market to form mentorship bonds. 2. The options for small growers in the Southern Allegheny area is still in need of development. We made in-roads to wholesale options, an area cooperative and a chef’s organization, so there were great improvements of opportunities for Specialty Crop growers in our region, but more work is needed.
<p>Contact Person:</p>	<p>Beth Futrick Blair County Conservation</p>
<p>Project Title:</p>	<p>Expanding Access to Regional Specialty Crops: “Food Bank as Food Hub” in Chester County Pennsylvania</p>
<p>Project Summary:</p>	<p>One of the biggest challenges faced by specialty crop growers in Pennsylvania is their struggle to connect with individuals and businesses that desire their products. This challenge can be divided into three distinct components: education in order to increase demand, marketing and ensuring their</p>

	<p>products meet safety standards.</p> <p>A 2010 PASA survey found that 41% of growers desired assistance marketing their products to consumers and businesses to include understanding modern marketing methods and strategies. Agricultural marketing plays a vital role in the success of a farm in today’s competitive market. The Ag Marketing Resource Center states, “Without a good marketing program, even the best businesses fail.” The same source also found that farmers are often more focused on growing and processing, not on promoting their product.</p> <p>Pennsylvania’s specialty crop growers are also facing an increased need to obtain Good Agricultural Practices (GAP), Good Handling Practices (GHP) and/or Food Safety Modernization Act (FSMA) certifications in order to remain competitive. Each year approximately one in six Americans becomes ill, 128,000 hospitalized and 3,000 die from foodborne diseases (U.S. Centers for Disease Control and Prevention). In response, consumers and retailers are becoming increasingly concerned about the health of their customers, liability issues and potential economic losses.</p> <p>Safety and liability concerns have led many retailers to now require third-party GAP certification as a condition of purchase, this includes Whole Foods and Giant Food Stores, among many others. According to a study in 2011 by Daniel Tobin (Penn State Journal of Extension), of 15 companies with a total of 628 stores in Pennsylvania, 67% intended to require GAP certification by 2012. In addition, the Food Safety Modernization Act, signed into law in 2011, finalized many of the rules in November 2015 to include compliance date, third-party audits, produce safety and preventative controls. These guidelines can be complicated and at times overwhelming to small and mid-sized farmers.</p>
<p>Project Approach:</p>	<p>In order to accomplish the complex and interwoven task of increasing the understanding and demand for specialty crops by consumers and helping growers market their products both directly to consumers and wholesalers, the project was divided into three components: 1) education, training and support related to food safety 2) introduction to agricultural marketing, additional training and support resources 3) a marketing campaign to help raise awareness and demand for Pennsylvania’s specialty crops.</p> <p><u>Education, Training & Support</u></p> <p>In January 2015, a survey was developed, conducted and analyzed by PASA to gauge marketing needs of specialty crop growers in PASA’s eastern region of Pennsylvania. Research was also conducted about previous GAP trainings and food safety workshops in the eastern region of PA (as defined by PASA¹).¹</p> <p><i>Food Safety In-Person Trainings</i></p>

Partnered / promoted existing training opportunity:

Research conducted regarding previous and any upcoming GAP/food safety workshops being planned for the eastern region, resulted in PASA partnering with Four Seasons Produce and Lindsay Gilmour to help promote a two-day 'Produce GAPs Harmonized Standards Training', held at Four Seasons Produce in Ephrata, PA on March 3 & 4, 2015. This workshop was already planned and sponsored by the United Fresh Produce Association, Four Seasons Family of Companies and The Wallace Center. PASA was happy to help support this event, and promote it to our specialty crop growers in the eastern region to further support our efforts within this grant.

PASA developed & conducted six Good Agricultural Practices (GAP) training workshops:

These trainings covered a range in the depth of information covered, enabling growers at various stages in their farm model development to find training that fit their needs.

1. **March 16 & 17, 2015 - 'GAP & Designing a Food Safety Plan for YOUR Farm!' held at the Chester County Food Bank in Exton, PA / Chester County.** Presenters included Sara Runkel (Penn State Extension) and Jeff Stoltzfus (educator w/ Eastern Lancaster County School District). The goal was to have 25 participants, 20 attended - this number was limited to allow for one-on-one coaching from presenters, especially on the second day of the event as they assisted with writing customized food safety plans for participants' farms. Another goal was to meet the GAP educational needs of farmers with knowledgeable trainers. A survey conducted after the training revealed that 89% strongly agreed that the presenters were knowledgeable, 83% strongly agreed that they recommend the training to a colleague and 95% either agreed or strongly agreed that they planned on implementing what they had learned.
2. **March 23, 2015 - 'Food Safety Plan Writing' held at the Lehigh County Penn State Extension office in Allentown, PA / Lehigh County.** Presenters included Sara Runkel (Penn State Extension) and Lindsay Gilmour (GAP Food Safety Trainer & Certified Auditor). The goal was to have 25 participants, 21 attended. Again, another goal was to meet the GAP educational needs of farmers with knowledgeable trainers. A survey after this workshop showed that 78% strongly agreed that the presenters were knowledgeable, 95% said they would recommend the training to a colleague, 89% agreed to strongly agreed that they planned on implementing what they learned.
3. **November 4, 2015 - 'Good Agricultural Practice (GAP) Mock Audit' held at The Seed Farm, Emmaus, PA / Lehigh County.** Brenda Shaeffer (Pennsylvania Department of Agriculture) guided attendees through the audit guide used by auditors item by item and then led a tour of The Seed Farm providing examples that related to GAP guidelines. Twelve individuals attended the workshop. An article about the mock audit was featured on the front page of

Lancaster Farming, an agricultural weekly newspaper, circulation, 61,000. (see **Appendix A**, Item 1)

4. **December 8 & 9, 2015 - ‘Understanding GAP & Writing Your Own Food Safety Plan’ held at the Carbondale Technology Transfer Center (CTTC) in Carbondale, PA / Lackawanna County.** This two day, in-depth, GAP training and food safety plan workshop was led by Lindsay Gilmour (GAP Food Safety Trainer & Certified Auditor) and Jeff Stoltzfus (educator w/ Eastern Lancaster County School District). Day one was spent giving an overview of GAP and a tour of the kitchen incubator facility at the CTTC. On day two, attendees were taken step-by-step through writing their own food safety plan.

5. Twelve individuals attended the training. Of those who participated in a post-event survey, the weighted scores for participants possessing adequate knowledge to write their own food safety plan went from 1.71 to 4.86 and if they felt they were prepared for and could pass an audit went from 1.71 to 4.71 (scale of 1 - 5). One attendee wrote, “Instructors were full of knowledge and I found them easy to understand. Good job!”

6. **January 26, 2016 - ‘Food Enterprise & Safety: Panel Discussion’, held at Country Barn Market, Lancaster, PA / Lancaster County.** The lead panelist, Winifred McGee (Penn State Extension) gave a presentation on the importance of food safety and the regulatory environment surrounding various food enterprises to include baking, canning, cheese making, sampling and food events. Guest panelists from a variety of local farms and businesses shared their experiences with their own food enterprises. Other panelists included Sam Kennedy (cheese maker, Doe Run Farm); Dale Stoltzfus (manager, Oasis Cooperative Market); Rachel Armistead, (owner, Sweet Farm Sauerkraut); and Jim Stauffer (owner, Country Barn Market).

Twelve individuals attended the workshop. In a post-event survey, up to 83% of respondents stated having very little to moderate knowledge about these topics before the workshop. One hundred percent stated having moderate to considerable knowledge after the event. The weekly agricultural newspaper, *Lancaster Farming*, (circulation 61,000) reported on this event. (see **Appendix A**, item 2)

7. **March 24, 2016 - ‘Understanding and Mitigating the Costs Associated with GAP/FSMA’, Webinar Panel Presentation.** This webinar was recorded and is archived on PASA’s YouTube channel at: [youtube.com/pasafarming](https://www.youtube.com/pasafarming). The lead panelist, Jeff Stoltzfus (Penn State Extension) was joined by Nikki Shingle (Everence), Jay Eury (Gleaning Project of South Central PA), and Winifred McGee (Penn State Extension). Jeff Stoltzfus explored the costs that may be

associated with various aspects of getting ready to pass a GAP audit along with ongoing costs, the other panelists then explored possible ways to mitigate these costs.

