

**Kentucky**

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**Specialty Crop 2013 Farm Bill**

**Kentucky Department of Agriculture  
Final Report**

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## **Project 1: *Plate It Up, Kentucky Proud* Recipe Development for Consumers and Producers with One-Dish Healthy Meals Research Component**

### **Project Summary**

Strong local food systems benefit Kentucky communities and consumers. The last several years have been a period of successful transition for many Kentucky food producers as more markets have become viable options for Kentucky specialty crops. The *Plate It Up! Kentucky Proud* project is designed to link the expertise of research, teaching, and extension faculty at University of Kentucky with dietetics and human nutrition students, extension agents, the Kentucky Department of Agriculture, and local producers to increase the purchase of Kentucky specialty crops.

The project was designed to test, develop, disseminate, and demonstrate new recipes featuring local seasonal specialty crops in order to market Kentucky crops as a staple to a healthy lifestyle. The project educated consumers about access and availability of local specialty crops and how to adopt best practices for selection, storage, and food preparation. *Plate It Up! Kentucky Proud* has been funded through the ACPBP since 2009. Through the grant funding, the project has expanded each year to reach more Kentuckians and to develop a wide variety of recipes to appeal to consumers based on their preferences, family structure, income, and dietary restrictions. As well, the sustained grant funding has allowed for the development of multiple recipes using a wide range of specialty crops, thus having a greater impact on producers. The work of the SCBG 2013 project was specifically targeted at developing recipes that have smaller serving sizes, appropriate for one or two. The previously developed recipes were standard in terms of the quantity prepared for a small family/group. Based on feedback from consumers, particularly young adults and older adults, this project emphasized healthy dishes that serve only one or two adults and/or children.

The two primary aims of this project were:

- 1) To increase demand for Kentucky specialty crops by working with consumers to teach them how to select, store, preserve and prepare vegetables, fruits, nuts, and herbs as part of health-promoting recipes following USDA MyPlate guidelines.
- 2) To improve the health and well-being of Kentuckians by increasing purchase, preparation, and consumption of specialty crop foods to provide individuals of all ages with the skills needed to promote optimal health and support strong local food systems.

### **Project Approach**

Cooperative Extension agents in each of the 120 counties partnered with local producers and the Kentucky Department of Agriculture to adapt, develop, publicize and demonstrate recipes that promote Kentucky specialty crops. The recipes were designed by dietetics and human nutrition students at the University of Kentucky to be healthy, tasty, easy to prepare and feature Kentucky-grown fruits, vegetables, herbs, nuts, etc. to promote purchase, preparation and consumption by the local consumer. Both on-campus taste testing panels and consumer taste panels in the counties critiqued the recipes. Select recipes were then developed as professional recipe cards designed by a graphic designer for both printing and online distribution. The recipes were disseminated via websites,

point of purchase recipe cards, newsletters, Facebook and media (TV, print). Media releases and demonstration scripts were developed to complement each recipe. Extension agents also shared the recipes via demonstrations and sampling at various venues within the local community. Producers distributed recipe cards at local farmer's markets, through roadside market stands, and through CSA distribution.

## **Goals and Outcomes Achieved**

**GOAL:** Increase the number and scope of recipes, and Kentucky Proud marketing materials for agents' use in promoting specialty crops to local consumers by testing a minimum of 18 recipes per semester and developing and disseminating a minimum of ten new recipe cards.

- Goal is exceeded with 26 family-friendly recipes tested in Fall 2014 and 32 recipes tested in Spring 2015. For the scope of this grant funding cycle, recipes that serve one or two adults and/or children were developed. Many available recipes serve families or large groups. As such, there was a need to develop recipes that serve young adults, older adults, and others who eat by themselves or with one other person. The recipes continue to be economical to prepare, easy to prepare with a limited number of steps, and, if at all possible, meet MyPlate guidelines.
- Recipes were all evaluated by an 8 to 10-person taste-testing panel recruited through the UK Food Innovations Center. Each taste panel also included two FCS Extension agents. Taste tester feedback was provided through sensory evaluation scoring using Ipads provided at the testing. Feedback from the panel was then used in determining which recipes would be tested in the community for recipe card distribution.
- Ten new professional recipe cards were developed, printed, and distributed to FCS Extension agents in all 120 counties of Kentucky as well as on the University of Kentucky campus, at special events (e.g. Kentucky State Fair; Incredible Food Show), and for recipe sampling/surveying.

### Late Summer 2015

Mozzarella Basil Chicken  
Tomato Corn Pesto Pizza  
Noodles Florentine  
Apple Spinach Salad

### Fall 2015

Green Bean and Ham Soup  
Fiesta Potatoes

### Spring 2016

Spinach Pasta Bake

Early Summer 2016  
Big Blue Muffins  
Green Bean Stir-Fry  
Sweet and Savory Cucumber Salad

**GOAL**      **Increase the number of media scripts and demonstration guides developed to support each recipe card by developing one media script and one demonstration guide with talking points on selection, preparation, and storage of featured Kentucky specialty crop/recipe by a minimum of ten new scripts and guides above the current sixteen already in print.**

- Media scripts and demonstration guides were developed for each of the ten recipe cards printed through the grant activities. Each professional media script and demonstration guide was developed by an experienced FCS Extension agent team with feedback from *Plate It Up! Kentucky Proud* steering committee members. All media scripts and demonstration guides are posted on the University of Kentucky College of Agriculture, Food, and Environment internal website - <http://www2.ca.uky.edu/hes/fcs/plateitup/>.
- In addition, to better meet the needs of a diverse Kentucky population, 15 of the recipe cards have been translated into Spanish.
  - Translated into Spanish and web-version of card available:
    - Easy Peach Cobbler
    - Glazed Cantaloupe Bread (fits on card, without picture)
    - Strawberry Salsa
    - Stuffed Zucchini Boats
    - Sweet Potato Crisp
    - Tomato Basil Bruschetta
    - Zippy Corn Chowder
  - Translated into Spanish and print version of card available (printing not included as part of this grant, rather is supported by SNAP-Ed and other funding):
    - Bacon and Tomato Dip
    - Broccoli Pizza
    - Confetti Chicken Quesadillas
    - Corn and Sweet Potato Confetti Salad
    - Cucumber, Corn and Bean Salsa
    - Fresh Corn Salad
    - Italian Chicken and Squash Skillet
    - Ratatouille Soup

**GOAL**      ***Increase consumer awareness and knowledge of selection, preparation, and storage of Kentucky specialty crops through dissemination of a minimum of 100 of each recipe card per county (102,000). Agents will survey a representative sample of recipients of the recipe cards to determine if knowledge and awareness of the use***

***of the Kentucky specialty crop had increased by 20% from the level before distribution of the cards.***

- Recipe cards for each of the twelve new recipes were distributed to all counties (250 per county) in the state of Kentucky. As well, reprints of five popular recipe cards were distributed to all FCS Extension agents (250 per county) – Blueberry Pound Cake, Cucumber Corn and Bean Salsa, Easy Peach Cobbler, Pumpkin Apple Muffins, and Watermelon Tomato Salad. Additional recipe cards were also distributed at specialty activities on the University of Kentucky campus, including the weekly UK Farmers Market, and throughout the state of Kentucky.
- FCS Extension agents and dietetics and human nutrition students showcased the *Plate It Up! Kentucky Proud* project at the Incredible Food Show in Lexington, Kentucky in October 2015. Approximately 5,000 Pumpkin Apple Muffins were distributed in addition to recipe cards, bookmarks, and logo ice packs.
- FCS Extension agents showcased the *Plate It Up! Kentucky Proud* project at the Kentucky State Fair in August, 2016. Agents demonstrated preparation of select PIUKP recipes to thousands of fair visitors while providing education on the selection and nutritional value of Kentucky-grown specialty crops. As well, samples of the Big Blue Muffin recipe were provided as part of the state Commodity Breakfast to open the State Fair. Recipe cards and other promotional items were also distributed at the breakfast.
- Study personnel have worked with FCS Extension associates in Fall 2015 and Summer 2016 to survey farmers market patrons at three separate markets on their knowledge, awareness, and use of Kentucky specialty crops. In addition, over 200 consumers were surveyed as part of the London Cooking School in November, 2014.
- The consumer website has been updated and modernized with all PIUKP recipes. The website –<http://plateitup.ca.uky.edu> - is in addition to the Kentucky Proud recipe database already available through the Kentucky Department of Agriculture.
- Study personnel have worked with FCS Extension associates to survey farmers market patrons on their knowledge, awareness, and use of Kentucky specialty crops.
- The following peer-reviewed abstracts were presented on the *Plate It Up! Kentucky Proud* project at professional conferences. These conferences include the Society for Nutrition Education & Behavior Annual Meeting in San Diego, CA in August, 2016 and the Academy of Nutrition and Dietetics Annual Meeting in Boston, MA in October, 2016.
  - Humphrey A, Dickens, E, Brewer D, Gaetke L, and Stephenson T. *Plate It Up! Kentucky Proud* Recipe Sampling at Senior Centers: Promoting knowledge of locally grown fruits and vegetables. 2016 Society for Nutrition Education and Behavior Annual Meeting, San Diego, CA, USA
  - Dickens E, Humphrey A, Stephenson T, Gaetke L, and Brewer D. Color Your Plate: A pilot nutrition education intervention to increase fruit and vegetable intake among seniors participating in congregate meal site program in Kentucky Senior Centers. 2016 Academy of Nutrition & Dietetics FNCE Annual Meeting, Boston, MA, USA

- The following peer-reviewed article related to the project has been accepted for publication.
  - Brewer D, Dickens, E, Humphrey A, **Stephenson T**. Increased Fruit and Vegetable Intake Among Older Adults Participating in Kentucky's Congregate Meal Site Program. *Journal of Educational Gerontology*, Accepted July 2016.
- Data has been collected from FCS Extension agents through the UK CES impact reporting system (results below).
- In conjunction with the data collection described above, students and agents surveyed farmers market and/or supermarket consumers to determine if 10% of the consumers purchased the Kentucky specialty crop after receiving the recipe card and viewing the demonstration (results below).

## 2015-2016 FCS Extension Agent Priority Indicator Report

<b>Goal 4. Nutrition and Health</b> Encourage the adoption of healthy lifestyles through a focus on proper nutrition, disease and injury reduction, and comprehensive health maintenance		
Based on the total number of families/caregivers reached with information on accessing healthy foods, please provide information for the following:		
39)	146,881	Number of those who gained knowledge about eating healthy foods
40)	61,612	Number that reported eating more of healthy foods
41)	24,148	Number that reported supplementing their diets with healthy foods that they produce/grow (utilizing community/backyard gardens, fishing, hunting, etc.)
42)	67,243	Number that reported utilizing delivery systems/access points (e.g., farmer's markets, CSA's, WIC, Food Pantry) that offer healthy foods
43)	36,993	Number of individuals adopting one or more recommended practices to increase access to food or make it more affordable
44)	183,806	Total number of children and youth reached through Extension programming related to eating healthy foods
Of the total number of children and youth reached, please provide the following:		
45)	148,336	Number of those gaining knowledge about eating more healthy foods
46)	67,615	Number of those who reported eating more healthy foods
47)	218,121	Total number of individuals reached through Extension programming related to health and safety
Of the total number of individuals reached, please provide the following:		
48)	110,483	Number of individuals who experienced an increase in knowledge, opinions, skills, or aspirations regarding lifestyle changes (diet, exercise, etc.) that improve personal health
49)	40,372	Number of individuals who made lifestyle changes (diet, exercise, etc.) for the purpose of improving their health

## 2015-2016 FCS Extension Agent Success Stories

### BARREN COUNTY CES

TITLE: Totally Tomato: Garden to Plate

#### SUCCESS STORY:

Tomatoes are the most popular vegetable plant grown in the home garden. The Barren County Extension Agents receive numerous questions concerning tomato production every year from garden to plate. By growing fruits and vegetables at home, citizens are more likely to increase their consumption of fresh fruits and vegetables which increases nutrition and health in families.

The Extension Agent for Horticulture and the Extension Agent for Family and Consumer Sciences took a pro-active approach to offer a comprehensive program entitled Totally Tomato. Information in the class covered growing practices such as soil testing, planting advice, plant maintenance tips such as mulching, watering, fertilizing, disease and insect

control as well as staking and pruning methods. The second part of the class featured tomato nutrition, preparation, storage, food preservation, and demonstrated Plate-it up Kentucky Proud recipes with samples for class attendees to taste. Participants took home new knowledge as well as extensive resources and literature, various recipes, and promotional items to assist them in the upcoming tomato season.

A room full of 37 participants attended including 24 percent being identified as first-time Extension users. The audience included gardeners from beginner to advanced, commercial producers, Extension homemakers, and the general public. A written survey was completed by participants revealing 94 percent gained new knowledge and skills as a result of the educational program. 94 percent also planned to implement new practices regarding growing and cooking techniques. A three-month follow-up survey showed participants averaged 9 tomato plants per household. Positive comments were mentioned by all and one participant noted, "I have the best looking tomatoes that I have ever had. Just need them to turn RED !!!!!!!!!!"

## BULLITT COUNTY CES

### SUCCESS STORY:

According to the 2011-2013 Kentucky Healthfacts, nearly 89% of Bullitt County adults fail to meet the daily recommendations of fruit and vegetable servings.

The Kentucky Supplemental Nutrition Assistance Program (SNAP) publishes a food calendar annually which promotes meal planning as well as encourages increasing the consumption of fruits and vegetables. The Bullitt County Family & Consumer Sciences Agent offered a food demonstration program in coordination with the distribution of the 2016 calendar. Foods were prepared for attendees to taste 5 of the recipes with the agent demonstrating one that were published in the calendar. Twenty-six individuals attended the event with 77% returning a follow-up survey 4 months later.

In the survey, individuals reported that as a result of the recipe tasting:  
41% purchased and prepared the Apple Carrot Bake recipe  
62% purchased the ingredients and prepared the Kale & Cranberry Salad  
76% purchased the ingredients and prepared the Sizzling Chicken & Rice recipe

With participants learning the techniques on how to prepare the recipes, 48% of individuals reported increasing their consumption of fruits and vegetables while using the recipes from the calendar.

## CALDWELL COUNTY CES

### SUCCESS STORY:

The Center for Disease Control reports that 33.2% of Kentucky residents are obese, 46.2% consume fruit less than 1 time per day and 24.9% consume vegetables less than 1 time per day. Kentucky adults rank among the ten highest for poor consumption of fruits and vegetables. The most recent Kentucky County Healthcare Profile report concluded that 34.8% of Caldwell County residents are obese. It is evident that lifestyle changes such as eating healthier diets are needed. Locally grown produce can provide an important access point for fresh fruits and vegetables needed for a healthy diet.

In an effort to encourage Caldwell County residents to eat more fruits and vegetables, the Family & Consumer Sciences Agent collaborated with the Farmers Market vendors to provide consumers with free samples of recipes from Plate It Up Kentucky Proud during four weeks of the market. The Family & Consumer Sciences Agent provided a variety of healthy recipes and nutritional information for consumers and answered numerous questions concerning maintaining a healthy diet. Recipes sampled included Cucumber, Corn, and Bean Salsa, Easy Cheesy Eggplant, Pumpkin Apple Muffins, and Very Berry Salsa. Additional recipes provided included Apple Cranberry Waldorf Salad, Asian Asparagus Salad, New Potato and Asparagus Soup, Tomato Basil Bruschetta, Very Berry Salsa, Eggplant Lasagna, and Ratatouille Soup. 230 consumers sampled the various recipes and received the recipes and/or nutritional information. 89% indicated that they liked at least one of the recipes and had plans to try the recipe at home. After sampling the Cucumber, Corn, and Bean Salsa, one participant said, "I have a meeting this weekend and I just found what I'm making."