Nineteen people attended the webinar. Of those who participated in a post-event survey, there was improvement in the level of understanding of all of the learning objectives with the greatest improvement in understanding the opportunities available in turning seconds into value added products. An article about the webinar appeared in the weekly agricultural newspaper, *Lancaster Farming*, circulation 61,000. (see **Appendix A**, item 3)

Conclusions and Recommendations

What quickly became apparent at all of the events is that there is great concern and confusion surrounding GAP, GHP and FSMA. Attendees often did not know what they did not know. This confusion occasionally led to individuals attending an event that was either too basic or too advanced for where they were in their food safety planning process. By PASA offering a variety of programs, some of these individuals were able to discern after attending their first event what additional program offered by PASA would better suit their needs.

It also became clear that when engaging in a workshop that attempts to enable participants with a completed or almost completed food safety plan, a smaller class size (10-15) that allows for highly individualized attention is better. The scheduling of the workshops was changed to late fall and winter after reviewing survey results and speaking to farmers about their ability to participate in off farm activities during the peak spring and summer season. It was also determined, after looking at survey results and receiving input from the trainers, that efforts should be made to provide training in the mid to northern counties of PASA’s eastern Pennsylvania region.

There will be a continued need for additional/ongoing GAP and FSMA training. A consistent and repeated program of instruction that involves a series of workshops built upon each other, would provide a clear path for farmers. Modules should include a short basic introduction, a one-day in-depth look at GAP, a one-day food safety plan writing workshop, a half-day mock audit, and a half-day look at mitigating costs. There is also a need for a separate series based on food safety as it relates to food enterprises.

Partner Contributions

Several partners help to make this portion of the project successful. Penn State Extension offices and agents played a significant role on several occasions. By allowing highly qualified and respected agents to participate as presenters, which included Brian Moyer and Winifred McGee, at rates below independent contractor rates, PASA was able to provide quality programming within budget. The Pennsylvania Department of Agriculture also provided both the expert to lead the mock audit and

significant print materials for attendees.

Several professional trainers played an important role, not only in the workshop in which they directly participated, but also as an ongoing resource. Survey results showed that Lindsay Gilmour and Jeff Stoltzfus had the support and respect of both farmers and professionals to deliver accurate, up to date information about food safety and GAP, and were helpful in navigating the ever-changing rules around food safety and the needs of the farming community.

Other organizations and individuals provided locations for no or low cost. The CTTC, along with its managing director Paul Browne, provided the location and support for the two-day training in December at no cost. The Seed Farm in Emmaus allowed a GAP auditor to tour their premises, a concept that caused concern to other farms that were contacted. The Chester County Food Bank also provided space for a two-day training at no cost. In all cases, PASA's partnerships with agencies and their staff were strengthened.

Agricultural Marketing Training

With 75 total respondents, the initial survey helped to emphasize the need expressed by farmers for additional training on various aspects of marketing. Survey responses were analyzed to identify webinar topics/programming that would benefit specialty crop growers in the region. Based on that analysis, a four-part series of marketing webinars was developed and held during February and March 2016. These webinars were recorded and are archived on [PASA's YouTube channel](#) within a playlist entitled "[Ag Marketing Webinar Series - 2016](#)" where they can be viewed anytime by anyone interested in learning more about agricultural marketing. A webinar companion guide 'Agricultural Marketing Basics: A Webinar Companion Guide' was developed to provide thought provoking exercises and additional resources for those viewing the webinars. It is [available on PASA's website and a link](#) is provided in the playlist description. A limited number of print copies were made available for distribution and further promotion.

1. **February 19, 2016 - 'Agricultural Marketing 101'**- Presented by Brian Moyer, Penn State Extension. This webinar covered marketing fundamentals that are an essential component in the success of any business venture. With a focus on how these topics relate specifically to agriculture, participants were given an overview of product placement, pricing, customer analysis, marketing strategies and market channel assessment.
Forty participants from throughout Pennsylvania attended the webinar. A post webinar survey showed that, based on weighted scores, there was improvement in understanding multiple basic marketing principles including what is meant by 'brand', understanding their customers and market channel assessment.
2. **February 24, 2016 - 'Direct Sales Marketing: Expanding the Current & Finding the New' -**

Presented by Jennifer Brodsky and Rebecca Frimmer, Kitchen Table Consultants. This webinar provided an overview of a variety of direct sales models; including CSAs, on farm sales, online sales and farmers markets. The skills needed to make each endeavor successful were examined: visual displays, customer service, communication and basic event planning.

Thirty-seven participants from throughout Pennsylvania attended the webinar. Of those who participated in a post event survey, 93% strongly agreed that the presenters were knowledgeable. Participants also reported an increase in knowledge related to direct sales marketing including how to collect and assess data on the market potential in their area, what is meant by 'Service Culture' and how to develop their own marketing plan.

3. **February 17, 2016 - 'Finding New Markets: Wholesale, Co-operatives & Beyond'** - Presented by Brian Moyer, Penn State Extension and Peggy Fogarty, Keystone Development Center. This webinar explored the viability and path to expanding into larger markets. An overview of the risks, regulations and groundwork necessary to begin selling to wholesalers, large institutions and cooperatives was explored.

Forty participants from throughout Pennsylvania attended the webinar. Of those who participated in a post event survey, 100% agreed that it taught them a new skill and that the presenters were easy to understand.

4. **March 2, 2016 - 'Using the Internet to Drive Farm Sales'** - Presented by Simon Huntley, Small Farm Central. This webinar provided an overview of the importance, trends, potential and strategies associated with farm Internet marketing. Participants were given basic instruction on how to setup and use email lists, Facebook and Twitter. They were also provided with a framework to develop and distribute content across a variety of platforms on a weekly basis during the busy harvest season.

Forty-nine participants from throughout Pennsylvania attended the webinar. Of those who participated in a post-event survey, 100% agreed that the presenter was knowledgeable and 88% reported that they learned a new skill.

Based on survey results that indicated farmers also enjoyed in-person workshops and identified tax planning as a general topic that was important to their overall success as specialty crop growers, an additional non-webinar workshop was held. The workshop, titled 'Farm Tax Planning Tips to Limit Your Tax Liability' was held on May 20, 2015 at Two Gander Farm in Chester County. This event was held in partnership with Jodi Gauker at AgConnect (a private-public partnership of the Chester

County Economic Development Council). The presenter was Lori Oraschin, a tax professional specializing in agricultural and small business taxation. A recording of that session is also [available on YouTube at this link](#).

Conclusions and Recommendations

Marketing is a vast topic that can take years to study and master. This series of webinars was intended to provide a foundation for further investigation on the part of the farmer and as a basis for additional webinar-based marketing training. Potential additional marketing topics were revealed through participant's questions and during the in-person workshops. Topics include; labeling, specifics about online sales, working with farmers markets and consumer education, among others.

Providing educational opportunities via webinar has proven to be a viable solution to various obstacles related to in-person workshops. Due to the nature of their work, farmers are left with a few short months during the winter when they have the extra time to attend workshops and webinars. An initial survey revealed that November – March were the months preferred by growers to attend training workshops. As a result, there are often multiple events that a farmer wishes to attend scheduled for the same week. In addition, distance and weather may play a part in the farmer's ability to attend; using and recording webinars overcomes these obstacles, however the lack of in-person interaction and networking time is still a drawback of this format of workshops.

Partner Contributions

Penn State Extension educators played a significant role on several occasions. By allowing a highly qualified and respected agent to participate as a presenter at a rate far below those of independent contractors, PASA was able to provide quality programming within budget.