#### CAMPBELL COUNTY CES

TITLE: Accessing Nutritious Foods in Campbell County

#### SUCCESS STORY:

According to the Plate It Up Kentucky Proud Logic Model, "Kentucky adult obesity ranks among the 10 highest in the U.S. and the 10 highest for poor consumption of fruits and vegetables." Kentucky Health Facts.org states that the percentage of adults in Campbell County who are overweight is 65% (KY is 67%) and the adult obesity percentage is 31 (KY is 32%). Getting nutrient dense foods into the diet is key in helping individuals and families combat health issues that can be the result of being overweight or obese. Accessing nutritious foods can be a struggle across the socio-economic board due to a number of causes. Such causes could include: education level about foods/nutrition, accessibility to foods, affordability, preconceived notions about healthy foods, availability of foods, and time constraints in the individual/family meal preparation. The logic model also describes how "Family and Consumer Sciences (FCS) nutrition education classes/programs not only help families gain access to food and stretch the food dollars, help communities to decrease hunger but are also pivotal in training consumers to maximize local access to food products from farm to table." The Campbell County Cooperative Extension Service's FCS nutrition education classes/programs demonstrated and distributed recipes from the Plate It Up Kentucky Proud and Supplemental Nutrition Education Program to 182 participants through classroom settings, 600 participants through community events and to a potential 12,600 participants through T.V. audience. Recipes using vegetables and fruits were demonstrated and tastings were conducted emphasizing utilizing the farmer's markets and buying locally to all classroom participants. Soups, smoothies and one dish meals were among the many topics demonstrated to focus on how participants can get in more nutrient dense foods in creative ways. Of the 182 classroom participants, 100% stated that the recipes' demonstrations contributed to their plans to try the recipes at home. Sixty-seven percent of the 182 participants made a Mix It Up... 1,2,3 Healthy Food Mix to take home and use in their recipes when meal planning. Fifty-two individuals/families took it to the next level of incorporating the recipes into their meal planning.

## CAMPBELL COUNTY CES Final Results for Mommy & Me...in the

### SUCCESS STORY:

The Search Institute ([www.search-institute.org/familyassets](http://www.search-institute.org/familyassets)) has identified key qualities or assets that help families strong. The more assets a family has, the better the individuals in the family are in life. Such assets are spending time together, sharing activities, positive communication, eating family meals, problem solving, managing daily commitments, and utilizing supportive resources such as the Extension Service. As a part of helping families identify create positive family assets, the Campbell County Cooperative Extension Service conducted an eight-month program titled "Mommy & Me...in the Garden and Kitchen Program" during 2015. The program graduated 13 children ages 6 to 8 and 15 mothers/fathers/grandparents. The program focused on spending quality time together learning as a family, necessary skills that the children can take into adulthood such as gardening and cooking skills at home with their parents, trying new foods and making healthier food choices by duplicating the Plate It Up, Kentucky Proud and Supplemental Nutrition Education recipes at home. Champion Food, Mix It Up 1,2,3, Super Star Chef and Super Baking curricula/publications were utilized.

A huge component of the program is teaching the families how to start gardens at home using containers, raised beds or through conventional type gardening practices. This part of the program was taught by the Horticulture Program. A four-month evaluation revealed that 100% of the 14 families' children were trying new foods as a result of attending the program. Eighty percent of the kids demonstrated how to plant vegetables such as tomatoes, lettuce (kale) and

broccoli. Mid program evaluation indicates that 57% of families were gardening at home. By the end of the program, had expanded gardens, added raised bed gardens and all had gardens by the end of the program.

Sixty-four percent of the children practiced food safety and applied math skills with their parents as they used tools the kitchen (knife and measuring) correctly. All of the children and their parents stated that they now try the foods that were prepared in the program as well as other new foods. End of program results revealed that the families built on their family assets with eighty-five percent of the families reporting eating healthier by increasing their variety of foods eaten. Ninety-two percent now try new foods due to the program and one hundred percent of the families practice their cooking skills together by using the recipes from Mommy & Me. One family testified that the program was excellent because it is presented in an age appropriate manner with the presenters as well as the participants'

## CHRISTIAN COUNTY CES

### SUCCESS STORY:

The obesity epidemic threatens the quality and years of life of Kentuckians. The obesity rate in Kentucky increased 90 percent over the last 15 years. Increased consumption of unhealthy food is one of the factors. Families need healthy advice about ways to prepare fruits and vegetables. To meet this need, the staff at the University of Kentucky Cooperative Extension Service in Christian County developed a farmer's market buyers guide to market Extension, provide healthy eating tips, and to feature "Plate It Up!" recipes. Plate It Up! is a joint program between the Cooperative Extension Service, Human Environmental Sciences and the Kentucky Department of Agriculture.

The program promotes locally grown commodities and encourages consumers to buy locally. It also has the goal of creating a better, healthier lifestyle and reducing obesity. Agents and assistants prepare Plate It Up! recipes weekly and distribute samples as well as healthy eating information at the Downtown Hopkinsville Farmers Market. In the 2015 market season, over 1,000 buyer's guides were distributed to market patrons, the housing authority, the county fair, health fairs, civic groups, the women's shelter and the senior citizens center. More than 950 people visited the Extension booth and tasted fresh produce cooked using the Kentucky Proud "Plate It Up!" recipes, including 267 African American (28%), 41 Hispanic (4%) and 31 Asian (3%). Additionally, the market's Facebook page promotes the and weekly tasting event to over 1,400 followers.

#### CLAY COUNTY CES

##### Plate It Up Cooking School

#### SUCCESS STORY:

Due to the low health rating for Clay County families and the high percentage of our adults (43%) that are considered overweight and 18% of our adults with diabetes, the Family & Consumer Science Agent presented three Plate It Up Cooking Schools using three recipes per session. 58 attendees came to three sessions. These sessions were advertised on face book, web page, newspaper ad, radio and newsletter. The Grow Appalachia group must attend one session every year to meet their grant guidelines. Plate It Up recipes promotes growing and purchasing local foods and the increase consumption of fruits and vegetables.

Formal evaluation at the end of three sessions (one year) showed:

- 74% increased consumption of fruits and vegetables
- 100% increased knowledge of food preparation skills and food safety
- 86% will purchase or grow vegetables or fruit to sell at farmers market or for their own consumption
- 86% said the test taste contributed to purchasing or growing fruits and vegetables
- 86% said the recipe card helped in their decision to purchase and to try recipes at home
- 70% said recipe card helped evaluate their nutritional needs

Comments: "I would have never made this just reading the recipe, it is so good." "I have learned a lot and enjoyed this tremendously." "I have tasted food I would have never prepared if not for this program." "I have shared this recipe with several people and have taken it to several parties."

#### GALLATIN COUNTY CES

#### SUCCESS STORY:

The majority of Americans fail to consume the recommended five to nine servings of fruits and vegetables per day for optimal health. According to the CDC State Indicator Report, only 14% of adults in the United States eat two or more servings of fruits and

vegetables per day.

To encourage Gallatin Countians to eat more fruits and vegetables the Gallatin County Extension hosted the KY Proud Plate it Up Challenge in August 2015 with several other northern Kentucky counties. The KY Proud Plate It Up Challenge challenged participants to eat more fruits and vegetables and record the fruit and vegetable intake of locally or Kentucky proud products for seven consecutive days during the month of August. Locally sourced items included fruits and vegetables bought from local roadside vegetable stands, farmers markets, items labeled with the Kentucky Proud logo and produce grown in home gardens.

To promote the Plate it Up challenge several programs were presented using the Plate it Up recipes. Lessons include Plate it Up night for the County Extension Council, Cooking from the Garden, and lessons at the Gallatin County Senior Center. An additional proponent to the challenge required participants to prepare a Plate it Up Kentucky Proud recipe. Recipes could be found at the Gallatin County Extension Office on the county website or social media pages.

Evaluations indicated that many participants prepared more than one Plate it Up Recipe during the seven consecutive days. Evaluations indicated the Plate it Up Kentucky Proud Challenge was a success and Gallatin Countians consumed more fruits and vegetables. 100% of participants indicated they became more aware of KY food products. 95% of participants also indicated that they are more aware of the amount of fruits and vegetables they eat on a daily basis. 90% will continue to look for more KY products in the future.

GARRARD COUNTY CES  
Farmer's Market-Plate it Up

#### SUCCESS STORY:

The local Garrard County Farmer's Market struggles every year for participants in the market as well as customers coming to buy. These past summer months to increase Extension presence at the market, the summer intern was task with setting up a booth each week and giving out Plate it up recipe cards, canning info and other related info. The intern also prepared and served Plate It Up recipes each week. One such recipe, Cucumber, Corn and Bean Salsa was particularly popular with customers and members alike. Recipes were picked and planned by FCS agent to be specific to available vegetables at the market and reasonable recipe ingredients for our market. After the taste testing at the weekly market--2 weeks later, one participant in the market who had purchased food stuffs that day and by accident was there to taste the Salsa--approached this agent to compliment the intern and also remark how her family loved the recipe; she liked being able to use fresh corn the previous week making the salsa; had made the salsa 6 times to share at work which replaced some sugary snacks typically eaten at her work station; one co-worker had taken the shared recipe and made it 5 times for her family and a church activity; all involved asked for more recipes which she was in the office to gather.

This was an example of changing people's idea of what would be easy and also good tasting to make for family and friends along with being a healthier choice. The Plate it Up Recipes have been shared and demonstrated for several years, but this recent

result indicates the importance of continuing to help people realize healthier foods using fresh vegetables. As a result of this one taste testing activity at the market an estimated 55 people were directly or indirectly benefitted with a new way of preparing a healthy food choice.

#### KNOX COUNTY CES

##### Plate It Up! Kentucky Proud Recipe Sampling at Farmers' Market

#### SUCCESS STORY:

Fresh local produce was not easily accessible for many Knox County residents before the implementation of the Knox County Farmers' Market in 2014. However, with the opening of the Farmers' Market, fresh, local produce is now more readily available for the residents of Knox County. The Knox County Cooperative Extension Service Family and Consumer Sciences Program worked with the Knox County Farmers' Market to setup a booth at the farmers' market to offer Plate It Up! Kentucky Proud recipe samples to market patrons. Many taste-testers commented that without these samples they were not inclined to try certain varieties of produce, but because of these samples, the farmers' market patrons were more motivated to try new varieties of produce. Other remarks included: "I can't wait to have my mom make this for dinner!" and "My family loved last week's recipe so much we've ate it 3 times this month."

#### MCLEAN COUNTY CES

##### TITLE: Building a Healthier Plate

#### SUCCESS STORY:

The need to promote Kentucky's agriculture and purchasing locally produced commodities has become important part of University of Kentucky Cooperative Extensions Service mission. A reason promoting purchasing local food is important to the residents of McLean County is the lack of availability of purchasing fresh fruits and vegetables. In McLean County 47.3% of residents are working full time, however still lives below the poverty (American Community Survey). With only three grocery stores in the county it can be difficult to purchase fresh fruits and vegetables. By purchasing local foods at a low cost McLean County residents can put money back into the county while saving money and improving their health. The Plate It Up KY Proud program and recipes objective is to increase consumer purchase, preparation, and preservation of Kentucky grown and value-added commodities through marketing and educational collaborations. As well as to increase the consumption of fruit and vegetables and encourage healthy lifestyle choices for families and individuals. To promote the program Family and Consumer Science Extension Agents in Daviess, Henderson, Ohio, McLean, Union, and Webster Counties teamed up to host Plate it Up KY Proud displays and tastings at area annual events. During the annual Ag Expo participants tasted new recipes as well as ones they had previously tasted in their individual counties at other Extension events. After sampling each recipes participants reported they would make the recipes at home. 94% of those surveyed stated that preparing these recipes at home would increase their consumption of fruits and vegetables. Several testimonials were given by repeat event attendees stating the recipes sampled during previous years are often prepared at home. One client stated "We tasted the Bacon and Tomato dip last year and we prepare this recipe at home all the time...it's a family favorite!" McLean County Family and Consumer Sciences Agent will continue to

promote Plate It Up recipes as well as shopping local to encourage healthier cooking and eating. With 15.6% (20.0%-12.0) of McLean County residents reporting being diagnosed with diabetes and 40.9% (54.9%-28.2) reporting high blood pressure, eating healthier will only improve their overall health (American Community Survey). Additionally, lowering others risk for developing chronic disease and other health related issues. Source: 2013 American Community Survey 5-year estimates, U.S. Census Bureau

#### MENIFEE COUNTY CES

TITLE: Plate It Up at Senior Commodity Day

#### SUCCESS STORY:

Senior citizens often have to live on a limited income. As a result of lack of income, older adults may have a poor diet. 19% of the Menifee County population is 65 and over. A large majority of the senior population in the county attend Senior Commodity Day, a food pantry provided by Gateway Action that supplies qualifying senior citizens' groceries once a per month. As a way to reach out to this population, the Family and Consumers Sciences Agent attended Senior Commodity Day in June 2016. The Agent set up an information table for seniors to visit when they came to pick up their commodities. Each participant learned about KY Plate It Up Recipes and got to sample recipes featuring Kentucky apples and pumpkin. 57% of seniors claimed they would be more likely to buy Kentucky fruits and vegetables as a results of sampling the recipes. 100% of seniors reported they would try to increase their consumption by 1 to 2 servings per day by eating Kentucky fruits and vegetables. Participants also learned about the Menifee County Cooperative Extension Service and filled out a survey where they expressed interest in attending Extension programs. Over 50% of seniors claimed they would like to participate in a diabetes support group, cooking classes, and a community garden.

#### OHIO COUNTY CES

TITLE: Healthy Habits Take Root

#### SUCCESS STORY:

In addition to assisting with school gardens, Ohio County Cooperative Extension organized a farm to school program at Beaver Dam Elementary. Program included food tastings, agriculture lessons, and nutrition education with cooking demonstrations. All these activities contributed to an integrated approach to learning centered on where food comes from with an emphasis on buying local and the importance of eating more fruits and veggies. Testimonies from teachers and school officials indicated an increased knowledge of how to prepare various fruits and vegetables and an increased consumption of fruits and vegetables. "It increases the likelihood that they (students) will make healthier choices when they are encouraged to try new things" –school principal. Community partners included Beaver Dam Community Farmers' Market, Green River District Health Department and local farmers. The school year kicked off with a back to school bash where the local farmers' market was invited to participate.

Vendors set up outside the schools' community garden where seven families reported not knowing about our local farmers' market. Once a month food tastings were organized to increase fruit and veggie consumption, to increase access to healthy recipes and to increase awareness of the importance of eating a variety of colors.

School news broadcasts were organized to coincide with the “color” of the month. “Snack like a Super Hero” and “Plate-It-Up” campaign resources were utilized and volunteers dressed as Superheroes and handed out “I tried it” stickers to encourage students to try new/ unfamiliar recipes. An average of 600 students were served monthly. Over 80% of the students tried each recipe except for the New Potato & Asparagus Soup. Students showed an increase of knowledge in correctly identifying eggplant (19% increase), Onion (41% increase), Celery (22% increase) and Asparagus (17% increase). 96% of students can correctly identify Squash, Potato, Tomato and Grapes. At the end of the year, more students could correctly classify fruit and vegetables in their color group. Each family represented at that Elementary school was given a recipe book of all the recipes sampled throughout the year.

## PENDLETON COUNTY CES

TITLE: Plate it Up Pendleton County

### SUCCESS STORY:

According to the Center for Disease Control, Kentucky adults rank among the 10 highest in poor consumption of fruits and vegetables. The lack of consumption of fruits and vegetables directly affects the health of adults and families in the state of Kentucky. The Pendleton County Cooperative Extension Service has utilized the Plate it Up KY Proud recipes and material to educate families and provide samplings and lessons on those healthy recipes to the Pendleton County citizens in various events and formats within the community. The Pendleton County Agent for Family and Consumer Sciences (FCS) partner with the Agricultural and Natural Resource (ANR) Agent, local school system, Farmers Market, local newspaper and local grocery store to provide monthly samplings of one locally grown fruit or vegetable recipe each month. The media press release and recipe reached over 2000 resident’s monthly and over 600 students and 300 customers a local grocery store or Farmer’s Market sampled those recipes each month. Data from those samplings revealed many individuals had never tried the featured fruit or vegetable in the past and many took the recipe cards and said they would make recipe again in the future.

The FCS and ANR Agent also partnered to hold a once a month “What’s for Dinner” program that featured at least one Plate it Up recipe along several other recipes that featured a locally grown fruit or vegetable.

After the competition of eight lessons a follow-up evaluation revealed:

- 84 % felt their ability to select and store fresh fruits and vegetables has increased
- 95% felt their ability to read and follow a recipe has improved
- 89 % have tried new some unusual foods with in the class as well as outside of class

By attending the class:

- 60% have increased their fruit and vegetable consumption
- 72 % have increase the variety of fruits and vegetables they are eating
- 73 % are cooking more at home for their family and
- 88 % have learned to use additional unfamiliar cooking methods such as electric pressure cooking, roasting and the use of an induction burner

- 55 % of participants plan on planting and raising some of the products featured at our sessions

Currently the Pendleton County Extension Service plans on continuing the samplings for upcoming year and will continue to offer the “What’s for Dinner” program once a month as requested by the 27 participants that have faithfully attended every session.

## RUSSELL COUNTY CES

TITLE: Plate It Up! KY Proud

### SUCCESS STORY:

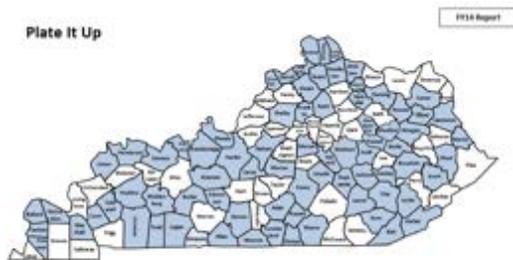
Only 18.2% of Kentuckians eat the minimum daily requirements of fruits and vegetables (CDC, 2013). Since almost everyone needs to eat more fruits and vegetables the Plate it up! KY Proud (PIU! KY Proud) curriculum was developed by the University of Kentucky Cooperative Extension Service to increase fruit and vegetable purchase, preparation, consumption and preservation of Kentucky grown and value-added commodities through marketing and educational collaborations.

Serving on the state Plate It Up! KY Proud committee requires members to submit, review, evaluate recipes; write demonstration and media guides; test and retest recipes (sometimes many times) to ensure all guidelines are met. Another responsibility includes taste testing the recipes prepared by HES students. Russell County FCS Agent has written demonstration and media guides for ten recipes since the project began. A monthly televised cooking show “Plate It Up – Kentucky Proud” has been airing on Duo County Telecom for five years with a viewing audience of 7,500 in a three county viewing area. PIU! KY Proud has been used in a variety of ways. The 30 to 45-minute show airs each Sunday at 7:00 p.m. to Duo County Telecom subscribers.

Selected segments of recipe demonstrations have been uploaded to YouTube and on the University of Kentucky Plate it up! KY Proud website. The YouTube videos are used as a reference for agents and assistants in Kentucky to view prior to making the recipe. The PIU! KY Proud curriculum has been used extensively across Kentucky at local farmers’ markets for the past five years. The show requires much planning, preparation and time to record, edit and produce. Eleven segments of the televised program have been uploaded to YouTube and the internal PIU-KY Proud webpage to serve as reference videos for Family and Consumer Sciences Agents in Kentucky. Comments from customers who were surveyed at the Russell County Farmers’ Market include the following: “I watch the show all the time!” and “I always make the recipes at home after trying samples at the market”.

**GOAL:** *Stimulate consumer spending for Kentucky specialty crops by demonstrating the project recipes in a minimum of 75 counties at Extension events, farmer’s markets, and grocery stores. Student will survey a representative sample of participants to determine if 10% of the consumers purchased the Kentucky specialty crop after receiving the recipe card and viewing the demonstration.*

- Data was collected from FCS Extension agents through the UK CES impact reporting system. A total of 78 counties reported demonstrating the PIUKP project through a variety of events, farmers market activities, and grocery store demonstrations.



The Plate It Up-Featured Program provides a unique way to experience Kentucky’s freshest locally grown produce through easy, healthy and affordable ideas for serving delicious meals. Demonstration scripts provide information to families on nutrition, selection, preparation and preservation for Kentucky commodities featured in the recipes. Moreover, the intent of that program is to help combat obesity by targeting increased fruit and vegetable consumption. A total of 78 counties participated in 2014.

**Plate It Up**

12,322	Number of participants who indicated plans to increase their consumption of fruits after participating in the program
11,723	Number of participants who indicated plans to increase their consumption of vegetables after participating in the program
1,218	Number of participants who reported an increase in their consumption of fruits after participating in the program
1,223	Number of participants who reported an increase in their consumption of vegetables after participating in the program
3,596	Number of participants who reported consuming at least 4-6 servings of fruit per day after participating in the program
3,845	Number of participants who reported consuming at least 4-6 servings of vegetables per day after participating in the program

Surveying at Farmer’s Markets Summer 2016

Samples and recipe cards for the Cucumber, Corn, and Bean Salsa were provided at farmer’s markets during summer 2016. DHN students collected survey data from 67 adults trying samples of the recipe at the markets. Of those surveyed, 24% had previously tasted a sample of a PIUKP recipe before coming to the market. On average, taste testers rated their overall impression of the sample as a  $9.16 \pm 1.01$  on a 10-point Liker-scale with 10 being “Loved Flavor, Will Definitely Make at Home.” When asked if they would purchase the locally-grown ingredients that were a part of the recipe at the farmer’s market, 26% indicated they would for certain purchase and an additional 52% indicated they would likely purchase the commodity at the market that day as a result of the recipe sampling.

## University of Kentucky Farmers Market, Summer 2016

The Lexington Farmers Market at the University of Kentucky is a market that is held on Wednesdays during the summer months from 3pm-6pm and caters to students, staff, and faculty of the University of Kentucky. This market is smaller than the Saturday and Sunday markets, but there is still a variety of fresh, locally produced fruits, vegetables, meats and micro-processed food items. During Summer, 2016 the Cucumber, Corn and Bean Salsa recipe was sampled at the market. After tasting the recipe, participants were asked to fill out a survey regarding the recipe as well as provide an e-mail address for a follow-up survey. Twenty-six people filled out the survey. As is true with most follow-up surveys, the response rate for the follow-up survey was rather low (20%). On average, taste testers rated their overall impression of the sample as a  $9.40 \pm 1.08$  on a 10-point Liker-scale with 10 being "Loved Flavor, Will Definitely Make at Home." When asked if they would purchase the locally-grown ingredients that were a part of the recipe at the farmer's market, 23% indicated they would for certain purchase and an additional 62% indicated they would likely purchase the commodity at the market that day as a result of the recipe sampling.

**GOAL**      ***Research the effectiveness of the overall project by collecting, analyzing, and preparing reports using evaluation data collected for the grant period:***

***a. FCS Agent surveys. Using survey monkey technology agents will be surveyed on recipe card use, producer and consumer responses to recipe cards, and outcomes to educational programs as a result of project participation.***

***b. FCS Agent project reports. From July 1, 2015 to June 30, 2016 data will also be collected via the UK CES impact reporting system via specific featured program questions designed for agents to measure consumer behavior change as a result of using the recipe cards developed in this grant project.***

***c. Specialty Crop Producers. FCS Agents in five pilot counties per year will identify a representative sample of specialty crop producers selling at local farmers' markets. The producers will participate in a pre and post survey to gauge the difference in sales of product before and after distribution of the recipe cards.***

- Data from FCS agent survey and project reports is provided in the previous section. FCS Extension agents were surveyed through the UK CES impact reporting system and provided information on recipe card use, producer and consumer responses to recipe cards, and outcomes to educational programs as a result of project participation.
- In Summer 2015 and Summer 2016, producers were interviewed at farmer's markets by students and/or FCS Extension agents.
  - 100% of producers indicated they thought the *Plate It Up* project had a positive impact on the marketing of Kentucky grown specialty crops;
  - 100% of producers were interested in receiving recipe cards in the future;
  - 100% would be interested in having samples of the recipe provided with the recipe cards; and

- Producers uniformly requested recipe cards for the specific commodities they sell.
- As well, in terms of recipe cards impacting sales, producers indicated that on days that recipe samples were provided, sales of the commodity(ies) used in that recipe were significantly higher. However, producers felt they were unlikely to make and provide sample of the Plate It Up recipes because of time and space limitations.

## **Beneficiaries**

*Extension Professionals:* Extension agents in each of the 120 counties in Kentucky have used and benefited professionally from the materials provided in this project. The recipe cards, media scripts and demonstration guides have been shared extensively by Nutrition Education Program assistants, Family and Consumer Sciences agents, Agriculture agents and Horticulture agents as well as Master Gardeners and Master Food Volunteers. The materials lend themselves well to be adapted to face-to-face, social media, television, radio, and print outreach efforts to maximize their potential reach.

*Producers:* During this FY 2013 grant period, producers again indicated that recipe cards have a positive impact on generating interest in Kentucky grown fruits and vegetables and potentially sales. There continues to be more demand for recipe cards by producers than there is funding to print the cards. Producers also continue to request recipe cards for specific commodities, particularly lesser-known commodities and/or unique varieties. Producers support sampling of PIUKP recipe cards to generate interest in commodity purchase.

*Consumers:* Consumers have been impacted based upon the surveys and Extension agent feedback. Approximately two million recipe cards have been disseminated to consumers during the course of the PIUKP project. Based on the consistent feedback that at least 20% of the consumer survey respondents indicate that they bought the featured Kentucky commodity after receiving the recipe card it is therefore possible that at least 20% of the recipe cards disseminated could have generated revenue for local producers. FCS Extension agents reported that through their programming alone, 15,239 consumers indicated they are likely to buy Kentucky fruits or vegetable, 13,802 indicated that the recipe card contributed to their plans to try the recipe at home, and 11,188 indicated that the recipe cards influenced their decision to buy fruits and vegetables. At this time there is not a quantifiable metric to capture the economic benefit to the local food system of this project.

*Students:* DHN students have gained research and recipe development/adaptation experience in a real world setting through this service-learning project. Classroom evaluations indicate high satisfaction with the project. Students value the application of this project and report that they feel a high level of accountability with this project because their recipe modifications will actually be utilized throughout the state of Kentucky. Students value this learner-centered teaching approach and indicate that this is one of the most impactful projects of their undergraduate nutrition coursework. Secondary to recipe development, DHN students all report having a better knowledge and appreciation of Kentucky-grown commodities. Students feel more comfortable and confident in making fruit and vegetable recommendations. Prior to this project, many students had never heard of some of these local commodities, or did not know how the product could be used

in food preparation. Given the importance of fruits and vegetables in a healthy diet, student knowledge of locally-grown produce is essential

### **Lessoned Learned**

1. The demand for the recipe cards grows with each year of the project. The consumers and producers recognize the value of the cards and want more copies. The *Plate It Up! Kentucky Proud* brand is now much more recognized throughout the state and consumers are asking for recipes using specific commodities. During this grant period, a new printing company was utilized for the printing of recipe cards – Welch Printing offers high quality professional printing, but at a lower cost than our original printer, allowing us to print more cards. Needless to say, the FCS Extension agent and producer demand for cards remains high. Because of budgetary constraints of printing more cards, the Plate It Up committee has been creative in the use of social media and other forms of outreach to share the information and recipes.

2. The project successfully engages the three missions of a land-grant institution – research, teaching, and outreach. As such, the project has been recognized for excellence at the University, state, and national level. The PIUKP steering committee recognized the need to have a PIUKP administrative committee to guide strategic planning and goal setting for the project as it continues to grow. As such, the first PIUKP administrative committee was held in Summer, 2014 and the committee continues to meet bi-annually.

3. We continue to be challenged by the need to engage producers in the evaluation of the project. Producers are enthusiastic about the recipe cards and project but, due to their busy schedules, having time to answer survey questions can be a challenge. As such, we are working more strategically with partners and Extension Horticulture Agents to better engage producers in the evaluation component of the project.

4. Students are valuable assets to the project as undergraduate assistants receiving DHN 591: Special Topics in Dietetics & Human Nutrition credit for their support of the project. These students have already completed the Experimental Foods course and earn credit for assisting the professor and graduate students working on the project on a wide variety of activities including assisting with the recipe testing, representing PIUKP at campus and community events, and supporting research efforts. We will continue to provide course credit to selected undergraduate student assistants to support the variety of recipe development and marketing activities of the project. We have also expanded graduate student involvement in the project, encouraging students working on relevant projects to incorporate *Plate It Up* recipe cards, programming, and surveying into their thesis work.

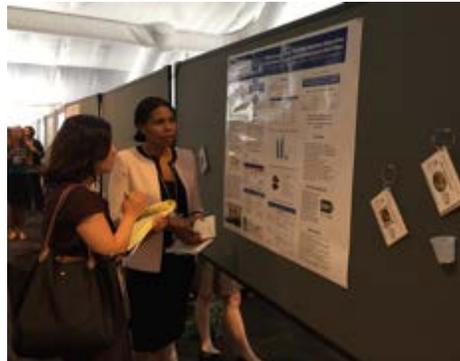
### **Contact Person**

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## ADDITIONAL INFORMATION

### Presentation of PIUKP at National Conferences

Alyson Humphrey, Graduate Assistant for the PIUKP project, presented research about the project at the Society for Nutrition Education and Behavior (SNEB) annual meeting in August, 2016 in San Diego, CA. The research project focused on older adults and promoting consumption of locally-grown fruits and vegetables through PIUKP recipe demonstration and sampling at Senior Centers.



### PIUKP Marketing – Online and Social Media Presence

Based on stakeholder input, the *Plate It Up* website has been completely updated. As well, a “Pin It” button has been added with each recipe for those who use Pinterest – <http://plateitup.ca.uky.edu>



The PIUKP project maintains an active presence through social media, including Facebook (1,520 current followers) and Twitter. Former PIUKP Steering Committee Chair Melinda McCulley coordinates the social media presence for the project.



Over the past year, PIUKP Facebook posts have generated the following insights:

- Total posts: 79
- These posts have been viewed 74,952 times by 40,188 unique users
- Since March 1, 2016, two times per month, posts are created by our horticulture agent representative in relation to growing fruits and vegetables at home. These posts continued through October 1, 2016 and will continue during the growing season in subsequent years.
- The remaining posts are relative to the recipes, either photos of prepared recipes, photos of the recipe cards, demonstration videos of recipe preparation or posts about the student component of the project.

### **National Recognition:**

The *Plate It Up* project was recognized by the National Extension Association of Family & Consumer Sciences with the 2015 “1<sup>st</sup> Place Southern Region in the Social Networking category.”



**Date:** June 2, 2015  
**Subject:** 2015 NEAFCS Award Notification

Dear Melinda:

Congratulations! Your application in the **Social Networking** category titled “Extending our Reach with Plate it up! Kentucky Proud” has been selected as a **1st Place Southern Region Winner** in the NEAFCS Annual Awards Program. If this was a Team award, please notify your Team members, and extend my congratulations to them as well.

Awards will be presented at the Annual Session at the Greenbrier Resort in White Sulphur Springs, WV. Regional awards will be presented at the regional business meetings on Wednesday, November 4, from 7:30 AM to 10:00 AM.

Please print a copy of this announcement for your file. NEAFCS requests that you not publicize your selection until after the official awards presentations are made in November. A press release will be provided on our website for your use after Annual Session. National awards will be displayed at Annual Session.

Your judging sheets will be available by September 1.

Again, congratulations on your award-winning application! I look forward to seeing you at the Greenbrier. Please contact me at [roxieb@uga.edu](mailto:roxieb@uga.edu) should you have any questions.

Very truly yours,

Roxie Price  
 NEAFCS Vice President for Awards & Recognition

### **PIUKP Campus Recipe Testing**

Taste testing panels of 8-10 were recruited by the UK Food Systems Innovation Center. Panelists included FCS Extension agents as well as external taste testers. Each taste tester was provided with an iPad to complete evaluations for each recipe. Data was collected through Qualtrics and utilized by FCS agents in determining recipes to be further tested at the community level.



### **PIUKP Marketing – Engagement Throughout Kentucky**

Summer, 2016

Campus Kitchen at the University of Kentucky (CKUK)



CKUK is housed in the Department of Dietetics and Human Nutrition at the University of Kentucky. As such, the PIUKP project collaborates with CKUK and encourages use of PIUKP recipes in meal preparation, particularly with produce gleaned from the UK Horticulture Farm. During the Summer, 2016, dietetics senior Kendra Oo was the recipient of a Summer Research Fellowship through the UK Office of Undergraduate

Research. Her project involved gleaning produce and then using that gleaned produce in educational programming to local children participating in a summer program. When possible, Kendra included PIUKP recipes (e.g. Pumpkin Apple Muffins) as part of the recipes that were prepared and then served to the children. Kendra has presented her project at the Campus Kitchens Boot Camp in August, 2016, has submitted an abstract for the Kentucky Posters at the Capital, and has an abstract that will be submitted for consideration to present at the Academy of Nutrition and Dietetics Annual Conference in 2017.