Although there may be numerous ways for someone to study the topic of marketing in general, there are a limited number of individuals that specialize in agricultural marketing. By continuing to build relationships and provide companies and nonprofits with networking opportunities, PASA is able to draw on established experts from throughout the country. Kitchen Consultants, Small Farm Central and Keystone Development Center are all such examples of entities that provided services that exceeded expectations.

Marketing Campaign

Specialty Crop Growers Promotional Campaign

Several studies have shown that many consumers do not know how to prepare the fresh, seasonal produce that is provided by local specialty crop growers. PASA concluded, through conversations with farmers, farm market managers and food advocates, that providing producers with a pool of recipes that they can share with their customers would help increase the demand for their products.

In order to generate these recipes and simultaneously find a vehicle to promote Pennsylvania’s specialty crop growers, a recipe contest was developed. In addition, the timing and focus of the recipe contest was intended to support local producers and farmers markets during the winter months. The contest was promoted through social media, poster distribution, public events, targeted print advertising and PASA’s email newsletter (weekly distribution approx. 19,000).

1. **Recipe Contest:** A ‘Cook Local’ recipe contest was held from January 18, 2016 to February 15, 2016. Contest entries had to include, as their featured ingredient, a fruit or vegetable available in January/February from Pennsylvania growers, either as a fresh or stored item. Entries were judged on a variety of criteria including use of featured ingredient, originality and nutrition. Cash prizes were awarded for first, second and third place winners and aprons were given to five honorable mention winners. All winners were awarded a free one-year membership in PASA. Eligibility was limited to residents of Pennsylvania. A total of 39 entries were submitted.

Extensive promotion of the recipe contest occurred with the focus on PASA’s eastern region (as per the grant proposal). A press release was sent to over 20 major market and weekly newspapers in eastern Pennsylvania counties. A print advertisement, based on the graphic designed for the recipe contest promotional posters, was placed in the *Lancaster Farming* newspaper (circulation 61,000) and a full color advertisement was published in the *Focus Community Newspaper* serving the Pocono area (circulation 25,000).

One of the goals for the recipe contest was to target segments of the public that may not be already shopping and supporting specialty crop growers; this includes libraries, community centers and food banks. Therefore, in addition to the print promotion, 300 full color 11x17 posters were distributed to eastern Pennsylvania libraries, health food stores, community centers, food banks and produce markets. PASA also posted the contest to their Facebook page that has over 8,600 followers, Twitter account, which has over 2200 followers, and sent emails to a database of over 19,000 emails. To guide contest participants and provide a tool for consumers, a produce availability chart was created.

2. **Speaker Series:** PASA offered groups and organizations in eastern Pennsylvania an opportunity to host an event that supported the goal of promoting and educating consumers about specialty crops. Four groups accepted the offer. Two of the events were farm tours at local farms hosted by two libraries in Berks County. Two Buy Fresh Buy Local® chapters participated; one in Lehigh County held a cooking demonstration and one in Bucks County held a discussion about the book ‘Eating on the Wild Side’ by Jo Robinson.

3.

All participants were given a list of ‘talking points’ to share with attendees that explained what a specialty crop was, benefits of buying locally grown produce and that PASA’s support

was made possible through a USDA/PDA Specialty Crop Growers grant. PASA reimbursed the speakers for their time and provided aprons, bookmarks and recipe cards along with other print material to be used at the events.

- 3. Development and Distribution of Promotional Materials:** A graphic designer was hired to develop a cohesive set of support materials to create interest in buying from Pennsylvania’s specialty crop growers, raise awareness about specialty crop growers and help educate consumers about how to use fresh, local fruits and vegetables. These materials included a full color poster used for the recipe contest, bookmarks with facts and information about Pennsylvania specialty crops and specialty crop growers, and recipe cards featuring the winning recipe contest entries. Organic cotton bags, printed with graphics used throughout this project, were also created. The bookmarks, recipe cards and bags were distributed, and will continue to be distributed for free until quantities run out to libraries, health food stores, farmers markets, CSA’s and at PASA events.

Conclusions and Recommendations

The recipe contest received significant positive feedback from consumers, producers and food advocates. Laura H. Hewitt, Program Manager, Endless Mountains RC&D Council reached out to PASA to say, ‘...LOVE the local recipes. Contest was a brilliant idea, and I can't wait to try some new foods I didn't know how to prepare!’ Two local news outlets reported on the contest and its winners, the *Reading Eagle* and *Lancaster Online*.

Given the feedback and the ongoing need/desire for nutritious recipes that feature Pennsylvania’s specialty crops, it is recommended that this contest be held statewide on a yearly basis and feature produce from all seasons.

How to make the recipes available to growers and the public evolved during this project, the conclusion was reached that an e-cookbook may no longer be a popular resource for consumers. Post-event surveys demonstrated that many specialty crop growers access information from PASA’s website, whether they are members or not, therefore the [recipes were made available for download from that source](#). PASA is also using their Facebook page to share profiles of specialty crop growers in Pennsylvania. Developing Pinterest as a platform to disseminate information about specialty crop growers and recipes was discussed, but was beyond the scope of this project. PASA continues to look to develop Pinterest as a marketing tool for future projects and share these recipes further.

The speaker series was a deliverable added based on interest expressed by food advocates, who already work to raise awareness of the benefits of buying local, in supporting PASA’s efforts. This concept was based on the ongoing success that PASA partner Wayne County Grown has had for several years hosting a monthly event at their local library. Each group was allowed to develop their own program as long as it served to promote specialty crop growers. These events included cooking

demonstrations, farm tours and book discussions. The goal was to have ten talks; however, since this was added at the end of the project scheduling became an issue for many, and we were only able to support a total of 4.

Partner Contributions

The support and enthusiasm of library system directors and individual librarians in every county involved with the promotion, was of unexpected value. In every case they were eager to help post and distribute the materials that were provided. Libraries proved to be an efficient conduit to provide information about the benefits of buying from specialty crop growers to consumers who may not already be actively buying local. This, along with the willingness of three of the libraries to host an event, indicates that a continued partnership with the library system would be of great value.

Bill Troxell, Publicity Coordinator with the Pennsylvania Vegetable Growers Association (PVGA), was a valuable resource in the development of the recipe contest. He willingly shared the knowledge he gained during his ten years of experience organizing a recipe contest for PVGA. Several Buy Fresh Buy Local® chapters provided support in the distribution of materials, promotion of the contest and in developing speaker events.

COMPARISON OF GOALS AND ACTUAL ACCOMPLISHMENTS

Goal	Outcome	Comment
Survey of eastern PA specialty crop growers.	Completed and analyzed.	
Work with Chester County Economic Development Council (CCEDC) and Four Seasons Produce to develop webinars.	Webinars not completed, but partnered in a different way.	Although we did not partner with these two entities on webinars, we did partner with Four Seasons to help promote a GAP workshop (March 3-4, 2015) and we worked with CCEDC on the tax basics workshop (May 20, 2015).
Host 6 GAP trainings	Completed	March 16-17, 2015 GAP & Food Plan Writing Workshop March 23, 2015 Overview Food Plan Writing Workshop

			<p>November 4, 2015 GAP Mock Audit</p> <p>December 8-9, 2015 GAP & Food Plan Writing Workshop</p> <p>January 26, 2016 Food Enterprise & Safety Panel</p> <p>March 24, 2016 Understanding & Mitigating GAP costs webinar</p>
	Host 4 marketing webinars	Completed	<p>February 17, 2016 Wholesale Marketing Webinar</p> <p>February 19, 2016 Marketing 101 Webinar</p> <p>February 24, 2016 Direct Sales Marketing Webinar</p> <p>March 2, 2016 Internet and Ag Marketing Webinar</p>
	Comprehensive Guide for farmers to get the product from to table	This transitioned into a webinar companion guide / workbook to parallel topics discussed within that ag marketing webinar series.	Available for download on PASA’s website. Hard copies are also available from PASA.
	Develop marketing campaign and strategy: availability chart, e cookbook, recipe contest, recipe cards, speaker series, and farmer profiles.	Completed	<p>January 18, 2016 - March 9, 2016 recipe contest & promotion</p> <p>January 18, 2016 - ongoing distribution of informational print materials</p> <p>March 24, 2016 - May 17, 2016 Four speaker events</p>

	<p>Cultivate relationships with regional news and media</p>	<p>Ongoing</p>	<p>This is an ongoing effort at PASA. Personal invitations were sent to Lancaster <i>Farming</i>. PASA's press release list was expanded and the online source - Morning Ag Clips was added to the list.</p>	
<p>Beneficiaries:</p>	<p>This project was able to directly benefit numerous individuals and businesses throughout the eastern part of Pennsylvania as designated by the grant. Due to PASA's extensive network of supporters and reputation as a reliable source of quality training those who benefited from this work reached into surrounding states, even as far as Canada.</p> <p>Specialty crop growers in Pennsylvania who wanted to increase their knowledge about GAP and food safety benefited through the GAP/food safety workshops; attended by a total of 96 individuals. In addition, as of June 9, 2016 the final workshop 'Understanding and Mitigating the Costs Associated with GAP/FSMA' webinar has also been viewed 10 times, outside of the live session.</p> <p>Specialty crop growers in the state who want to increase their knowledge about agricultural marketing benefited from this project through the series of four marketing webinars connecting them with important training. The live webinars were attended by a total of 166 individuals. By providing access to recordings of those webinars, this project will continue to provide this information to additional growers; as of June 9, 2016 the combined total of views for the marketing webinars is 355.</p> <p>Consumers gained greater access to and information about Pennsylvania specialty crops through several aspects of the marketing effort; eight individuals directly benefited as winners of the recipe contest. Also, a total 82 individuals attended the speaker series.</p> <p>The extensive distribution of 300 posters, 2,500 bookmarks, 1,600 recipe cards, 100 vinyl decals and 250 organic cotton bags featuring the term 'Pennsylvania Specialty Crop Growers', graphics of fruits and vegetables, and in some cases additional information, also helped raised the visibility and awareness of Pennsylvania's specialty crop growers.</p> <p>This project benefited specialty crop growers, markets and distributors who wanted to connect through networking at events by hosting in-person workshops and panel presentations: providing multiple opportunities for interaction between specialty crop growers, processors, economic developers, agriculture professionals, retailers and distributors. Participants were able to network with staff from Four Seasons Inc., Penn State Extension, The Seed Farm, Pennsylvania Department of Agriculture, and local growers and producers.</p> <p>Several regional business partners benefited financially or by receiving exposure. These included the small local businesses that provided food for the workshops; these businesses were chosen for <i>their</i></p>			

support of local growers. Locations that hosted events, The Seed Farm, Chester County Food Bank, and the Carbondale Technology Transfer Center, received publicity through attendees, PASA promotion and post-event news articles. In addition, a Pennsylvania graphic design firm and print shop were patronized to create the support materials for the specialty crop growers campaign.

Project	Participants	Webinar Views	Presenters	Businesses	Total
GAP/Food Safety	96	10*	11	10	127
Marketing Webinars	166	355	5	4	530
Marketing Campaign	120	N/A	6	9	135**
					792

*Only 'Understanding & Mitigating the Costs Associated with GAP/FSMA' was presented as a webinar

** Not including audiences reached from ongoing distribution of materials developed within this project.

Lessons Learned:

This project began by PASA issuing a survey to eastern region specialty crop growers to ascertain what specific topics they were interested. A total of 46 surveys were completed. This relatively small number of completed surveys is not completely surprising; farmers are often busy, not all can be reached by an Internet survey and many complain of 'survey burnout'. PASA was able to collect additional data and ideas through their network of agricultural professionals; relationships that have been developed over many years of mutual respect. Including focused interviews with professionals should be a formal part of the process at the beginning of the project; this helps to identify areas where the growers may not know what they do not know.

The initial survey asked when growers were available for training. The results confirmed that the winter months are the only 'extra' time that most growers have for education and networking. As a result, however, there are many workshops, seminars and webinars packed into a few short weeks. In addition to scheduling conflicts, the weather can impact attendance. While recorded webinars are not conducive to networking, they do allow participation regardless of the weather or time of

year. Since networking is a factor that is important to farmers, a possible solution is to hold in-person events that are recorded. This may have higher upfront costs or equipment investment, but combines the networking opportunities requested by some and the convenience needed by others.

There continues to be a great deal of confusion and concern surrounding food safety. The initial survey revealed that 54% of respondents were interested in learning more about GAP/Food Safety; however, conversations with food safety professionals revealed that when looking at what growers are covered by GAP, GHP, FSMA, along with the overall potential exposure to liability, far more growers are impacted than they may realize. The questions that were asked at each of the food safety trainings and the follow up surveys showed that many growers were not certain where to begin and were often attending an event that was either too basic or too advanced for their needs. A systematic, clearly defined path to food safety awareness would help to alleviate these issues. Given PASA's educational mission, we will continue to explore efforts to offer ongoing GAP/food safety training opportunities during our conferences and yearly Farmer-to-Farmer Exchange programs.

The initial survey also revealed that 63% of respondents were interested in training on various marketing topics. Specific topics suggested included marketing through cooperatives, how to raise awareness and educate consumers, general marketing skills and how to use and market produce seconds. Conversations with professionals that specialize in agricultural marketing indicated that marketing fundamentals, a key to overall success, were often skipped in the rush to engage in more tangible outcomes. The series of four webinars provided an introduction to marketing in general and in various market channels. Despite the overall satisfaction with the presenters and the information provided, the participants were also clearly interested in learning about more advanced or detailed topics.

The webinar software used for these webinars was GoToMeeting from Citrix. This program proved to be easy to use by organizers, presenters and participants. A few issues occurred that led to the creation of a list of webinar best practices. The best practices include scheduling a practice session far enough in advance to allow for a second practice session, requesting that presenters confirm that they have headsets for quality sound and to have two organizers in case one is not available the day of the event.

Developing a successful 'high profile' promotional campaign in today's market can be a struggle. Campaigns are often built on brand recognition and are developed over time. With the specialty crop growers campaign there was and is a basic lack of understanding about what 'specialty crop' means. To overcome this, a graphic clearly depicting fruits and vegetables was developed and used throughout the campaign. In addition, a series of bookmarks with facts and resources about Pennsylvania's specialty crops created and distributed.

	<p>This project allowed PASA to continue to strengthen partnerships with several agencies and develop additional resources for specialty crop growers, PASA members and the farming public. We plan to continue our education efforts of growers regarding food safety, in addition to bolstering our consumer education regarding specialty crops and how best to utilize seasonal, local/regional food availability.</p>
<p>Contact Person:</p>	<p>Pennsylvania Association for Sustainable Agriculture (PASA) Michele Spencer Telephone Number: 814-349-9856 Email Address: natania@pasafarming.org</p>
<p>Additional Information:</p>	<p>ITEM 1: MOCK AUDIT NEWS ARTICLE</p>  <p>pasafarming.com Five Sections Saturday, November 7, 2015 \$49.00 Pe</p> <p>Photos by Philip Gruber People attending a mock GAP audit check out greenhouse vegetables at The Seed Farm in Emmaus, Pa.</p> <h3>Audits Help Farms Manage Food Safety Risk</h3> <p>PHILIP GRUBER <i>Staff Writer</i></p> <p>EMMAUS, Pa.— On-farm inspections are becoming a fact of life for many farmers as industry and government try to prevent foodborne illnesses.</p> <p>Farmers and farmworkers gathered at The Seed Farm in Lehigh County on Wednesday to learn about good agricultural practices, or GAP, audits.</p> <p>The event was presented by the Pennsylvania Association for Sustainable Agriculture.</p> <p>GAP audit requirements are similar to what will be required under the Food Safety Modernization Act produce rule, which is expected to be published in its final form any day now, said Brenda Sheaffer, an inspector with the Pennsylvania Department of Agriculture.</p> <p>So far, produce farmers have only needed audits if their wholesale customers required them. Once the produce rule goes into effect, many growers will need to start getting audits to comply with the law.</p> <p>"Someone from every farm will have to come and have training on food safety," Sheaffer said.</p> <p>Farmers can choose which of the six audit components they need to meet.</p> <p>Brenda Sheaffer, a Pennsylvania Department of Agriculture inspector, speaks about audit procedures.</p> <p>More AUDIT, page A3</p>

Audit

Continued from A1

Many farms will only need to complete the farm review and field harvesting sections. For operations with packinghouses, cold storage and transportation, "it's going to take a lot more time," Sheaffer said.