Summer 2016          University of Kentucky Farmers Market (UK E.S. Good Barn)



A PIUKP booth with recipe cards, recipe samples, and other educational materials was set up weekly at the Farmer's Market at the University of Kentucky. The recipes sampled included:

- June 8                      Blueberry Cream Cheese Pound Cake  
<https://fcs-hes.ca.uky.edu/recipe/blueberry-cream-cheese-pound-cake>
- June 15                    Zippy Zucchini Cakes  
<https://fcs-hes.ca.uky.edu/recipe/zippy-zucchini-cakes>
- June 22                    Big Blue Muffins  
<https://fcs-hes.ca.uky.edu/recipe/big-blue-muffins>
- Jun 29                      Sweet and Savory Cucumber Salad  
<https://fcs-hes.ca.uky.edu/recipe/sweet-and-savory-cucumber-salad>
- July 13                     Blackberry Lemon Upside Down Cake  
<https://fcs-hes.ca.uky.edu/recipe/blackberry-lemon-upside-down-cake>
- July 20                     Water Melon Tomato Salad  
<https://fcs-hes.ca.uky.edu/recipe/watermelon-tomato-salad>
- July 27                     Very Berry Salsa  
<https://fcs-hes.ca.uky.edu/recipe/very-berry-salsa>
- August 3                    Cucumber Corn and Bean Salsa  
<http://fcs-hes.ca.uky.edu/recipe/cucumber-corn-and-bean-salsa>
- August 10                 Broccoli Grape Pasta Salad  
<http://fcs-hes.ca.uky.edu/recipe/broccoli-grape-pasta-salad>
- October, 2015          Incredible Food Show in Lexington, KY



FCS Extension agents and DHN undergraduate and graduate students provided 5,000 samples of the Big Blue Muffin at the 2015 Incredible Food Show. As well, the table included PIUKP recipe cards and recipe bookmarks and other outreach marketing goodies supplied by the FCS Extension agents.

April-December 2015 “Color Your Plate” Senior Center Educational Project



UK Department of Dietetics & Human Nutrition graduate students and faculty advisors developed a “Color Your Plate” educational program to promote fruit and vegetable consumption of older adults. *Plate It Up* recipe samples and laminated recipe cards were provided at each of the six lessons conducted at Senior Centers in central Kentucky. Survey data collected as part of the project included questions about farmer’s market patronage, purchase of locally grown fruits and vegetables, familiarity about PIUKP, and opinions about recipes sampled as part of the project. Both graduate students working on this project, Alyson Humphrey and Emily Dickens, successfully defended their master’s thesis projects related to the Color Your Plate educational and outreach program.

August, 2016 Kentucky State Fair



FCS Extension Agents provided educational materials and cooking demonstrations at the 2016 Kentucky State Fair. As well, the Big Blue Muffin was prepared for sampling at the Commodity Breakfast and recipe cards distributed.

### Television and Online Cooking Videos

The monthly televised cooking show “Plate It Up – Kentucky Proud” continues to air on Duo County Telecom with a possible viewing audience of 7,500 in a three county viewing area. The show airs every Sunday at 7:00 p.m. The show requires much planning, preparation and time to record, edit and produce. Nine segments of the televised program have been uploaded to YouTube and the internal PIUKP webpage to serve as reference videos for Family and Consumer Sciences Agents in Kentucky. Some 2,000 persons have been served PIUKP prepared dishes by Plain and Simple Catering and The Porch (locally-owned restaurant).



Janet Johnson, Allen County (NCTV)



Additional Photos from State-Wide PIUKP Programming



Hardin County Farmers Market



McClellan County Farm to Fork



Oldham County Farmers Market



Pendleton County Farmers Market



Representatives Brett Guthrie and Michael Meredith tasting Glazed Cantaloupe Bread



## Ohio County Farmers Market Sampling of Summer Corn and Couscous Salad



### Final Financial Report

A detailed accounting for items purchased, salaries charged to the program, and all other expenses of the grant are provided in an attached Excel file.

<b>GRANT FUNDS RECEIVED</b>	<b>\$49,996.00</b>
<b>GRANT FUND EXPENDED</b>	<b>\$49,821.41</b>
<b>TOTAL REMAINING</b>	<b>\$174.59</b>
<b>LINE ITEMS</b>	
<b>SALARIES/ WAGES</b>	\$15,226.30
<b>BENEFITS</b>	\$2,821.32
<b>TRAVEL</b>	\$903.40
<b>SUPPLIES</b>	\$3,737.26
<b>OTHER</b>	\$22,603.96
<b>F&amp;A</b>	\$4,529.17
<b>TOTAL</b>	<b>\$49,821.41</b>

## **Project 2: The Kentucky Blueberry Growers Safe Handling and Value-Added Processing Project**

### **Project Summary**

The Kentucky Blueberry Growers Safe Handling and Value-Added Processing Project's initial purpose was and is to promote blueberries as a viable alternative crop within the state of Kentucky. A specific issue that this project has addressed is that the demand for KY Proud blueberries in the state exceeds the number of blueberries that are being produced and harvested. Similarly, the cost of appropriate standards in the processing industry such as sorting, washing, cooling and freezing equipment is a considerable amount for most small producers to afford, thereby limiting their access and opportunities for many markets.

Kentucky Blueberry Growers Association's motivation for this project lies in the ability to continue to improve the sustainability of the supply chain by improving food safety and quality by providing an industry standard sorting belt and booth washer to our members. This project was critical because there are Kentucky farmers whom are planting large numbers of new acres of blueberries. In the years of 2012 and 2013, Kentucky Blueberry Growers Association, along with Bluegrass Blueberries Nursery, sold and supplied roughly 65 new acres worth of blueberry bushes to Kentucky farmers and property owners. This project was able to provide Kentucky Blueberry Growers Association members a competitive benefit by supplying a high quality fruit commodity that is washed and ready-to-eat, particularly for marketing to Kentucky public school food systems. Additionally, the suitability of this project allowed for Kentucky Blueberry Growers Association to provide a washed and ready-to-eat frozen value-added commodity that helped increase the income potential of KY Proud blueberries past the fresh harvest season.

*The SCBG 2013: Kentucky Blueberry Growers Safe Handling and Value-Added Processing Project* complimented and enhanced our previously completed work from our *SCBG 2012: Kentucky Blueberry Growers Association Marketing, Storage and Education Project*. This project enhanced the previous 2012 grant by helping contribute to our success of marketing and storage equipment in our Kentucky Blueberry Growers Association warehouse. Through the streamlining of our processing plant, we are able to better utilize our storage equipment to its potential and at the same time, able to market quality commodity. With the equipment such as the walk-in cooler, walk-in freezer and our new blast-freezer, we were able to enhance our marketability of fruit outside the fresh-harvest season and able to reduce crop losses due to spoilage. *The SCBG 2013: Safe Handling and Value-Added Processing* project was able to provide the industry standards of equipment with addition to providing more opportunity for marketing aspects with regards to our developmental processes of value-added blueberry products.

Kentucky Blueberry Growers Association was able to enhance our previous work completed through the educational opportunities which were provided through the 2012 funds. Kentucky Blueberry Growers Association held blueberry production classes to help with the heightened interests from Kentucky farmers of planting blueberries. Our education sessions contributed value to the new acres of blueberries planted within the state of Kentucky.

## **Project Approach**

With the grant funds issued from this project, Kentucky Blueberry Growers Association was able to successfully purchase and install:

- Lakewood Long Conveyor Sorting Belt (Econo-Grade) 30" W x 14' L
- Lakewood Booth Washer (model #43001)

Through this opportunity of new equipment, Kentucky Blueberry Growers Association was able to safely process our member's berries to quality control standards and adhere to our warehouse processes set forth through our HACCP plan (Hazard Analysis and Critical Control Points). Through these means, we are able to follow to our standards to systematically prevent biological, chemical and physical hazards in our production line. Before Kentucky Blueberry Growers Association was able to follow these outlined safety measures, farmers would bring their commodity to our warehouse already sorted and packaged. By minimizing these risks of food safety, Kentucky Blueberry Growers Association was able to save our Kentucky farmers labor and processing expenses. Additionally, with the installation of our sorting belt and booth washer, Kentucky Blueberry Growers Association is able to significantly improve our food safety and quality control of both fresh and frozen blueberries through the ability of being able to wash our blueberries of any residues of production products in the field, such as pesticides and herbicides.

During the duration of this project, Kentucky Blueberry Growers Association was able to effectively obtain our organic certification of our warehouse through the Kentucky Department of Agriculture in 2015. The ability to receive this certification, Kentucky Blueberry Growers Association was able to broaden its market to the niche demand of KY Proud blueberries. The newly acquired equipment was adapted to allow for the processing of both certified organic and conventionally grown blueberries. Through the proper documentation of cleaning records, labeling and following our HACCP plans, this split processing warehouse is able to operate successfully. To include in the addition of our organic certification, Kentucky Blueberry Growers Association was able to market our blueberries at a higher premium price per pound than conventionally grown blueberries. Through this positive aspect, the KY Proud certified organic farmers whom use Kentucky Blueberry Growers Association as their market outlet, are able to receive a higher price per pound for their commodity.

Kentucky Blueberry Growers Association was able to use our motivation presented in our grant narrative to compliment the marketability of our fruit. Kentucky Blueberry Growers Association productively marketed to various outlets such as: Rainbow Blossom Natural Food Store, The Weekly Juicery, GreenBean Delivery, local KY Proud wineries and the Kentucky school food programs. The blueberries marketed through Kentucky Blueberry Growers Association reached following regional cities as: Louisville, KY, Lexington, KY, and locations in and around Edmonton, KY, Cincinnati, OH, Columbus, OH, Indianapolis, IN, St. Louis, MO and Nashville, TN.

With respect to the Kentucky food school programs, Kentucky Blueberry Growers Association was able to sell premium KY blueberries to the various school districts: Adair County, Allen County, Anderson County, Barren County, Casey County, Clarke County, Cumberland County, Davies County, Edmonson County, Estill County, Fayette County, Garrard County, Grayson County, Green County, Hardin County, Harrison County, Hart

County, Henderson County, Jefferson County, Madison County, McLean County, Mercer County, Metcalfe County, Montgomery County, Owsley County, Powell County, Pulaski County, Russell County, Simpson County, Taylor County, Trigg County, Warren county and Woodford County. It is Kentucky Blueberry Growers Association's privilege to be able to provide a healthy fruit such as blueberries for our Kentucky school food programs.

## **Goals and Outcomes Achieved**

The primary goal to the *SCBG 2013: The Kentucky Blueberry Growers Safe handling and Value-Added Processing Project* was to successfully process blueberries that are washed and ready-to-eat. This goal was achieved and the outcomes to reach these means were provided by the equipment Kentucky Blueberry Growers Association had received. The booth washer and the sorting conveyor belt were pieces of equipment that were essential to the streamlining of our standardization of processing. These units were able to expand Kentucky Blueberry Growers Association's value-added blueberry product by allowing us to have the quality standards of berries prior to being marketed. We had the capability of washing our blueberry fruit so that we may market direct to the school systems, following food safety ethics.

Kentucky Blueberry Growers Association was able to measure these outcomes of our goals through our inventory data obtained. The warehouse is able to have accurate record keeping by tracking each member by their farm number, the amount of blueberries that the member brings in compared to the amount of cull berries that are obtained. The records that recorded will be held on to for the required amount of time as outlined in the guidelines of the project. Not only will we be keeping data for those required years, but will continue to save all data that runs through the Kentucky Blueberry Association's warehouse for compare analysis down the road.

Not only was it Kentucky Blueberry Association's goal of processing washed, ready-to-eat blueberries, but we want to create local jobs as well. The processing and handling warehouse of Kentucky Blueberry Growers Association is centrally located in Edmonton, KY. Through our location, we are able to provide 12 new jobs during the harvest season. These jobs entailed 10 warehouse workers whom helped sort, pack and maintain the food safety standards set forth through our HACCP plan, and 2 delivery drivers whom delivered our commodity to various locations as listed above, under #3 Project Approach. With the continued work and development of our value-added blueberry products, Kentucky Blueberry Growers Association strives to create more long-term occupation opportunities for the Edmonton, KY area.

An additional goal set forth by Kentucky Blueberry Growers Association has been the development of our added-value blueberry products. With the opportunity to receive funds from various other grants such as the SCBG 2014, Kentucky State University small scale farm grant and the USDA Local Food Promotion Program, Kentucky Blueberry Growers Association has been able to purchase developmental equipment such as, but not limited to, a dehydrator, fluidized air-bed dryer, commercial kitchen equipment and deep freezers. With the addition of these units, Kentucky Blueberry Growers Association is working on a dehydrated blueberry product and fruit leathers.

The targeted goal outlined in the original narrative stating that Kentucky Blueberry Growers Association anticipated that in 2014 the warehouse should see an estimated 50,000 LBS of blueberries and an increased estimate of 80,000 LBS of blueberries for the 2015 season was not met. As described below in *Lessoned Learned*, Kentucky Blueberry Growers Association outlines our failed accomplishment of this targeted goal and we provide reasons and evidence to show where we suspect we fell short. It should be noted that Kentucky Blueberry Growers Association plans to reach out and engage our member farms with proactive measures against diseases and to continually help in the education process of cultivating blueberries in the state of Kentucky.

It will continue to be Kentucky Blueberry Growers Association's objective to be dedicated to helping Kentucky blueberry farmers successfully market their fruit commodity. Kentucky Blueberry Growers Association has greatly appreciated the opportunity to partner with the Kentucky Department of Agriculture and the United States Department of Agriculture on our past projects and current projects to date that provide enormous support for the Kentucky blueberry-farming sector.

## **Beneficiaries**

The primary beneficiaries of the *SCBG 2013: The Kentucky Blueberry Growers Safe Handling and Value-Added Processing Project* have been the Kentucky Blueberry Growers Association members. Through the opportunity of providing our blueberry farmers a distribution point with a sorting conveyor and booth washer, we have greatly improved our safe handling, quality control and marketability of their blueberries. Kentucky Blueberry Growers Association's motto is "Cooperation, not Competition", meaning that as a group of farmers, we work together to maintain fair crop prices for our farmers. The Kentucky Blueberry Growers Association is a certified KY Proud member and actively uses the KY Proud logo in marketing efforts. Presently, the association has over 200 members since 2002, and in the past couple years, the association has 50 new members within the state of KY.

The Kentucky Blueberry Growers Association has been working closely with the University of Kentucky's Food Systems Innovation Center (UK FSIC) regarding analysis on several of our value-added blueberry products, such as: dehydrated blueberries and various different flavors of blueberry fruit leathers. The UK FSIC has been doing lab testing on our various products to ensure we have proper mold and yeast data on file, nutritional analysis and shelf-life stability analysis.

The Kentucky Blueberry Growers Association has also be a recipient of this project by being able to provide a more professional warehouse for our member farmers. The warehouse, given its addition of being able to processes certified organic blueberries, has been able to market our member's fruit at a higher price, which we then pass on more economic value to our member's commodity.

## **Lessoned Learned**

It has been a privilege to be a recipient of the 2013 Specialty Crop Block Grant. The Kentucky Blueberry Growers Association has learned many lessons, incorporating both negative and positive results.

The Kentucky Blueberry Growers Association did not meet the anticipated goals of harvested blueberries making their way into our processing facility, as outlined in the targeted goal. Given our original narrative, which outlined the potential impact of planted blueberry acres and the stated anticipation of 50,000 LBS of marketable fruit in 2014 and an increase to 80,000 LBS of marketable fruit in 2015, there have been several factors that may have made a dramatic impact on the anticipated production of Kentucky blueberries. One contributing factor can be illustrated through disease farmers, and nurseries, have experienced. The significance of Phytophthora, also known as Root Rot, has been one of the major diseases that farmers are facing in our area. There are numerous documented cases of phytophthora throughout the state of Kentucky, with some of our larger-scale farmers testing positive for phytophthora with the University of Kentucky Agriculture Extension offices. This is a very serious disease that if gone untreated can kill established bushes within a single growing season. Due to this detrimental disease, Kentucky Blueberry Growers Association strongly feels that this has played a contributing factor on the projected amount of blueberries produced in Kentucky. With the assistance from the University of Kentucky, and the Kentucky Blueberry Growers Association, there have been several meetings and field days to address this fatal disease.

Weather in the Kentucky region has also played a substantial role in the loss of projected blueberries harvested. Given the risk of early frost in Kentucky, within the months of March and April, the possibility of blooms being affected is heightened. In early 2015, as well as this year in 2016, Kentucky suffered two severe late frosts, where temperatures dropped to the teens and single digits, casting damage to fruit buds. Kentucky Blueberry Growers Association has gathered a report from one of our large farmers a loss of 49% to their crop. Additionally, rain and hail have played a part in the weather factor. In the summer of 2015, Kentucky experienced record breaking rainfall which hinders the harvest season typically takes place from the beginning of June to mid-July. Many areas in our region reported receiving 8-20 inches above the normal amount of rainfall. With the extra amount of rainfall during the harvest season, this hinders the farmer to have their picking crews in the fields, as blueberries cannot be picked wet, leaving the farmer with overripe fruit that was unmarketable due to quality standards. This year in 2016, Kentucky Blueberry Growers Association received data that a large farmer lost 75% of their crop due to hail knocking off their berries on the bush.

Kentucky Blueberry Growers Association was acquired by a new owner in the spring of 2015. The new owners have implemented a marketing agreement contract, which is a standard in the industry. There have been some steps taken backwards from our member farms with the addition of this agreement. An aspect of the agreement includes farmers obtaining farm liability insurance. This was necessary for several of the markets that Kentucky Blueberry Growers Association has attained. The requirement of having this liability insurance is tangent to Kentucky Blueberry Growers Association implemented HACCP plans, especially our food recall procedures. Another condition that is outlined in the member contract agreement is that farmers must have a GAP (Good Agricultural Practices) training certificate valid with their farm. This standard is in place to insure that there are quality standards that the farmers are implementing in their farming and harvesting. Kentucky Blueberry Growers Association also requires that the berries brought into the warehouse for processing to be USDA quality. Lastly, Kentucky Blueberry Growers Association has outlined in the agreement contract that the association have the ability to have access to our farmer's input records on their farm and to affirm that the

farmers are adhering to the label directions of specific input products, whether it be pesticides, herbicides, fertilizers or any other growing products in their farming practices. For these listed reasons, we have seen farmers being reluctant to sign the contract. Kentucky Blueberry Growers Association believes that these farmers, whom have been hesitant to sign the member contract agreement, have marketed their fruit independently of the Kentucky Blueberry Growers Association, have taken their fruit to farmers markets or they have implemented a U-Pick program on their farm during harvest season.

Conversely, to highlight the positive results that have been pronounced through the Kentucky Blueberry Growers Association, we have been able to successfully install and operate the equipment that was requested in the original application and narrative. With the addition of the booth washer and the conveyor belt, the Kentucky Blueberry Growers Association has been able to standardize our warehouse for the processing of our member's blueberry commodity. With the streamlining of our equipment, we are able to more easily process the berries under our procedures outlined in our HAACP plans. The equipment units will significantly improve the safe handling of our fruit and the quality of both fresh and frozen blueberries.

In conclusion, despite these challenges that have faced the Kentucky Blueberry Growers Association and Kentucky blueberry farmers, blueberries as a cash crop in Kentucky are still promising. The University of Kentucky Cooperative Extension promotes blueberries as a crop for farmers looking for alternatives to crops like tobacco. Blueberry bushes are continuing to be sold from Kentucky nurseries, one being Bluegrass Nursery out of Bowling Green, KY. According to Bluegrass Nursery, estimations of acres planted from plant sales have been approximated at about 85 new acres. Understanding that blueberries take 5-7 years before maturity which at that point they may produce 10-15 pounds per plant, the newly planted acreage has a potential economic impact of drawing \$1.5 million for Kentucky blueberry farmers, being paid at \$3/pound.

Kentucky Blueberry Growers Association has continued its successful drive to sell blueberries to existing and new markets in, and around, the State of Kentucky. Our association maintains our confidence that as Kentucky grown blueberry acreage becomes more and more mature, and with the education provided not only by Kentucky Blueberry Growers Association but also the University of Kentucky Agriculture Cooperative, the benefits of this project will see our initial goals being met and exceeded.

Once again, it is Kentucky Blueberry Growers Association's honor to have the opportunity to work with the Kentucky Department of Agriculture and the United States Department of Agriculture on past projects, present projects and possibly any future projects. Projects and opportunities such as the *SCBG 2013: The Kentucky Blueberry Growers Safe Handling and Value-Added Processing Project* provide such great support for the Kentucky blueberry farming industry.

## **Contact Person**

Name the Contact Person for the Project:

Travis Byrne

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### **Additional Information**

- [www.KYBG.org](http://www.KYBG.org)
- See photos at end of report (#10).

## Final Financial Report

<b>GRANT FUNDS RECEIVED</b>	<b>\$ 47,140.00</b>
<b>GRANT FUND EXPENDED</b>	<b>\$47,140.00</b>
<b>TOTAL REMAINING</b>	<b>\$ 0.00</b>
<b>LINE ITEMS</b>	
<b>SALARIES/ WAGES</b>	<b>\$ 0.00</b>
<b>BENEFITS</b>	<b>\$ 0.00</b>
<b>TRAVEL</b>	<b>\$ 0.00</b>
<b>EQUIPMENT &amp; INSTALLATION &amp; ADAPTATION</b>	<b>\$ 47,140.00</b>
<b>SUPPLIES</b>	<b>\$ 0.00</b>
<b>CONTRACTUAL</b>	<b>\$ 0.00</b>
<b>OTHER</b>	<b>\$ 0.00</b>
<b>TOTAL</b>	<b>\$ 47,140.00</b>

<b>SCBG 2013</b>		<b>\$47,140.00</b>	
<b>Equipment / Material / Labor</b>	<b>Amount</b>	<b>Date Purchased</b>	<b>Vendor</b>
<b>Booth Washer Model#43001</b>	<b>\$25,100.00</b>	<b>03/31/2014</b>	<b>Lakewood Process Machinery</b>
<b>30" Sorting Conveyor Econo- Grade Line System</b>	<b>\$19,600.00</b>	<b>03/31/2014</b>	<b>Lakewood Process Machinery</b>
<b>Unload of Equipment</b>	<b>\$25.00</b>	<b>05/19/14</b>	<b>Edmonton Marathon Service Center</b>
<b>Electrical Installation</b>	<b>\$,1364.40</b>	<b>05/30/2014</b>	<b>Harris Electrical</b>
<b>Material for Equipment</b>	<b>\$121.90</b>	<b>06/02/2014</b>	<b>Sandusky Sales</b>
<b>Material for Equipment</b>	<b>\$211.19</b>	<b>06/02/2014</b>	<b>Tractor Supply Company</b>
<b>Fuel for Picking Up Material</b>	<b>\$19.99</b>	<b>06/02/2014</b>	<b>Five Star</b>
<b>Welding Supplies for Material</b>	<b>\$94.85</b>	<b>06/24/2014</b>	<b>Airgas USA, LLC</b>
<b>Labor on Installation</b>	<b>\$602.67</b>	<b>07/28/2014</b>	<b>Ted Martin</b>
<b>TOTAL</b>	<b>\$47,140.00</b>		

Photos: Kitchen & Warehouse



## **Project 3: Kentucky Farms, Kentucky Flavor (KYF2)**

### **Project Summary**

The growth of a local food economy is dependent on supply and demand. In recent years, many factors have enhanced the need and desire to create local sustainable food communities. According to "Tracking Demographics and U.S. Fruit and Vegetable Consumption Patterns," by Roberta Cook at University of California, Davis, key consumer trends that have affected food consumption in recent years include: growing demand for freshness and foods with higher flavor profiles, growth of public knowledge about how diet and health are linked, trend toward higher rates of obesity, growing consumer interest in where and how food is produced and the increased demand for locally grown produce. Because of these trends more farmers are looking to diversify their crop production to meet consumer demands. However such diversification can be met by challenges. Staple vegetables such as cabbage, celery, sweet corn, lettuce, onions, potatoes and tomatoes make up roughly three quarters of per capita consumption of fresh vegetables (University of Kentucky, Food & Agriculture: Consumer Trends and Opportunities IP-58C). Therefore, farmers must educate consumers about health benefits, nutritional content and preparation of new specialty crops that do not fall in the "staples" category. U.S. food consumers are also only eating half of the amount of recommended fruit by the USDA (University of Kentucky, Food & Agriculture: Consumer Trends and Opportunities IP-58D). Consumers prefer convenience and a mix of new fruits. While there has been an increase in berry consumption, "traditional" fruits such as pears and peaches have been stagnant or declining in recent years (Tracking Demographics and U.S. Fruit and Vegetable Consumption Patterns, Cook). With challenges comes opportunity, consumers are more willing now than ever before to experiment with new products and have the desire to support local food economies. Kentucky Farms, Kentucky Flavor would help enrich the connection of the producer and consumer in the area of specialty crops over a 24 month period. The objectives of the project would be: 1) to educate farmers about consumer trends and how the crops they grow can meet the needs of the consumer 2) increase profitability of local farmers through direct sales of their product 3) to educate consumers of the health benefits and availability of specialty crops in South Central Kentucky 4) provide recipes and demonstrations of how to utilize specialty crops 5) introduce specialty crops to youth 6) introduce local specialty crop farmers to consumers to boost the farm to table connection.

### **Project Approach**

These objectives were achieved by one on one work with local farmers about specialty crop food trends, marketing techniques, nutritional information and promotion of product. Each month a specialty crop was highlighted and an advertising campaign developed around that product. The campaign will introduced a local farmer that produces the specialty crop of the month, nutritional information, recipe demonstration, and where to purchase the product. This information was included in the following formats each month : 1) A full page article in SOKY happenings, a local magazine that reaches up to 30,000 dedicated readers 2) two five minute educational TV segments highlighting the product and a recipe demonstration featuring the product on the "Farm and Home Show" WBKO-13 with a viewership of 7000 and "Country Cottage" Insight Cable with a viewership of 5000 3) a five minute segment on "Ag Connections" featuring the farmers and product on

WKCT 930 ~2500 live listeners 3) a 5-8 minute TV segment on WBKO-13 Midday Live with a viewership of 7000.

The local farmer was featured in a 5-10 minute Meet Your Farmer video that focused on the specialty product and his/her farming operation. A website was created for the project that would include the Meet Your Farmer Videos, recipes, recipe demonstrations, production information, etc.

Another component of the campaign is to introduce specialty crops to youth. The lower consumption rates of fresh produce of younger consumers give emphasis to the importance of education about the benefits of fresh produce consumption starting from youth. Introduction of the specialty crop through sampling and the Meet your farmer video helped youth make the farm to table connection while exposing their palates to new fruits and vegetables. Targeted groups were, Warren County Head start program reaching 100 five year olds and an elementary grade at a local school reaching 100 youth. During the months school is not in session samples were given at farmer's markets while the Meet Your Farmer video played in the background. Project partners included, Warren County Agriculture Foundation, UK Cooperative Extension Service-Warren County with assistance from Simpson and Butler County Cooperative Extension Service, Warren County School System, Local Media Outlets and the Farmers included in the project.

## **Goals and Outcomes Achieved**

Each month, a specialty crop farmer or processor was highlighted in various media formats. The videos can be found on the Facebook page "Kentucky Farms, Kentucky Flavor," <https://www.facebook.com/kentuckyfarmskentuckyflavor> or the Kentucky Farms, Kentucky Flavor YouTube Channel <https://www.youtube.com/user/kyfarmskyflavor> or the KY Farms KY Flavor website <http://kentuckyfarmskentuckyflavor.org/>. In 2016, a facebook promotion was added to extend the life of the video and increase awareness of sales of the specialty crop farm.

Below is a list to date of farmers and crops highlighted with some results thus far:

In March 2014, Need More Acres was the farm highlighted for greens. The video received 8155 views on YouTube and Need More Acres received several inquiries from the video. From a formal evaluation, a sales increase of 30% was attributed to the KYF2 project.

April featured, The Garden Patch and Herbs. Thus far the video has received 355 views with the mini segments received 353 and 466 views. The result of the promotion was a 10% increase in sales. In 2016, a Facebook promotion was ran utilizing the video and recipe that reached 281.

May's featured, Boyce Gray, LLC and asparagus. The video has received 445 views and the mini received 119 views. The results of the promotion were a 15% increase in sales and a commercial account inquiry. The 2016 Facebook promotion had a reach of 3250 and 216 engagements. This promotion was able to create more awareness for the farm and draw new customers in to purchase.

June featured, Dancing Wind Berry Farms and blueberries. The video has received 180 views on YouTube. The SOKY Happenings article resulted in new pre-order customers. The 2016 promotion had a reach of 3409 and engagement of 275. After the promotion, the farms Facebook page received an increase of 24% in likes.

July featured, Jackson's Orchard and peaches. The video has received 269 views on YouTube. The 2016 promotion had reach of 40863 and engagement of 1243. This promotion was the most successful in reach and resulted in an increase of sales of 10%.

August featured Diamond C Farms and watermelons. The video has received 143 views on YouTube. The 2016 promotion had a reach of 12942 and engagement of 175. After the promotion, the farms' Facebook page received an increase of 15% in likes.

September featured Chaney's Dairy Barn and mums. The video has received 437 views on YouTube. The 2016 promotion had a reach of 11200 and engagement of 144.

October featured Just Piddlin Farm and winter squash. The video has received 124 views on YouTube. The farm was sold out of winter squash before the end of the season. The 2016 promotion had a reach of 14936 and engagement of 1607. After the promotion, the farm reported the largest attendance at farm events in their history. Direct sales could not be calculated due to the promotion but it was the only thing that was different about this season.

November featured Beechmont Farms and salad mixes. The video has received 275 views on YouTube and the mini received 64 views.

December featured several specialty crop growers who offered products that would be great local Christmas gifts. Summer Garden Memories, Zest! Juice for Life, Legacy Farms, Rose Creek Creations, and Reid's Orchard. The video has received 81 views on YouTube. Farmers noticed an increase in sales from 10% – sold completely out of the product!

February 2015, featured O'Daniel Farms and spinach. The video received 374 views. The farm noticed an increased awareness from consumers, an increase of 5+% in spinach sales, and increased new customers due to the promotion. The 2016 promotion had a reach of 1200 and engagement of 31.

March featured Mammoth Cave Transplants. The recipe video received 50 views. However the SOKY Happenings article and Facebook posts brought a lot of new customers to Mammoth Cave Transplants. They were sold out of vegetable transplants in the fall and spring season in record time. The 2016 promotion had a reach of 149 and engagement of 12.

April's feature is Clark Landing. The video has received 75 views. The farm saw an increase of new customers due to the SOKY Happenings article and Facebook posts. The grower saw so much of an increase to her business, she hired a social media consultant to help her for the rest of the season to market her product through social media. The 2016 promotion had a reach of 969 and engagement of 39. After the promotion, the businesses Facebook page had a 57% increase in likes.

May's feature was Macedonia Homestead. Their strawberry video received 317 views. The farmers involved in this project said that they definitely think the project helped them reach out to new customers and saw an increase in visits at the local farmer's market. They felt the educational aspect of the project was also beneficial to them and other farmers like them. The 2016 promotion had a reach of 1100 and engagement of 53.

June's feature was Berrylicious Orchard. The video received 86 views. The promotion on WBKO led to a 60 lb. blueberry order from a local hospital who was watching the promotion. Due to the project, their blueberry sales were ahead of schedule. Usually they have blueberries left to freeze at the end of the season, but this year their freezers are completely empty. The 2016 promotion had a reach of 7268 and engagement of 152. After the promotion, the businesses Facebook page had a 74% increase in likes.

July's feature was Crocker's Winery. Their video received 45 views. After the project, the winery saw a 20% increase in Facebook likes and an increased interest in their wine. It was hard to measure the increase in sales, due to the wine being distributed in several different marketing venues. The 2016 promotion had a reach of 8000 and engagement of 177. After the promotion, the businesses Facebook page had a 49% increase in likes.

August's feature was Great Berries Farm. Their video received 133 views. Their Facebook promotion reached almost 700 people and engaged 346 people. Evaluation data has not been tallied yet. The 2016 promotion had a reach of 6826 and engagement of 146. After the promotion, the businesses Facebook page had a 30% increase in likes.

October had a triple feature of Coleman Brothers Farm, Groce Greenhouses and Ruby Branch Farms.

Coleman's Brothers' video received 228 views. Their Facebook promotion reached 2900 people and engaged 431. The 2016 promotion had a reach of 6858 and engagement of 4083. After the promotion, the businesses Facebook page had a 19% increase in likes.

Groce Greenhouse and Produce video received 76 views. Their Facebook promotion reached 2600 and had engagement of 29. Groce Farms thought the promotion created awareness for their farm but was unsure about an exact number of sales increase.

Ruby Branch Farms' video received 403 views. Their 2015 Facebook promotion reached 4000 people and engaged 599 people. Evaluation data has not been tallied yet. The 2016 promotion had a reach of 19780 and engagement of 3357. After the promotion, the businesses Facebook page had a 300% increase in likes. The promotion helped create awareness of this new specialty crop business. In 2015, they sold out of their products early and increased production for 2016. The promotions helped increase sales 15-20%.

November had a double feature of ATP Greenhouses and Polson Figs.

ATP Greenhouses video received 122 views. The promotion helped increase sales by 10%.

Polson Figs video received 874 views. The promotion brought new customers to the farm including a chef that wanted a large quantity of figs for his restaurant. But it also created interest in raising figs in Kentucky. Many consumers and producers were unaware of the viability of the crop. The Polson Figs sold out and did not have to take any figs to market. They plan to increase their production in 2016.