There are also audit requirements for selling to terminal markets and the government, but few farms will need those certifications, she said. Sheaffer pays a lot of attention to harvest containers because they touch produce. If the boxes have mud inside, "what you're doing (with cleaning) isn't sufficient," she said.

Farmers should have the labels available for all the chemicals they use. "Anything you tell me you're using, I'm going to be taking a look at," Sheaffer said.

Most consumer chlorine products are inappropriate for sanitizing because they have extra ingredients like scents. Sanitizers must be labeled for food contact surfaces, she said.

In Pennsylvania, an unlicensed person may apply restricted pesticides only under supervision of a licensed applicator.

The audit goes a step further, requiring that applicators be trained even when applying unrestricted pesticides, which include many organic materials.

This training could come from an experienced farmer, the chemical company or even online content, Sheaffer said.

Clean water is a major part of the audit.

Audits require three irrigation water tests a year: just before first use, at peak season, and close to harvest. Even with the hand-washing stations, "we're going to ask you where you got your water from," Sheaffer said.

Drip irrigation that does not touch the edible part of the plant can be of a little lower quality than overhead irrigation. To mitigate risk, farmers might elect to turn off their overhead irrigation for several days before harvest, Sheaffer said.

The audits are concerned primarily with the E. coli count in the water, but unlike the forthcoming produce rule, they do not specify a safe level of E. coli, Sheaffer said.



Attendees listen to Brenda Sheaffer explain the procedures used during an audit of a farm's agricultural practices.

Farmers should have a plan for nearby sources of potential water contamination.

A neighbor's home septic system sits very near the Seed Farm's irrigation pond. Though the pond water has tested very well, it might make sense to ask the homeowners to call if the system has a problem, Sheaffer said.

Many septic systems have alarms, and if the unit is leaking, "you can always smell that," Sheaffer said.

Each farm's risk mitigation tactics must be spelled out in a food safety plan. Though a plan can be structured around the audit requirements, "on a food safety plan you make it your own," Sheaffer said.

For example, one farmer decided to do his required pre-harvest risk assessment by driving around the farm every day with his morning coffee. The assessment does not have to be done so often, but it suited him, Sheaffer said.

Farmers have the right to ask inspectors to comply with their farm's food safety policies, such as removing jewelry, during the audit, Sheaffer said.

A passing score is 80 percent, so farmers may decide to sacrifice some points when the requirements don't fit their operations.

The audit requires that all produce be covered during transport, but if apple growers covered their crop on the way to the packinghouse,

"those apples on top would be baked," Sheaffer said.

There are several ways to automatically fail a GAP audit, such as not having a food safety plan, allowing gross food safety lapses and falsifying records.

The produce rule may not require farmers to have a food safety plan, but it will be hard to comply with the law without one, Sheaffer said.

An inspector knows records are falsified when she visits in July and the log is filled out through August, Sheaffer said.

One farm Sheaffer visited was using cats as rodent control. "There was cat feces all over the grading machine," she said.

Usually audit information is kept private, but because the food safety risk was severe, Sheaffer

had to alert the Food and Drug Administration about that farm.

A farm will not automatically fail an audit just because animals pass through the field. "It's going to happen," Sheaffer said.

The audit's role is to see that the farm has plans in place to prevent wild animals from contaminating the food. Preventive measures like deer fences are good, but if animals do get in, the surrounding produce should not be harvested, Sheaffer said.

Even when cats are kept off food contact surfaces, they are not a preferred rodent strategy, Sheaffer said.

Cats get toxoplasmosis, a parasitic infection, from infected rodents and can spread it to humans. The disease can be fatal to unborn children, according to the Centers for Disease Control and Prevention.

The length of an audit depends a lot on how prepared a farmer is and how many parts of the operation need to be inspected. "The paperwork section is the longest," Sheaffer said.

If all the paperwork is organized — notebooks with tabs make Sheaffer very happy — it's not so bad. On the other end, "I've been on some nightmare audits" when a farmer took half an hour to find one document, she said.

For an inspection, the department charges \$92 an hour plus travel costs. Other state and federal fees may apply, such as a first-time fee to get a GAP certificate.

If the farm harvests for more than 90 days in a year, the inspector must conduct an initial audit and at least two follow-up visits. Farms harvesting 30 to 90 days must get at least one follow-up.

If the farm will harvest fewer than 30 days in the year, no verification visits are required. No matter the season length, inspectors can add verification visits if they believe they are necessary, Sheaffer said.

Verification audits are much shorter than the first audit, but the department still bills at \$92 an hour. Pennsylvania has grant money available to help farmers pay for audits, Sheaffer said.

ITEM 2: FOOD SAFETY NEWS ARTICLE

A Lot to Process

Value-Added Foods Must Meet Food Safety Rules

PHILIP GRUBER
Staff Writer

MILLERSVILLE, Pa. — Rachel Armistead and her husband, Luke Flessner, initially hoped to start their artisan sauerkraut business in their home in Frederick County, Md.

Then regulations changed their plans — for the better.

Unlike Pennsylvania, Maryland does not allow home commercial production of acidified foods, such as sauerkraut.

"We were not happy about having to get a commercial kitchen," Armistead said.

Stepping up to a rented facility earlier than expected changed the business's licensing, overhead costs and price structure, but it also made it easier for their business. The



Photo by Philip Gruber

Rachel Armistead speaks about food safety in her sauerkraut business. Listening are Dale Stoltzfus, left, and Sam Kennedy.

Sweet Farm, to enter wholesale and online markets.

Foods made in home kitchens cannot be sold across state lines, a restriction most products made in commercial kitchens do not have, she said.

Armistead was part of a panel that spoke about regulatory considerations for value-added products on Tuesday at the Country Barn farm market near Lancaster.

More **FOOD SAFETY**, page A14

A14 - Lancaster Farming, Saturday, January 30, 2016

www.lancasterfarming.com

Food Safety

Continued from A1

The event was sponsored by the Pennsylvania Association for Sustainable Agriculture.

When they started out, Armistead and Flessner paid for commercial kitchen use by the hour.

The biggest challenge with a shared kitchen is making gluten-free and organic foods, and any products with similar types of claims, Armistead said.

Processors must show that they used proper cleaning procedures if other users of the kitchen are not using the same production practices, she said.

Armistead has now increased production so much that she rents a whole floor of the commercial kitchen, giving her greater control over the space's use.

Though the kitchen space is only rented, government sanitarians in-

spect it as if it's your facility basically," Armistead said.

There are all kinds of places to rent commercial kitchen space: fire halls, churches, incubator kitchens or even restaurants after hours, said Winifred McGee, a Penn State Extension educator.

Most commercial kitchens, plus farmers markets and events, expect a certificate of insurance, an inexpensive document your insurance agent can produce in about a day, Armistead said.

Your insurance policy should cover both you and the commercial kitchen because both parties would be sued if your food got someone sick, McGee said.

Even if you are working in a commercial kitchen, a few products, most notably raw milk, cannot be marketed across state lines, said Dale Stoltzfrus, general manager of Oasis at Bird-in-Hand, a milk, meat and vegetable co-op.

Legally selling products across

state lines can increase your market, but "it can broaden your recalls" as well, said Sam Kennedy, a cheesemaker for The Farm at Doe Run in Chester County.

For people who do not want to serve out-of-state markets, a limited food establishment — processing in your home kitchen — may be the way to go.