December had a double feature of Bare Creek Farms and Crandall's Popcorn.

Bare Creek Farms video received 106 views. Their promotion had a reach of 65 and an engagement of 5. Bare Creek received many new customers due to the promotion, a 7% increase.

Crandall's Popcorn video received 234 views. His promotion had a reach of 582 and an engagement of 38. Crandell now sells his popcorn in 3 new locations due to the project.

All farmers and crops have been highlighted through the following media outlets:

WBKO-TV Farm and Home Show (3- 5 minute episodes) viewership 7000 per episode

WBKO-TV Midday Live (8 minute segment) viewership 7000 per episode

Time Warner Cable Country Cottage (8 minute segment) 5000 per episode

WKCT-930 AM- Ag Connections (5 minute segment) 2500 listeners per episode

SOKY Happenings Magazine-10,000 copies distributed

The in-kind media benefit for each farm was approximately \$1500 in free media. The goal was to increase sales for each farm by 20% and from the results gathered the project is on target.

1. & 2.) Facebook surveys were conducted and we found that consumers enjoyed the videos and learned about products and where to source them. Personal testimonies from consumers included:

"I'd never eaten a butternut squash, but now I love them."

"I had never tried a fig before, but now I'm going to grow some."

"The recipes each month gave me ideas to use these crops."

"I didn't realize we had a raspberry grower in Bowling Green. I'm going to pre-order some for next year."

"I love learning about local farmers in our area."

The biggest indication of success was that many times growers would sell out of the featured crop. Just Piddlin farms sold out of squash the first year, raised more the second year and sold out again. Berrylicious Orchard & Dancing Wind Berries Farm also sold out of blueberries earlier than normal and didn't freeze any to sell in the winter because they were sold fresh.

For the farmers that indicated a percent increase in sales, it averaged around 20%.

95% youth increased knowledge about the specialty crop and the farmer who raised it. An average of 47% of the kids had never tried the specialty crop and 71% liked the recipe.

3.) Consumer awareness of the specialty crop was increased. Evidence of that was in the 14,707 YouTube views and the 140,490 reached through Facebook.

## **Beneficiaries**

Each farm that participated in the project benefitted from the results of the project. Some increased knowledge in marketing, promotion and preparation of their product as well as others. Some saw a large increase in awareness and we had a range of increased sales from Do not know-30%. Consumers also reported they learned about specialty crops, where to buy them and how to prepare them.

## **Lessons Learned**

The project got a late start because of the cold winter of Jan-Feb 2014 that slowed the growth of crops in the high tunnels. We are currently having difficulty finding crops for January 2015 as well which will delay the finish of the project by a month or two. Another challenge is filming the video a month before to allow for editing. Many times the crop is not fully matured but needs to be filmed to get the video out for promotion the next month. Our talented team had to color-edit some unripened blueberries blue for video purposes!

For better sound quality on the videos, we had to purchase a high quality microphone to improve sound, especially the ones recorded outside. We used the money we saved on demonstrations to purchase the mic, many of the producers we worked with donated product which reduced demo costs.

We lost an employee and therefore were not able to reach as many youth. Yet we have picked up 5th grade at North Warren Elementary and will have the position replaced in January and will be able to pick up the youth lost during the transition.

Facebook changed the ways pages show up in newsfeeds which has caused us to utilize some money to boost post for the ultimate interaction for each video and related posts. We have also incorporated promotions and giveaways to expand the reach of our followers.

Our featured farmer for February was diagnosed with stage IV colon cancer after accepting to participate. Unfortunately the cancer was aggressive and he passed away before we filmed the episode.

In 2016, two farms that were highlighted went out of business and it was difficult to run the business highlight promotion but we were still able to run the recipe and specialty crop promotion in general.

## Contact Person

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## Final Financial Report

<b>GRANT FUNDS RECEIVED</b>	<b>\$ 17600</b>
<b>GRANT FUND EXPENDED</b>	<b>\$17540</b>
<b>TOTAL REMAINING</b>	<b>\$59.17</b>
<b>LINE ITEMS</b>	
<b>SALARIES/ WAGES</b>	\$
<b>BENEFITS</b>	\$
<b>TRAVEL</b>	\$
<b>EQUIPMENT</b>	\$
<b>SUPPLIES</b>	\$2130.83
<b>CONTRACTUAL</b>	\$15410
<b>OTHER</b>	\$
<b>TOTAL</b>	<b>\$17,540.83</b>

## **Project 4 Title: Marketing Kentucky Grown Nursery Plants and Industry Education**

### **Purpose**

The active membership of the Kentucky Nursery & Landscape Association is comprised of growers, garden center operators and landscapers in the state of Kentucky. The first purpose of this project was to secure funding in order to offer industry education through an education conference to our members. The education conference's purpose is to increase the knowledge of our growers, retail operators, landscapers, and others involved in the green industry in Kentucky from topics such as nursery and greenhouse production, business management, disease & pest management, garden center/landscape maintenance, landscape installation and design, sustainability in the green industry, business management, and personnel training.

Our second purpose was to create a marketing opportunity for our growers through production of a brochure with a map of Kentucky which lists the nurseries in our state and specifically where each grower is located, along with their contact information. We would also include in the brochure our website which contains KNLA's new directory where potential buyers could visit the website to gather more information about each grower and list the Kentucky Department of Agriculture's website page of the Plant Availability Guide for potential buyers to source plant material. These brochures were distributed via website, mail, trade shows, events and other markets

This project is important and timely because all segments of our industry were hit hard by the country's economic down turn and expanding the market place, both in and out of state, to additional potential customers during the slow recovery is a way to assist in keeping firms solvent. By creating this marketing brochure, there would be an avenue for potential sales to our Kentucky growers, the potential impact of additional sales could mean the difference between some small businesses staying in or going out of business.

Industry education is also timely because in our industry practices, procedures, technology, diseases and pests are changing rapidly. Through the education conference our members would stay abreast of these issues and implement them in their own businesses. The education program also addresses sustainability. This includes not only plant selections which will influence home owners benefits and maintenance costs but also production practices and marketing which will reduce input costs and maximize sales.

This project was not submitted to or funded by another Federal or State grant programs. Funding efforts were made through attendee registration, private sponsorship and in-kind services from our co-sponsors.

## **Project Approach, Goals and Outcomes Achieved:**

Five meetings per year in the years 2013, 2014, 2015 of Educational Committee lead by Dr. Robert McNeil. Committee members included University of Kentucky Professors, UK Extension Representatives and Arborist/Botanical Garden Directors. Meetings were held via conference calls and in person. Purpose of meetings were to plan and coordinate education for the 2014, 2015 and 2016 KNLA Winter Educational Workshops and Seminars. Results were 28 presenters in 2014, 28 presenters in 2015 and 20 presenters in 2016.

Four meetings per year in the years 2013, 2014, 2015 of Kentucky Nursery & Landscape Board of Directors, Educational Advisors and Executive Committee lead by Tom Weeks (2013) and Martin Korfhage (2014 & 2015), Past-Presidents of KNLA. Board members and Educational Advisors included University of Kentucky Professors, an Arboretum Director, several Nursery, Landscape and Garden Center Owners and Managers. Meetings were held in person. Purpose of meetings were to plan and coordinate the 2014, 2015 and 2016 KNLA Winter Trade Show and Educational Workshops and Seminars. Successful show/education seminars in all three years.

One distinct, quantifiable and measurable outcome that directly and meaningfully supports the project's purpose is the number of attendees that register for the education conference. The first year (2014) showed marked increases in attendance, going from 300 attendees in 2013 to 425 attendees in 2014. Unfortunately, this did not continue and there was attendance of 250 in 2015 and 165 in 2016. While this may seem unsuccessful, the attendees were overwhelmingly positive when surveyed. Drop in attendance is attributed to the drop in overall attendance at tradeshow and educational seminars in our industry nationwide. In 2015 and 2016, the KNLA Board of Directors made the decision to continue the educational seminars and trade show, but the number of days to attend was reduced from 3 to 2. This was determined by overall cost/benefit analysis as the costs were reduced from \$60,000 per year in 2014 and 2015 to less than \$30,000 in 2016.

Four meetings per year in the years 2014, 2015 of Kentucky Nursery & Landscape Board of Directors, Educational Advisors and Executive Committee, lead by Martin Korfhage (2014 & 2015), Past-President of KNLA. Meetings were held in person. Purpose of meetings were to plan and coordinate the Kentucky Nursery Map to be distributed in December, 2015. Maps were developed electronically and as a brochure and were distributed throughout 2016.

In addition to the above, there were many meetings with vendors, educators/presenters, designers, Nursery owners, general membership and end users.

The Benchmark for the Kentucky nurseries Map was 0 because we had never had a Nursery map prior to the Grant approval. The map was distributed via mail in December, 2016 and January, 2016. The Maps were also distributed electronically through email and was posted as a downloadable (PDF) file on the KNLA.org website. In addition, the brochure was distributed at the Kentucky Turf Council meeting in March, 2016, the Central Kentucky Turf Council in April, 2016 and the Landscape Architects meeting in June, 2016. A survey was distributed electronically in March 2016 to the targeted beneficiaries (Kentucky Wholesale Growers). Response was light, but very positive.

Because of the light response, Kentucky Wholesale Growers were contacted via phone with the following results:

All Growers were contacted and 80 percent responded that their sales had increased by 6% as a result of the Nursery Map project. Many stated that they increased their customer base by 1-3 Garden/Landscape firms, with each firm expecting to spend over \$10,000 with the Grower. We considered this to be a very successful project.

### **Impact/Beneficiaries**

The specialty crop beneficiaries of the project were primarily Kentucky growers. Other beneficiaries were Kentucky retail garden center operators, landscapers, academic professionals, students, and government/municipal professionals in the green industry. A potential of 1,000+ individuals have the potential to be impacted.

The growers were impacted by obtaining new business contacts through the distribution of the marketing brochure through sales of their specialty crops. The growers (and other green industry professionals) were impacted through the education conference immediately by practicing what they have learned and implement new strategies, procedures, technologies into their place of business.

### **Lessons Learned:**

Our industry has changed drastically since the 2008 Great Recession. Most Kentucky Nursery Growers were able to hang on through the Recession only to be broke and in massive debt at the end of the Recession. When applying for the Grant, there were 35 active registered Nursery Growers in Kentucky. By the time we produced and distributed the Nursery Maps, there were only 18 remaining. At the time of this writing, we have lost two more.

However, Nursery Growers in general are very positive and are beginning to be profitable once again. The Nursery Maps Project has substantially increased the opportunity to increase sales. Many of the recipients of the Nursery Maps had no idea many of the Growers existed! This project alone has helped market Nursery Specialty Crops. Many nursery growers are beginning to diversify into alternate Specialty Crops such as fruits, nuts and berries as a result of feedback from Landscapers and Garden Centers. All in all, the Nursery Maps Project has been and continues to be productive and profitable for Nursery Growers.

Education is always essential in moving an industry forward. Kentucky nurseries, garden centers, arborists, architects and landscapers are no exception and this Grant has met its objective of providing affordable education for our constituents. One thing we have learned through this project is how important it is to “think outside of the box” in how we approach education. We have to provide information in a fun and interactive way, provide more hands-on learning, communicate more often and in numerous ways (email, Facebook, Instagram, Twitter, Snapchat and all the others) in addition to traditional classroom. In 2016, KNLA started an “Industry Dirt” blog that has been successful and have enhanced our website to include many links to educational alternatives. The most successful learning though continues to be through our Educational Conference. Some things can remain the same, but still be enhanced and the Grant objective was met through the Winter Education Conference.

**Contact Person:**

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**Additional Information:**

At the time the Grant was awarded, Betsie Taylor was the Executive Director and was responsible for the administration of this Grant. Betsie Taylor is no longer with KNLA. Kim Fritz is the new contact.

**Final Financial Report:**

A full accounting will be provided in January, 2017

<b>Project</b>	<b>Actual Costs</b>
<b>Grant Funds Received</b>	<b>\$20,500.00</b>
<b>Winter Conference &amp; Map of KY Nurseries</b>	<b>\$20,500.00</b>
Winter Conference Speaker Honorariums, Speaker Travel/Lodging and Registration Services and Advertising	\$15,000.00
Nursery Map Project	\$ 5,500.00
<b>TOTAL</b>	<b>\$20,500.00</b>

## **Project 5 Title: Kentucky Specialty Crop Producers Third Party Audit Assistance**

### **Project Summary**

The recent transition away from a tobacco centric agriculture economy has resulted in a large number of inexperienced specialty crop producers in Kentucky. This inexperience and lack of familiarity with third party audits results missed opportunities for these producers as they avoid market opportunities that require third party audits.

This project intended to provide training, continuing education, and facilitate Kentucky Department of Agriculture Plant Marketing personnel to functioning as consultants for specialty crop producers seeking Good Agricultural Practices (GAP) food safety audits.

KDA Personnel acted as audit consultants for specialty crop producers seeking Good Agricultural Practices (GAP) audits. Personnel also offered trainings through various venues to educate producers, producer organizations, cooperative extension and partners on third party audits.

### **Project Approach**

Kentucky Department of Agriculture (KDA) employee Joshua Lindau completed HAACP and Primus GFS Third Party Good Agricultural Practices (GAP) Auditor Training in Salinas, California in 2014. This GFS benchmarked training equipped Mr. Lindau to perform mock audits and help educate partners and specialty crop producers on the practices, procedures and documentation to fulfill the requirements of a third party GAP audit.

After completing HAACP and Primus GFS Third Party Good Agricultural Practices (GAP) Auditor Training Mr. Lindau consulted multiple times with the collegiate research farm at University of Kentucky, who are implemented GAP principles on their specialty crop operations. The University of Kentucky research farm completed a food safety plan with the assistance Mr. Lindau and successfully passed the USDA third party audit. Additionally, Mr. Lindau and additional KDA staff participated in Three (3) University of Kentucky Research Farm education and outreach programs with targeted specialty crop producers from across the state seeking to complete a third party audit to expand their market. Extension specialists, private industry specialty crop partners and KDA staff at the South Farm Research facility in Lexington conducted USDA GAP/GHP Audit Trainings.

More than 40 farm producers and county Extension agents participated in the trainings. Less than 25% of the participants had assessed their farm for food safety practices, created or maintained records verifying food safety practices or had created a food safety plan prior to participating in the trainings.

The partnership with the University of Kentucky has proven very beneficial in the demystification of the third party audit process for Kentucky specialty crop producers.

Mr. Lindau additionally consulted with multiple specialty crop producers considering third party audits. Included the review of farm manuals and conducting mock audits.

Mr. Lindau also is a participant of the University of Kentucky's FSMA/GAP Working Group. This group is dedicated to establishing the necessary resources for Kentucky farmers to successfully meet all requirements of the Food Safety Modernization Act. It is comprised of UK personnel from a myriad of disciplines as well as official from state government.

The Kentucky Department of Agriculture presented at the 2016 January Kentucky Fruit and Vegetable Conference. The presentation was conducted by Adam Watson and was attended by approximately 40 producers. Prior to the conclusion of this grant KDA staff (Adam Watson and Joshua Lindau) have been scheduled to present at the 2017 January Kentucky Fruit and Vegetable Conference regarding Third Party GAP audits and general food safety associated with specialty crop production.

The University of Kentucky has been proactive in completing a USDA Third Party GAP audit at the South Farm to act a model for specialty crop producers seeking to complete a third party audit. UK also created trainings for producers that brought together specialty crop buyers, growers and government resources to facilitate successfully completion of a third party audit.

## **Goals and Outcomes Achieved**

Kentucky Department of Agriculture (KDA) employee Joshua Lindau completed HAACP and Primus GFS Third Party Good Agricultural Practices (GAP) Auditor Training in Salinas, California in 2014. After completing the training

KDA conducted multiple site visits to assist in preparation third party GAP audits (Berea College, University of Kentucky and private producers Lisa Patton, Danny Van Meter, Bryce Bauman), conducted four (4) mock audits on Kentucky farms, attended multiple meetings with the University of Kentucky, University Food Purchasers (Sysco, Aramark, and Piazza Produce), attended the Value Chain Coordination Practitioner's Summit and participated in three (3) University of Kentucky GAP Workshop for Producers (More than 40 participants). KDA staff have also presented at the annual Kentucky Farm Bureau meeting in Louisville (2015 and 2016) and presented at the annual Kentucky Fruit and Vegetable Conference in Lexington (2015, 2016 and will be presenting in 2017).

This grant has helped the Kentucky Department of Agriculture to continue to work with closely with the University of Kentucky Cooperative Extension, Food Safety Branch and Kentucky specialty crop producers and to remain engaged and abreast of the current needs of producers and wholesale buyers.