Most baked goods, candies, jams, canning products and acidic juices can be made commercially in a limited food establishment, McGee said.

Canned or acidified foods, such as salsa and pickled vegetables, must have a pH of 4.6 or below. A low pH lessens the food safety risk, McGee said.

Home processors used to think, "Oh, we have tomatoes," so the pH of the canned goods must be low enough, but that is no longer a given, McGee said.

Many new tomato varieties are low in acid to boost their fresh-market appeal, she said.

Under the Food Safety Modernization Act, which is being phased into action, products between a pH of 4.0 and 4.6 have extra monitoring requirements.

If you can, it makes sense to keep products at a pH of 4.0 or below, where the regulations and risks are fewer, McGee said.

There are some drawbacks to limited food establishments.

The business's ingredients must be stored and prepared separately from the family's food, and some township zoning officials, even in ag-friendly Lancaster County, can make starting a home food business very tough, McGee said.

Food that must be refrigerated, such as pumpkin pie, cannot be made in a limited food establishment, McGee said.

The biggest turn-off for prospective home producers is that pets cannot be in the kitchen during production.

At Penn State Food for Profit classes, "I've had people leave at the first break," McGee said.

No matter whether you use a home or commercial kitchen, your food-making procedures must be checked by a person called a process authority to make sure your methods are acceptable and safe.

Many process authorities work for Extension services, such as Cornell University's, or as private consultants, McGee said.

All food businesses get inspected by Food and Drug Administration or state regulators, but "don't be afraid of the FDA," said Kennedy, the cheesemaker.

Inspectors are actually looking out for your business's best interest by trying to stop foodborne illnesses, Kennedy said.

"It's a symbiotic relationship. They're not there if you're not there," he said.

If you follow the regulations, you will likely have records that prove you did what you could to prevent a food safety problem. Those records could give you some protection if you get someone sick, he said.

Kennedy's company makes cheese on the same farm where the cows, sheep and goats make the milk for the cheese.

Inspectors "take a little harder view on us" because there is manure on the property, Kennedy said.

While regulations can be helpful, they are not always straightforward.

When Jim Stauffer, owner of Country Barn, was building his commercial kitchen, his kitchen installer asked for a township signature.

Stauffer said that when he called the township, he was told no approval was necessary.

Though clearer policies might make some things easier, "every manufacturer would feel like they were in a straitjacket," McGee said.

Regulations are a major part of any food processing business.

The Pennsylvania Department of Agriculture website catsafepa.com includes a lot of information for prospective business owners, McGee said.

ITEM 3: 'UNDERSTANDING AND MITIGATING THE COSTS ASSOCIATED WITH GAP/FSMA NEWS' ARTICLE



APPENDIX B

Produce Availability Chart

PENNSYLVANIA PRODUCE AVAILABILITY												
*Many crops can be found year round, greenhouse grown												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Apples	Apples											
Asparagus	Asparagus											
Beans	Beans											
Beets	Beets											
Blackberries	Blk. Berries											
Blueberries	Blueberries											
Broccoli	Broccoli											
Brussel Sprouts	Sprouts											
Cabbage	Cabbage											
Carrots	Carrots											
Cauliflower	Cauliflower											
Celery	Celery											
Cherries (Sweet)	Cherries											
Cucumbers	Cucumbers											
Corn (Sweet)	Corn											
Eggplant*	Eggplant											
Grapes												
Greens	Greens											
Kale	Kale											
Lettuce	Lettuce											
Melons	Melons											
Mushrooms	Mushrooms											
Onions	Onions											
Peaches	Peaches											
Pears	Pears											
Peas	Peas											
Peppers*	Peppers											
Potatoes	Potatoes											
Pumpkins	Pumpkins											
Radishes	Radishes											
Raspberries	Raspberries											
Spinach	Spinach											
Squash (Summer)	Squash											
Squash (Winter)	Squash											
Strawberries	Strw.											
Sweet Potatoes	Sweet Potatoes											
Tomatoes*	Tomatoes											
Turnips	Turnips											

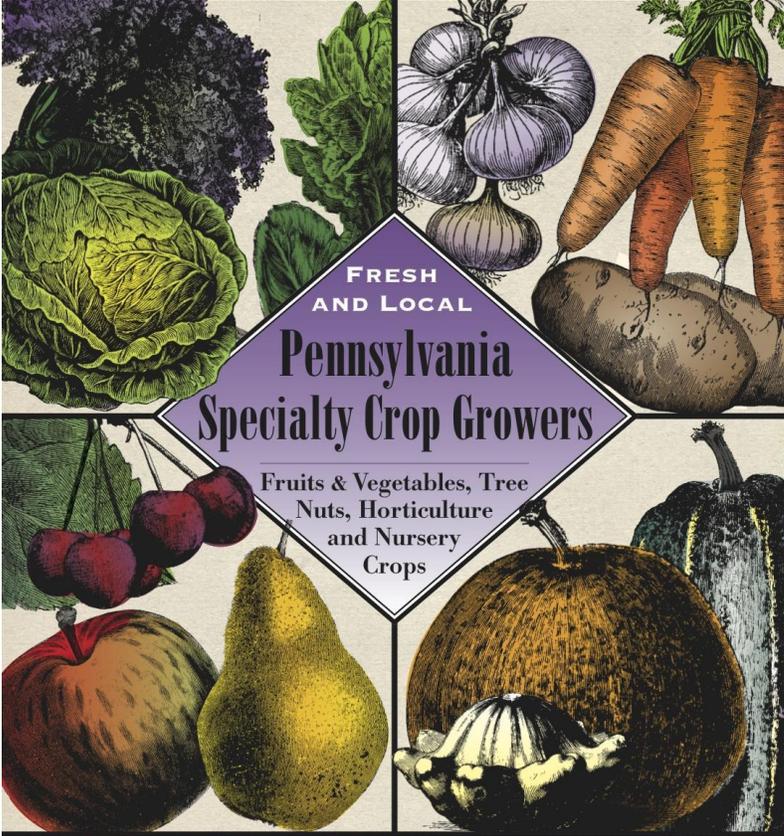


Pennsylvania Association for Sustainable Agriculture: Promoting Profitable Farms that Produce Healthy Food for All People While Respecting the Natural Environment

APPENDIX C

Promotional Materials

Recipe Contest Image/ Poster



**FRESH
AND LOCAL**

**Pennsylvania
Specialty Crop Growers**

Fruits & Vegetables, Tree
Nuts, Horticulture
and Nursery
Crops

**RECIPE
CONTEST**

RULES: Your original recipe must feature a fruit or vegetable available locally in January and February.*
One email entry per person, must be a resident of Pennsylvania.
Deadline for email entry – midnight EST February 15, 2016.

PRIZES: 1st Place – \$300 • 2nd Place – \$150 • 3rd Place – \$75
Honorable Mention (5 awarded) – Apron
All winners will also receive a one year, Full Membership to PASA.

* For complete rules and produce availability chart go to www.pasafarming.org/seasons

 Pennsylvania Association
for Sustainable Agriculture

Contest sponsored by the Pennsylvania Association for Sustainable Agriculture via funding by a USDA Specialty Crop Block Grant.

Recipe Cards: Example one of four designs.



Recipe Card

Pennsylvania Association
for Sustainable Agriculture
PO Box 419 • Millheim, PA 16854
(814) 349-9856 • pasafarming.org



2016 COOK LOCAL RECIPE CONTEST + SECOND PRIZE — *Nancy Wright, Kunkletown, PA*

ROOT VEGETABLE PANCAKES WITH SAUTÉED KALE & FRIED EGGS

Serves 4–6

SAUTÉED KALE

- 1 lb. kale washed, ribs removed and coarsely chopped
 - ¼ cup olive oil
 - 2 cloves of garlic peeled, smashed and chopped
 - ½ cup water
 - Salt
 - Pepper
- In a large heavy-bottomed pot or Dutch oven, heat oil over medium heat.
 - Add garlic and cook for a minute or two until fragrant, being careful not to brown the garlic.
 - Rinse kale and add to pot, turning with tongs to coat kale with oil. Do in batches if necessary to fit all the kale in the pot. Cover and cook for 5 minutes, turning occasionally.
 - Add water, salt and pepper to taste. Cover and continue cooking, stirring occasionally until kale is tender, about 10 minutes. Add more water and/or oil if necessary.

ROOT VEGETABLE PANCAKES

- 6 c. shredded root vegetables — Yukon Gold potato, sweet potato, parsnip, turnip and carrot
 - 1 small leek, white portion only, diced — about ½ cup
 - ¼ cup flour
 - ½ tsp. salt
 - ¼ tsp. freshly ground black pepper
 - ¼ tsp. nutmeg
 - 2 eggs
 - Coconut oil for frying
 - Salt for sprinkling
- Heat a large skillet over medium heat, adding enough coconut oil to fill the pan about ¼ inch deep.
 - Put shredded vegetables and leek in a large mixing bowl. Toss with flour and seasonings until thoroughly coated.
 - Scramble eggs in a small bowl. Pour over vegetables and toss until thoroughly coated.
 - Drop by ¼ cupful into hot oil, spreading out with a fork to make a thin pancake. Cook until golden brown and crispy. Flip and brown on the other side.
 - Remove to a paper towel-lined plate. Sprinkle with salt. Keep warm in a low oven, loosely covered with foil if necessary.
 - Fry eggs as desired. Place a serving of kale on a plate, top with two root vegetable pancakes and a fried egg.

Recipes were submitted to the 2016 Cook Local Recipe Contest hosted by PASA. The contest and marketing efforts were supported by a Specialty Crop Block Grant from the Pennsylvania Department of Agriculture. Additional recipes from the contest can be found at pasafarming.org/seasons.

Bookmarks



PA SPECIALTY CROP FACTS & RESOURCES:

Specialty crops include fruits, vegetables, herbs, nuts, flowers, nursery plants and Christmas trees.

Pennsylvania producers lead the way!

- 1st in Mushrooms
- 2nd in Christmas Tree Farms
- 4th in Apples, Strawberries & Pumpkins

Source: NASS 2011-12

Each dollar you spend at independent local growers returns up to 3x more money to your local economy than if you shop at a chain grocery store.

Source: AMIBA

PA Vegetable Growers Association (pvga.org) great source for consumer information, recipes and local grower/farmers market directories.

Go to Pennsylvania Pick Your Own (pickyourown.org) to find out where to pick your own peaches, cherries, berries and apples.

Visit Food Reference (foodreference.com) for a list of the numerous fruit and vegetable festivals held throughout PA.

More food banks are offering fresh produce (foodpantries.org) and an increasing number of farmers markets are accepting SNAP (fns.usda.gov).

PA Buy Fresh Buy Local! (buylocalpa.org) is a great resource to find local farmers markets, local producers, recipes and consumer information.

 Pennsylvania Association for Sustainable Agriculture
PO Box 419 • Millheim, PA 16854
(814) 349-9856 • pasafarming.org

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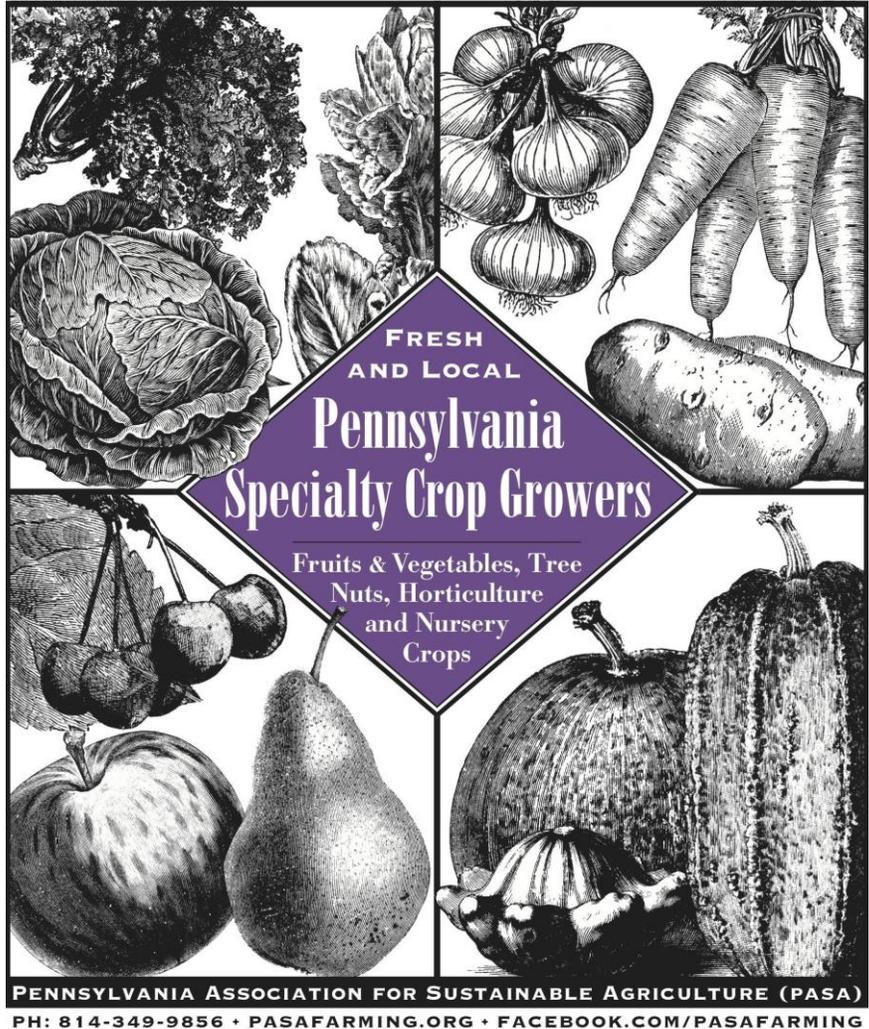
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Tote Bag Graphic



Project Title:	Good Agricultural Practices and Good Handling Practices Cost Sharing Program
Project Summary:	Provide cost sharing support for successfully completed USDA Good Agricultural Practices (GAP) or USDA Good Handling Practices (GHP) audit annually. The program provides a maximum reimbursement of \$400 towards one successfully completed audit per year. The reimbursement is used as an inducement for farmers who are considering participation in the voluntary audit process. Given the increasing requirements of retailers, these audits are a way for our producers to be more competitive when marketing their product.
Project Approach:	The program is administered by the Pennsylvania Department of Agriculture through applications made available on its website (PDA GAP/GHP Cost Share Program) and through paper applications