**GOAL #1:** To increase specialty crop grower knowledge of GAP audit standards through educational programs

GAP audit training program is especially targeted towards the beginning and small- to medium-scale farmers with limited resources who are apprehensive of scientific food safety terms, in particular the term “audit”, and hence are hesitant to take a forward step to pursue this certification. This program is focused on helping the growers and the Extension agents understand the nuts and bolts of the audit process, provide and point them to the available resources, and in particular enable the Extension agents to function as consultants for the GAPs and GHPs audit process at the county level.

Three USDA GAP/GHP Audit Trainings were conducted by the Extension specialist at the South Farm Research facility in Lexington.

Over 40 farm producers and county Extension agents participated in the trainings. Less than 25% of the participants had assessed their farm for food safety practices, created or maintained records verifying food safety practices or created a food safety plan. 38% had participated in a USDA GAP training.

The greatest increase in knowledge was in house packing facilities, storage and transportation, followed by food safety and traceability and recall. Mean scores after training ranged from 3.18 to 3.71.

Participants greatest concerns about USDA GAP/GHP audits is post-harvest handling (44%), and record keeping / documentation (38%).

Participants shared that the most significant impact was from the educational and record keeping resources, food safety and networking with specialists and other producers.

**PERFORMANCE MEASURE:** Increased knowledge measured by post training survey

As a result of the training, participants indicated they are likely or very likely to seek additional resources for food safety procedures, employee training and supervision, and/or best practices in food production (58%, 42%), create or edit their food safety plan (56%, 44%), assess farm to identify resources, evaluate current practices, equipment and environment and create and review documents, logs, and record keeping procedures (47%, 53%). Only 33% indicated they will seek USDA GAP certification.

**GOAL #2:** Increase the number of specialty crop growers successfully completing third party audits.

**PERFORMANCE MEASURE:** Passage of third party audit by clients evidenced by certificate or other documentation.

KDA has found that Kentucky specialty crop growers are not endeavoring to complete a third party audit at the rates that were expected. While third party audits are clearly an industry expectation for wholesale marketing, Kentucky specialty crop growers continue to find alternative marketing channels that do not require third party audits. KDA does perceive that producers are implementing the best practices of GAP on their farms as based on interactions with training participants. Many Kentucky specialty crop producers find the burden of the official audit not to be economically viable.

Many producers seek additional knowledge regarding the process of preparing and passing a third party GAP audit and determine that the additional work and expense are

not economically viable or desirable for their operation. The number of **USDA GAP Certified** operations. At the time of writing this report nine (9) operations in the Commonwealth of Kentucky are USDA GAP Certified operations.

According to USDA, National Agricultural Statistics Service (NASS), in 2007 the Kentucky's specialty crop industry occupied 17,568 acres on 4,112 farms. Prior to 2010 KDA is unaware of any specialty crop producer who had sought GAP certification.

In late 2009 KDA hired a produce marketing specialist specifically tasked with assisting specialty crop producers seeking third party GAP audits. As part of their duties, that employee conducted numerous trainings with producer groups and cooperators and work one on one with a number of producers.

As a result of the produce marketing specialist's efforts, beginning in 2010, six producers and two cooperative handling facilities sought GAP certification. In 2011, four new producers became GAP certified in addition to four producers and one cooperative handling facility continued certification. In 2012, four new producers sought GAP certification in addition to five producers and one cooperative handling facility continued certification.

Producers who have sought third party audits have communicated that the direct involvement and consultation with department personnel was a principal reason for their successful completion of audits. The requirements and nature of these audits is foreign to most producers and they avoid potential markets that require third party audits.

As of August 2012 the KDA employee responsible for assisting with third party audits assumed a new role with duties that no longer allow for them to assist producers and educate KDA's partners.

Additionally, the promulgation of proposed produce regulations by the FDA as part of the Food Safety Modernization Act is leading to some concern and even confusion for the specialty crop community as the evolving regulations reach their final form. The ability for specialty crop producers to be engaged in good agricultural practices and third party audit education prior to the implementation of these regulations allow these producers to better assess the potential impact of these regulations.

With the finalization Produce Safety training guidelines in October of 2016 the KDA continues to plan for the education, clarification and guidance to specialty crop growers to become compliant with FSMA and assist in preparation for third party GAP audits. KDA will continue to conduct training with cooperative extension personnel and specialty crop producers. KDA will continue to seek the appropriate training for employee(s) and continue to aid specialty crop growers through grower's meetings, on farm trainings, one on one consultations and the dissemination of information through university partnerships and cooperative extension

## **Beneficiaries**

The results of the Three (3) University of Kentucky Research Farm education and outreach programs survey's it was determined that greatest increase in knowledge was in house packing facilities, storage and transportation, followed by food safety and traceability and recall. Mean scores after training ranged from 3.18 to 3.71. Participants

greatest concerns about USDA GAP/GHP audits is post-harvest handling (44%), and record keeping / documentation (38%).

As a result of the training, participants indicated they are likely or very likely to seek additional resources for food safety procedures, employee training and supervision, and/or best practices in food production (58%, 42%), create or edit their food safety plan (56%, 44%), assess farm to identify resources, evaluate current practices, equipment and environment and create and review documents, logs, and record keeping procedures (47%, 53%). Only 33% indicated they will seek USDA GAP certification. Participants also shared that the most significant impact was from the educational and record keeping resources, food safety and networking with specialists and other producers.

### **Lessoned Learned**

As noted in the previous reports, many mid-sized specialty crop producers in Kentucky continue to find markets accessible to them without the requirement of a third party GAP audit. These producers are reluctant to expand operations or pursue audits until the promulgation of the final Produce safety rule from the Food Safety Modernization Act. As such the number of growers in Kentucky of sufficient production size that necessitates markets requiring third party audits remains low.

While KDA predicted that the Food Safety Modernization Act would impact Kentucky specialty crop producers, there was no way to foresee the multiple delays in the implementation of the Produce Safety Rules.

The goals of this grant were achieved but not on the scale that was originally believed to be executable. Any future grants endeavoring to educate and assist specialty crop producers regarding third party audits should benefit from the training available due to the implementation of the Produce Safety Rules.

### **Contact Person**

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### **Final Financial Report**

<b>GRANT FUNDS RECEIVED</b>	<b>\$14,000.00</b>
<b>GRANT FUND EXPENDED</b>	<b>\$14,000.00</b>
<b>TOTAL REMAINING</b>	<b>\$0.00</b>
<b>LINE ITEMS</b>	
<b>SALARIES/ WA</b>	\$7822.23
<b>BENEFITS</b>	\$
<b>TRAVEL</b>	\$ 4,278.77
<b>EQUIPMENT</b>	\$
<b>SUPPLIES</b>	\$
<b>CONTRACTUAL</b>	\$
<b>OTHER –</b>	\$1899.00
<b>TOTAL</b>	<b>\$14,000.00</b>

## **Project 6 Title: Determining biological control solutions for challenging pests in cucurbit production systems: the timing of farm management practices**

**Project Title:** Assessing the interactive effects of on-farm management in organic cucurbit production systems.

**PI:** James Harwood

### **Project Summary**

Organic cucurbit production in the eastern United States is limited by damage caused by three insects: 1. cucumber beetle, which vectors bacterial wilt; 2. squash bug, which vectors cucurbit yellow vine disease; and 3. Squash vine borer. Current methods of control are often ineffective and feeding damage and spread of pathogens can account for upwards of 80% loss that equates to \$13 million annually. As a result of limited pest management alternatives many growers in Kentucky and surrounding states avoid growing cucurbits altogether. This project was designed to incorporate ecological and molecular approaches to provide research-based solutions for sustainable organic cucurbit production.

Current pest management alternatives for cucurbit growers focus on excluding the insect vectors with row covers until pollination is needed, at which time the covers are removed and pyrethroid insecticides are applied every 5-7 days. Unfortunately the very high rates of cucumber beetle and squash bug populations in Kentucky make this approach unreliable and cost prohibitive. This project sought to integrate recently developed permeable row covers with introduced pollinators and mulches to provide a holistic approach to insect control. An additional aim was to investigate whether shredded mulch, applied for weed suppression, could enhance natural predator populations that could potentially reduce pest levels.

Considering the rapid growth in consumer demand for organically produced foods, and the inability for growers to respond to this demand by sustainably producing organic cucurbits, this project is very timely. Developing a reliable system that could reduce pesticide use and conserve yield would be a significant contribution to the organic farming community, thereby increasing cucurbit production and farm revenue.

This project was not previously funded by SCBGP.

### **Project Approach**

*Objective 1.* Evaluate the effects of farm management practices on the natural enemy and pest communities.

Field experiments were done in 2014 and 2015 to compare the standard, yet unreliable, pest management system with a new approach that utilizes a recently available row cover material. Traditional row cover systems use a spun-bonded material called Remy that is placed on wire hoops over plants at transplanting. The material excludes insect pests but has to be removed at flowering to allow pollination. One significant limitation to the Remy material is that it limits air movement, which results in very high temperatures in the growing environment, thereby limiting the time it can remain on the plants. After Remy removal insecticides are applied weekly until harvest. Previous studies at the University of

Kentucky Organic Farming Unit have shown that this system is inconsistent and often results in reduced net returns due to pesticide costs and crop loss.

In 2013 a new row cover material made in France became available in the United States for the first time through a Canadian importer. This material, called ProtekNet, is a white plastic mesh material that is sold in several mesh sizes based on the size of the insect that is being targeted for exclusion. ProtekNet has several advantages over Remy, such as increased air movement and ventilation, permeability to fungicides, and enhanced visibility for insect scouting.

At the time of this project there were no published experiments testing the use of ProtekNet for exclusion of cucurbit pests. This two-year project compared the use of ProtekNet with Remy in 'Athena' muskmelon and 'Table Ace' acorn squash production systems. The crops were grown on raised beds covered in black plastic mulch and transplants were covered with the row cover materials at transplanting. The Remy covers were removed at anthesis (when male and female flowers were present and pollination could occur) and pesticides were applied weekly thereafter. The Protek Net was removed for two weeks at anthesis (2 insecticide treatments were used during this period) and reapplied for the remainder of the season. Increased air movement in the ProtekNet allowed for extended duration usage without increased temperatures, which has been found to be yield limiting in the Remy system depending on ambient temperatures. All treatments were replicated four times and treatments were organized in a randomized complete block experimental design.

An additional aspect of this project looked at using shredded straw mulch for weed control and investigating how the mulch may impact natural predator populations and increase yield.

In 2014 for the squash treatments there was no significant difference in marketable yield between the ProtekNet and Remy treatments ( $F=0.17$ ,  $p\text{-value}=0.6829$ ) or ground cover treatments ( $F=2.13$ ,  $p\text{-value}=0.1678$ ). This result was unexpected and potentially based on limited plant growth that was caused by short support hoops that were used in the experiment. These hoops were ones that had been used previously in the standard Remy system. Although there was no statistical difference between the row cover treatments there was a reduction of four pyrethroid insecticide applications, since they were not applied to the ProtekNet treatments after the material was reapplied.

In 2014 for the muskmelon treatments there was a significant interaction with the highest marketable weight being in the plots with ProtekNet and mulch ground cover ( $F=9.26$ ,  $p\text{-value}=0.0102$ ). These results confirmed that using the ProtekNet could result in increased yields and reduced pesticide application. The difference between the muskmelon and squash could be caused by the difference in plant height – the melons are much shorter than the squash and may not have been as greatly impacted by the hoop height.

In 2015 the treatments were repeated but a new hoop system was incorporated in the ProtekNet treatments. This system used 10' sections of ½" electric conduit that was bent into hoops that allowed for increased headspace of 3-4' for plant growth (see picture in section 8 below). This allowed the plants to grow bigger and facilitated the use of introduced bumble bee pollinators. This approach was tested in 'Athena' muskmelon where the ProtekNet was left on for the entire growing season and purchased class C

bumble bee colonies were placed under the covers at anthesis. The idea behind this approach was to create a truly integrated production system, where insect pest were excluded by the ProtekNet, mulch provided weed control, diseases could be controlled through foliar sprays through the mesh material, and pollination could be accomplished through introduced bumble bees.

The yield in 2015 showed significant differences between ProtekNet and Remy (Figure 1). Significantly greater marketable fruit weight was obtained in Protek mesh compared to traditional Remy treatments ( $F=6.37$ ,  $p\text{-value}= 0.0267$ ). Furthermore, the use of mulch in melon production (but not squash) significantly increased yield over bare ground treatments. Additionally, the beehives resulted in a significant increase in yield over the no-hive melon plots ( $F=5.21$ ,  $p\text{-value}= 0.0400$ ). The reduced yield in the Remy treatments was similar to what had been observed on the research farm in previous studies, and indicative of the high insect pest pressure that has resulted from 50 years of cucurbit production on the farm, as well as a particularly period of high temperatures that resulted in plant burning.

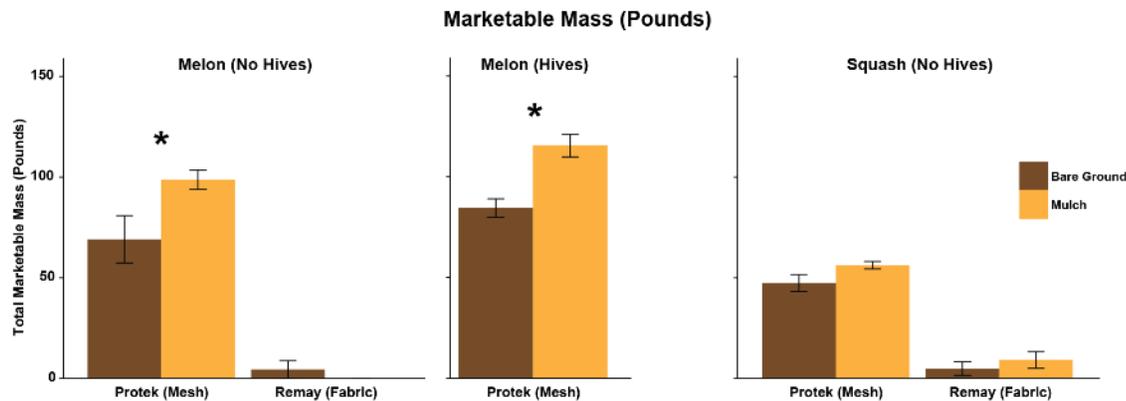


Figure 1. Marketable fruit weight of muskmelon or acorn squash based on 15 plants (replicate size).

When both years of yield data were analyzed there was a significant interaction with the highest marketable weight being in the plots with ProtekNet and mulch ground cover ( $F=6.40$ ,  $p\text{-value}= 0.0176$ ) for melons and squash ( $F=18.39$ ,  $p\text{-value}=0.0002$ ).

This part of the project was led by Co-PI Mark Williams, his Research Analyst Neil Wilson, Kacie Athey (Dr. Harwood's Research Analyst), and Dr. Jamin Dryer (Dr. Harwood's Post-Doc).

*Objective 2.* Modify existing molecular framework to measure the strength of interactions between natural enemies and pests in organic cucurbit crops. *Objective 3.* Evaluate effects of farm management strategies on predation and parasitism rates of target pests.

These objectives were addressed using two approaches: 1. Collect potential ground dwelling predators, parasitoids and detritivores of cucumber beetles and squash bug using pitfall traps; 2. Collect pests (cucumber beetles and squash bug), aerial parasitoids and predators using yellow sticky card traps. These approaches allowed an assessment of whether row covers or mulch treatments could increase known predators to investigate the linkage between predators and pest reduction.

The pitfall traps allowed an assessment of collembolan (detritivores), parasitoids, spiders and ants, and in both years and crops there were no significant differences between the row cover and mulch treatments. The sticky card traps allowed an assessment of the populations of striped cucumber beetle, spotted cucumber beetle, tarnished plant bug, aphids, thrips, parasitoids and potential predators. For both years of the study the ProtekNet row covers reduced both cucumber beetles compared to the Remy treatments (e.g. p-value = 0.0487 in melon in 2015), but there was no statistical difference in the rest of the insects based on row cover or mulch treatments. These results were contrary to our hypothesis that creating a more protective and diverse habitat with mulch would increase predator and parasitoid numbers. These data are currently being evaluated to see if there are any trends that could explain the lack of difference.

The molecular analysis of potential predators to determine if they are capable of preying on cucumber beetle and squash bug has not been completed. All molecular development is complete, predator DNA has been extracted and data is being analyzed. Further sequencing and DNA extraction will be completed, as required for full analysis of samples. This part of the project is ongoing and all necessary reagents have been purchased to allow the completion of the work, which will be done during winter 2016. The goal of this part of the project is to identify which predators are actually feeding on cucumber beetles or squash bug, with the overarching idea that they could be reared and released at levels sufficient to lower pest pressure.

This part of the project was led by PI James Harwood, his Research Analyst, Kacie Athey and Dr. Jamin Dryer (Dr. Harwood's Post-Doc).

### **Goals and Outcomes Achieved**

Two years of field research was completed that compared and scientifically assessed components of a system that could be utilized by organic growers to effectively grow cucurbit crops in regions with high pest pressure. Additionally, two years of predator and parasitoid data was collected. This part of the project revealed that row covers and mulch are not effective at increasing predator populations, however molecular analysis is being done on collected potential predators to confirm that they are capable of feeding on cucurbit pests.

The yield components of this study were completed during the course of the experiment. The molecular analysis of predator gut contents is ongoing and will be completed during winter 2017.

All of the goals set forth in the proposal were completed with the exception of the gut content evaluation, which is currently being executed.

### **Beneficiaries**

In 2016 Kentucky received 128 applications seeking organic certification for crop production. This represents a growth of 32% from 2015. Approximately 50% of the certified operations currently raise cucurbits. Kentucky continues to see receive applications for organic certification with a double digit growth rate. Additionally this research will have regional impact as well, as it will serve to benefit producers with a

similar growing environment to Kentucky. This project was used as part of the research for graduate student, Kacie Athey, who is pursuing her PhD in Entomology and will be graduating in 2017.

The project was presented to over 300 people as part of two field days and two farming apprenticeship classes. The justification for the research, the methodology, and the main findings were presented.

The results from this project were presented at the 2015 Southern Sustainable Agriculture Working Group (SSAWG) annual conference in Lexington, Kentucky in January 2016. There were approximately 100 farmers in the audience for the presentation, which was titled *Sustainable Squash Production*.

Four research posters were presented on this project at the annual Entomological Society of America meetings in Oregon (2014) and Minneapolis (2015).

A manuscript related to this research will be submitted for publication during winter 2017.

Results from this study provided preliminary data that was used in a successful USDA-Organic Transitions Grant submission titled *Reinventing Sustainable Protection Systems For Cucurbit Production*. That project extends the goals and scope of this work. The grant is between Iowa State and the University of Kentucky and the funding is for \$499,974 for three years starting in 2016.

The most significant result of this study was to confirm that using a system that integrates ProtekNet with electrical conduit hoops with mulch for weed control and introduced pollinators could result in excellent pest control. This system was optimized in 'Athena' muskmelon in 2015 and resulted in yields of 9,056 melons per acre, which was 96% of the yield for 'Athena' grown using conventional practices on the same research farm. If a conservative wholesale price of \$2.00 per melon could be achieved then gross sales would be \$18,112 per acre. Typical total cost for producing muskmelon in our region is \$10,776 per acre, excluding the ProtekNet, hoops and hold-down bags. The cost of all three components is \$7,070 per acre. Although this is a considerable expense, the projected life expectancy of the ProtekNet and hold-down bags is 5-10 years and the hoops should last for 15-20 years. The bumble bee pollinators add another \$250 per acre to the production cost. If melons were sold at a retail organic price premium then the net returns could be substantially higher.

Considering the difficulty of growing organic cucurbits in our region due to lack of effective pest management options, this system, which has now been shown to be capable of producing yields similar to conventional systems, could provide an effective option for growers trying to capture the ever-increasing demand for organically grown crops.

### **Lessoned Learned**

First year results from this study were surprising in that there was no difference between the ProtekNet and Remy covers. This was attributed to the reduced growing area caused by the low hoops that are commonly used to support Remy covers. In year two a new approach to hoop design was utilized to take advantage of the ProtekNet's ability to remain on the plants for the duration of the growing season. These taller hoops allowed for unconstrained growth that resulted in increased yield.

An unusually hot period in 2015 resulted in extremely high temperatures under the Remy covers that greatly reduced fruit yield. This had been observed in the past and further illustrated the need for new materials with better ventilation.

The most significant surprise of this study is that using shredded straw mulch was not capable of increase potential predators of cucumber beetle and squash bug. The hypothesis of this part of the project was that using surface-applied mulch would increase structural complexity that would create a better habitat for insect predators, such as spiders, compared to bare ground. One explanation for this result is that the early season destruction of the system that is done through tillage and bed installation reduces insect populations to a level that they do not build back during the time required to grow these crops. While there still may be opportunities to identify pest predators and release them under the covers, it seems unlikely that habitat modification will be capable of predator recruitment at a level that could impact cucurbit pests.

Another unexpected result of this study is that using very effective exclusion techniques such as the ProtekNet full-season system (with bumble bees), can lead to aphid outbreaks under the covers. Presumably the mesh size that excludes cucurbit pests is not small enough to exclude aphids and without natural predators, populations quickly explode. This was addressed by releasing purchased lady beetles under the tunnels and they controlled the aphid populations.

### Contact Person

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### Additional Information



**Figure 2.** ProtekNet used with electrical conduit hoops in a muskmelon production system.

## Final Financial Report

<b>GRANT FUNDS RECEIVED</b>	<b>\$ 49,502</b>
<b>GRANT FUND EXPENDED</b>	<b>\$ 49,502</b>
<b>TOTAL REMAINING</b>	<b>\$ 0</b>
<b>LINE ITEMS</b>	
<b>SALARIES/ WAGES</b>	\$ 25,001
<b>BENEFITS</b>	\$ 0
<b>TRAVEL</b>	\$ 1,500
<b>EQUIPMENT</b>	\$ 0
<b>SUPPLIES</b>	\$ 18,500
<b>CONTRACTUAL</b>	\$ 0
<b>OTHER</b>	\$ 4,501
<b>TOTAL</b>	<b>\$ 49,502</b>

## **Project 7 Title: Growing Warrior's Specialty Crop Extension Projects**

### **Project Summary**

Veterans often return to civilian life un- or underemployed and/or with injuries or disabilities, and with skills often unrecognized by civilian workplaces and inadequate mental and physical health care. Local economies and small-scale agriculture are struggling in today's economic climate. But regional food system development has the potential to counter and improve local crop pricing and distribution networks; this is what Growing Warriors seeks to accomplish. Veterans have unique skills – decision-making in the field, long-term planning, and the ability to do physical work outdoors in addition with a desire to serve their country. Growing Warriors with its many partners provides education and training to veterans and their families in growing food for themselves, their communities, and their country. This project will allow Growing Warriors to add specialty crops to their programs and build programs based on specialty crops in Kentucky. By expanding the Growing Warriors programs with specialty crops, more veterans will be able to receive training and support in agriculture and new specialty farmers will be added to Kentucky's market.

The goal of this project was to introduce specialty crops to community garden sites and educational farms that would create educational opportunities for Veteran and underserved populations while providing a potential revenue stream for the sites. The primary motivation for this project came from some of Growing Warriors first community garden participants desire to generate extra revenue while gardening at home on a small scale. The introduction of higher valued specialty crops creates a unique value add for these producers. In the case of this project, we added blueberry crops to our partner's sites to demonstrate this process. The other primary goal was to bring community members together for educational and social events that are centered on the importance of local agriculture.

### **Project Approach**

Madisonville Kentucky Growing Warriors Garden: At this site we Transplanted .75 acres of Blueberries from containers into permanent locations. With the help our newly hired team leader at this site we have begun community outreach to educate the community about the project and identifying other Veterans in the community that may participate. This site has been supported by the local VFW and other Veteran and community organizations. During the transplanting over 50 community members joined in to volunteer assistance. With all the transplants in the ground we anticipate our first harvest in the summer of 2016 and creating its first value added KY Proud products with them by the fall of 2016. This garden site is now able to support dozens of food insecure Veterans and their families. It took us longer than anticipated to locate a qualified team leader for this sight. This sight is on time and meeting our expectations despite the delay in locating a team Leader. University of KY assisted with the soil sampling and amendments and KY Blueberry Cooperative assisted with Training and

education. This site currently has four Veterans and their families participating. Our primary difficulty with this site lies in its distance from our normal operating area.

Peacemeal Gardens, Lexington Kentucky: At this site we transplanted and amended and supplemented the soil for a half an acre. The transplanting and Amendment process was aided by service learning groups from Bluegrass community and technical college and DePaul University. This garden provides access to five Veteran Families and over twenty community members. We also secured local funding and added a solar irrigation system that will keep the trees irrigated and performing. University of Kentucky provided soil tests and Bluegrass Blueberry Cooperative provided educational resources. The garden has been value adding the blueberries from this crop into several products which are sold at the gardens events. The funds from these products have allowed them to expand their gardens and add more services.

Laurel County African American Heritage Center, London, Kentucky: Created partnership and in the spring of 2015 we delivered 200 repotted Blueberry bushes which were transplanted in the fall of 2015. This garden provides access to fresh fruits and vegetables to underserved minorities in rural and urban food deserts. This site services over thirty families in the local area with much of the food going to food pantries. It took us a little longer to identify and partner with this site than we expected but the repotting of the plants in the spring has not impeded production in any significant manner. Berea College's Grow Appalachia provides continuing educational support and Growing Warriors provided additional educational opportunities with a series of workshops. The primary outlet for the blueberries, which began production in the spring of 2106, is through the center which provides nutritional support to community members with weekly food baskets. This partnership has led to more opportunities for the two organizations to work together on projects in the region. The close proximity of this site makes plays a big role in our ability to collaborate on current and future projects, including small scale aquaculture and mushroom production. Louisville Departments of Veteran Affairs, Louisville Kentucky: This year with the support of Brain Injury Alliance of Kentucky and the University of Kentucky Agrability project we installed educational production based garden at an inpatient drug rehab facility. The facility uses the programs as a tool for teaching nutrition and recovery through working outdoors with your hands. This facility serves 35 veterans. Monthly classes are taught by Growing Warriors staff. Part of this site includes an inner city homeless shelter that services over 15 Homeless Veterans. As this is an urban setting the blueberry bushes were placed into containers for ease of maintaining. These trees will produce fruit in the summer of 2016 and will be used as part of the dietary training program from the facilities food and nutrition specialist. We also receive educational support from local Master Gardener's club and University of Kentucky extension service. It took us longer to get this site established due to bureaucratic procedures at the Department of Veterans Affairs, as such the site at the

Homeless shelter on Martin Luther King Boulevard was completed first. This site provides veteran a place within the city to learn to grow their own food but also provides them with a space to heal in. We have secured funding for continuing education with our partner's at Kentucky State University and the National Center for Appropriate Technologies that will incorporate Veterans and the local refugee communities. This site continues to serve as a therapy space for Veterans receiving in patient drug rehabilitation. The products from the garden are used in the facilities kitchen and for nutritional classes for the residents. Growing Warriors is currently searching for a site leader to conduct monthly classes for the residents and assist in production planning.

Growing Warriors Training Farm, Livingston Kentucky: This farm is a partnership with Iroquois Valley Farms, The National Center for Appropriate Technologies, Kentucky State University, The Savory Institute, and several for profit businesses. This farm will provide short and long term educational opportunities for Veterans from around the country. This year eight local community members and Veterans from four states participated in planting one half acre of Blueberry bushes and provided two workshops on Blueberry production in partnership with Kentucky State University. The National Center for Appropriate Technologies provided significant educational material for all participants. The plants produced a small crop this year which was sold to a local diner and community members who picked their own. The crop is tended by various neighbors who we contract on an hourly basis until the first two Veteran interns arrive in May of 2017. The goal of this crop is to serve as an educational model for small to medium scale producers. Bluegrass Blueberry has been a tremendous support in terms of production support and market development and as such the bulk of this crop for the foreseeable future will be purchased by them. Based upon the revenue projections this crop will support several seasonal part time jobs and has already had some direct impact on the local economy. This will demonstrate the long term viability of introducing small scale specialty crops like blueberry into small and medium sized farming operations.

To date we have registered fifty-five participants across the state. Training has been performed for each of the sites Team Leaders and ongoing participant trainings begins in May of 2016 and will continue on a monthly basis for the remainder of the season. Programming was matched with two other beginning farmer grants, one focused on value added production and food safety which began in May of 2016, as well as a business development training program which takes place over the next 12 months at different locations and times throughout the state.

## Goals and Outcomes Achieved

Goal #1: Has been completed at this time. We have added five new sites and a new training farm. Each of these sites has a dedicated manager to assist with development of the program and education. One of these sites, a homeless shelter in Louisville Kentucky has only around 1000 square feet of growing space. Each of these sites has ongoing educational programs and opportunities for farmers and community members. As expected that the knowledge about growth, culture, preparation, preservation, and marketing of specialty crops has increased significantly among veterans and community members participating in Growing Warriors' programs. We have located and engaged veterans with that had prior working knowledge in some of the aspects of specialty crops and incorporated them as mentors and trainers for new enrollees into the programming.

While we experienced some delays in identifying the sites in the end we exceeded our goal of four new sites. Each site contains a minimum of 2,000 square feet of growing space for specialty garden crops and adjoining plot for fruits, nuts, and berries. And a minimum of five veterans and their families are producing on some level at each new site.

The addition of the specialty crops to our partner sites has provided us the opportunity to educate one hundred percent of our site participants on the production and marketing of specialty crops. In addition to the veterans in our programs, over 100 community members across the commonwealth also received education and practical knowledge about the growth, culture, preparation, preservation, and marketing of specialty crops. Our participant's knowledge of the growth, culture, preparation, preservation, and marketing of specialty crops increased 100% among veterans and community members participating in Growing Warriors' programs.

Goal #2: Was primarily accomplished with the support of The National Center of Appropriate Technologies. With their support we have distributed curriculum materials to over 65 participants in Kentucky. With their support we are continually adding supplemental materials to each participant on a regular basis.

Goal #3: All of the existing and new sites have had the specialty crops added to them at this time. Sites include Lexington, Louisville, Eastern Kentucky, Madisonville, and London. Training of all site managers was completed. The first crops from all of the additional sites have reached markets.

Goal #4: The addition of handicapped accessible specialty crops was established with the support of University of Kentucky Agrability project and currently four of the sites have some level of accessibility for disabled participants. With the support of Agrability

we have been able to increase accessibility and will continue to do so in the coming months.

## **Beneficiaries**

While the primary target was Kentucky's Veteran population, we provided support to several other populations including minority and socially disadvantage members of the community as well. While the project still requires some supplemental revenue from Growing Warriors, we anticipate each site being able to generate the \$3500 in maintenance and upkeep required for the specialty crops as the crops yields will increase as the plants mature over time. The only exception to this will be the site at the Departments of Veterans Affairs in patient treatment facility in Louisville. We have located additional financial support for the continuation and expansion of this site from other foundation supported of Growing Warriors. Currently this project has provided fifteen Veterans in Kentucky with supplemental income and this number is expected to grow as production and markets increase.

## **Lessons Learned**

This project was a real eye opener for all of our team. While the work was worthwhile and beneficial, participating in the grant really allowed us to understand our place in community development. It allowed us to clearly define what we are good at and where our shortcomings are. In short, this project allowed us to clearly define the limitations of our work and subsequently also allowed us to better understand the roles our partners could play in supporting our work. It has gone a long way towards articulating our weaknesses and strengths as an organization. This has allowed us to streamline our services and be more effective at what we do. It has also helped us solidify which partners are more effective for which piece of our projects. The most important thing we determined is that while we can organize and educate people effectively, our shortcomings on the administrative side created more work for us than it should have. These shortcomings allowed us to strengthen our relationships with our partners in the future and let others do what they do well, in turn letting us focus on our organizational strengths and taking a backseat on things we are not good at. Our shortcomings on the administrative side made more work for us organizationally than it should have and we have determined internally with the support of our board that Growing Warriors is more effective when we are not the lead on projects as complex as this.

## Contact

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## Financial Report

<b>GRANT FUNDS RECEIVED</b>	<b>\$ 44,896.00</b>
<b>GRANT FUND EXPENDED</b>	<b>\$ 44,896.00</b>
<b>TOTAL REMAINING</b>	<b>\$ 0.00</b>
<b>LINE ITEMS</b>	
<b>SALARIES/ WAGES</b>	\$ 8970.00
<b>BENEFITS</b>	\$
<b>TRAVEL</b>	\$ 2262.00
<b>EQUIPMENT</b>	\$ 596.00
<b>SUPPLIES</b>	\$ 13386.00
<b>CONTRACTUAL</b>	\$ 3200
<b>OTHER (VETS/ICR)</b>	\$ 16519.00