	<p>made available upon request, by auditors and at various trade shows.</p> <p>This is the fourth time this project has received grant funding. At the time the first grant was written, less than 20 producers in Pennsylvania were participating in the voluntary GAP/GHP audit program. In the first 12-24-B-0946 grant, there were 40 participants in the first year of the program and 81 participants in year two. An advisory group, which included stakeholders from fruit, vegetable and mushroom growers associations assembled to address the cost share program recommended to set the cost share amount at a maximum of \$400 to maintain a good return for producers and ensure funds would be available for the maximum amount participants.</p> <p>This grant (12-25-B-1693) provided cost share funds to 182 applicants for a total of \$72,364. As originally written, this grant planned to provide a total of 48 reimbursements budgeted at \$19,200 and \$800 in supplies. On two separate occasions, additional funds were made available to the grant to fund additional reimbursements and to add funding for administrative costs as a result of the additional work. In February 2014 the grant project was amended to add \$40,000 increasing the overall project to \$60,000 with the expectation that \$54,000 would be available for cost share reimbursements and \$6,000 would be set aside to cover indirect costs. This also eliminated the original budget line of \$800 for supplies. In June 2016 the grant project was again amended to add an additional \$19,903 increasing the overall project amount to \$79,903 with the expectation that \$12,364 of the additional funds would be available for cost share reimbursements, \$5,729.70 would be for personnel costs and \$1,809.30 would be for indirect costs.</p>
<p>Goals and Outcomes Achieved:</p>	<p>At the outset of the grant, a total of \$20,000 was budgeted in anticipation of 48 applications being funded in 2015 which represented a total of 33 existing applicants and 15 new applicants. The calculations for anticipated numbers of applications were based on historic data and experience with similar cost share programs. This was a lower number than in previous years based primarily on overlapping grant funds from previous and current years such that this grant only anticipated activity in 2015. In order to make the best use of funds overall for the Specialty Crops Block Grant program, this applicant was asked if we could use additional funding in this grant based on the fiscal needs of this year’s overall grant. We were able to accept and use these funds for the initial purpose of the grant of funding cost share reimbursements for GAP and GHP specialty crops growers.</p> <p>During the grant, an additional \$59,903 was shifted to this project under the Specialty Crops Block Grant increasing our grant amount for cost share reimbursements to \$72,364 which was anticipated to increase the maximum of recipients to 182 at \$400/application during the period ending September 30, 2016.</p> <p>The numbers broke down as follows. A total of 55 applicants received cost share funds in 2014, exceeding expected goals by 7. In 2015 a total of 96 applicants received funding and in 2016 up until the end of the grant, 30 farms received funding. Additional applications have been received; however, these are being paid out of a subsequent grant.</p> <p>That revised goal was realized due to the term extension and the addition of \$59,903, with actual numbers of 182 applicants for a total of \$72,364 provided in cost share. Remaining funds were allocated for administrative and indirect costs.</p>
<p>Beneficiaries:</p>	<p>This grant (12-25-B-1693) provided cost share funds to 182 applicants for a total of \$72,364. The operations were all specialty crops operations either participating in the Good Agricultural Practices, Mushroom Good Agricultural Practices or Good Handling Practices USDA audits.</p>

<p>Lessons Learned:</p>	<p>While the overall rate of growth in participation in the program as it relates overall to GAP/GHP cost share activity appears to be reaching a plateau, there are lessons learned and possible new approaches that can increase participation in the program in the future. First, it may be prudent to begin the discussion of allowing GAP/GHP cost share funds to also provide reimbursement for these third-party audits as the producer or handler is often put in the position of needing these audits based solely on retailer expectations. The increased influence of retailers in determining the acceptable audit standards (anecdotally) appears to be moving producers to third-part auditors. The program under this activity only provides funding for USDA approved audits. Second, continued and increased outreach is essential to increasing participation in this program and our field staff is our first line of information because they are out on the operations. Providing increased training in the program to field staff will allow us to reach producers on an individual basis. Lastly, the use of web and print publications as well as targeted mailings can all be used to greater effect in the future.</p>
<p>Contact Person:</p>	<p>Kyle Heffner PDA Grows 2301 N. Cameron St. Harrisburg, PA 17110 Phone: 717.836.3973 Fax: 717.787.5643</p>
<p>Additional Information:</p>	<p>http://www.agriculture.pa.gov/Protect/FoodSafety/Egg%20Fruit%20and%20Vegetables/Pages/GAP-GHP-Program.aspx</p>
<p>Project Title:</p>	<p>Developing and Implementing Best Practices in the Mushroom Industry</p>
<p>Project Summary:</p>	<p>The AMI Food Safety Task Force and the AMI/OSHA Alliance first prioritized best practices needs their members have identified. Programs, training and instructional materials were developed and/or enhanced. Materials included spiral-bound training books, training videos, and website materials which were delivered through group training and train-the-trainer sessions. This grant enabled mushroom growers, packers and shippers to have access to the most efficient and effective system-wide best practices. These standardized practices would be determined through research and industry collaboration and delivered through education and training programs.</p> <p>The project has incorporated the highly successful models of the mushroom industry’s food safety initiative and the AMI/OSHA Alliance with the purpose of enhancing these and adding supplementary endeavors. The AMI Food Safety Task Force and the AMI/OSHA Alliance have brought together the industry’s leaders to collaborate with outside experts in developing best practices programs and then making them available to the entire industry. Specialty Crop Block Grant (SCBG) funding was used to develop the “best practices” which resulted in the Mushroom Good Agricultural Practices (MGAP) program. Similarly, AMI was able to build on SCBG funding to the Chester County Economic Development Council for the 2012-2013 grant period which resulted in farmworkers’ safety training in the areas of powered industrial truck (forklift and jack), and electrical and onsite hazards.</p> <p>Established AMI committees have identified additional education and training needs in food safety</p>

	<p>and farmworker safety education, which would be provided in both English and Spanish.</p> <p>Some of the information developed is available at: Food Safety Training: http://americanmushroom.org/?page_id=34 Worker Safety Training: http://americanmushroom.org/?page_id=234</p>
<p>Project Approach:</p>	<p>The AMI staff coordinated meetings of the AMI Food Safety Task Force, the AMI/OSHA Alliance, Penn State faculty and Extension personnel, and consultants to determine areas where training programs and accompanying materials in food safety and worker safety were needed.</p>
<p>Goals and Outcomes Achieved:</p>	<p>A Crisis Communications/Recall Readiness Workshop was held in December 4, 2014, in Avondale, PA with 76 attendees. Workshop topics included:</p> <ul style="list-style-type: none"> • How to handle a call from the U.S. Food & Drug Administration • Understanding legal liability in today’s food safety regulatory environment • The role of communication during a recall • The basics of a recall plan • Submitting a Reportable Food Registry online report <p>Participants applied the lessons learned during the day to a scenario requiring typical recall decision-making and actions. PowerPoint presentations from the workshop are available to attendees and other members of the mushroom community.</p> <p>A Train-the-Trainer session for contractors with employees who perform work on mushroom farms was held on December 5, 2014, in Avondale, PA, with 35 attendees in the English language version and 16 attendees for the Spanish language session. Insuring that contractors hired by mushroom farms and the contractors’ employees know the food safety and worker safety practices that farm employees follow and proper training can help prevent a food safety incident and avoid a worker injury. Contractors received materials to use in training their employees in basic food safety and worker safety measures. The Mushroom Good Agricultural Practices (MGAP) standards require that ALL employees working at mushroom farms receive food safety training. This includes employees of companies contracted by the mushroom farm to provide any services.</p> <p>In 2015, a food safety workshop was offered as part of the North American Mushroom Conference: “Food Safety from a Legal Perspective” by Elliot Olsen. The NAMC was attended by over 300 people. Two worker safety training sessions were held April 9 and 14; the first for Lockout/Tagout safety had 24 attendees and the second on Electrical Hazards had 17 attendees. The AMI/OSHA Alliance General meeting was held May 21 and was attended by 72 people. Another training session was held on Ammonia Safety on June two and 27 people attended. In addition, John Hillary, Murray Securus, who is one of AMI’s worker safety trainers, has been conducting visits to growers who use ammonia in vacuum packing operations to evaluate and recommend safety steps needed. Four Spanish-language training sessions on Electrical Hazards and Lockout/Tagout safety are scheduled for July 2015. Training tools in both English and Spanish will be available on the AMI website in July. As a result of the AMI/OSHA Alliance and the safety training, we have seen an industry reduction in Total Case Incident Rate over the past two years since the Alliance of 5.8%.</p>
<p>Beneficiaries:</p>	<p>The beneficiaries of this project are the 66 mushroom farm operations in Pennsylvania, which last year produced more than 571 million pounds of mushrooms – leading the nation in production –</p>

with a farm gate value of more than \$540 million. In addition, the packing and shipping operations, as well as the service and equipment suppliers, would also benefit directly from the information developed for the project's programs but also through a strengthened production sector.

With thousands of employees and millions of dollars paid in wages, taxes and services, the mushroom sector has a significant economic impact in southeastern Pennsylvania. The economic impact of the mushroom industry in Chester County alone is more than \$2.7 billion.

Contact Person: Patty Foss-Bennie
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